

Université de Montréal

Locomotion et répartition spatiale  
chez le bivalve d'eau douce *Elliptio complanata*

par

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Cette thèse intitulée:

Locomotion et répartition spatiale  
chez le bivalve d'eau douce *Elliptio complanata*

présentée par:

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## Sommaire

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Cette thèse porte sur la locomotion de la moule d'eau douce *Elliptio complanata* et tente de faire ressortir le lien existant entre les mouvements de ce bivalve et les conséquences écologiques de sa répartition spatiale dans le milieu.

L'intérêt d'étudier la locomotion chez les animaux provient de l'importance qu'occupe cette action sur un grand nombre de processus fondamentaux en écologie. La dynamique spatiale issue du déplacement des organismes devient un élément critique soutenant les théories de compétition, reproduction, croissance, interaction prédateur-proie, comportement social, etc.

Chez la moule d'eau douce, bien que quelques études décrivent la mécanique de la locomotion, plusieurs questions subsistent quant aux motifs poussant ces organismes à se déplacer. Afin de répondre à certaines de ces questions, des mesures *in situ* de positionnements de la moule *Elliptio complanata* ont été faites sur une population de 781 individus sur une période s'échelonnant sur près de trois ans. L'analyse des positions a permis de quantifier le taux de locomotion de ce bivalve et d'estimer la variation du niveau d'agrégation spatiale de la population sur une échelle temporelle saisonnière.

Le premier article traite de la distribution verticale de la moule *E. complanata* et de la dynamique saisonnière d'enfouissement conférant à la moule une po-

sition épibenthique prépondérante durant la saison estivale et endobenthique durant l'hiver. Les résultats montrent qu'une fraction importante de la population (18%) demeure en position endobenthique durant la période d'émergence maximale. De plus, cette fraction endobenthique est représentée par des individus ayant une taille significativement plus petite (moules juvéniles) que la fraction de la population se trouvant en position épibenthique. Se limiter à l'échantillonnage épibenthique seulement sous-estimerait sérieusement la biomasse et la production des moules unionides.

Le deuxième article aborde en détail la variation saisonnière du mouvement vertical et horizontal chez *E. complanata*. Le taux de mouvement des moules ne diffère pas entre le jour et la nuit. Peu de moule bouge et le déplacement moyen se fait sur de courtes distances. Le déplacement vertical est corrélé avec la température de l'eau alors que le déplacement horizontal est corrélé avec la durée du jour. Le taux maximal de déplacement horizontal pour cette population coïncide avec la période de reproduction chez *E. complanata*.

Le troisième article examine la variation temporelle de l'état d'agrégation de cette population. Les résultats montrent un lien complexe entre le déplacement des moules et l'agrégation, suggérant un rôle reproducteur à la locomotion chez *E. complanata*. Le taux de déplacement chez les mâles, les femelles ou les hermaphrodites demeure similaire en tout temps. Aucune relation n'a pu être établie entre le taux de déplacement chez les femelles gravides et le pouvoir reproducteur.

**MOTS CLÉS:** UNIONIDAE AGRÉGATION MOUVEMENT REPRODUCTION

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## Liste des sigles et abréviations

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ANOVA =	Analyse de variance
CaCO <sub>3</sub> =	Carbonate de calcium
$f$ =	Fonction
$l$ =	litre
Log =	Logarithme en base 10 d'une variable
$n$ =	Effectif
N =	Degré de latitude nord
$P$ =	Coefficient de probabilité
$r$ =	Coefficient de corrélation de Pearson
$R$ =	Coefficient d'une distribution aléatoire
$r^2$ =	Coefficient de détermination d'une régression simple
$R^2$ =	Coefficient de détermination d'une régression multiple ou polynomiale
SCUBA =	Equipement de plongée autonome
$SD$ =	Ecart-type
$W$ =	Degré de longitude ouest
$\Sigma$ =	Sommation

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# Chapitre 1

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## INTRODUCTION

## 1.1 Les organismes sont agrégés dans l'espace

Il est reconnu depuis longtemps que les êtres vivants, animaux ou végétaux, ne sont pas répartis uniformément dans les milieux naturels (Lussenhop 1974; Downing 1979; Taylor 1984; Oksanen 1990; Cooper *et al.* 1997). À l'opposé du mécanisme de dispersion des éléments inertes dans un monde physique, le procédé de dispersion dans le règne animal ou végétal, essentiellement dû à la capacité à répondre aux fluctuations du milieu, rend peu probable l'observation d'une distribution aléatoire chez les populations d'êtres vivants (Taylor *et al.* 1978). De ce fait nous retrouvons ces êtres soit agglomérés, soit dispersés ou simplement absents d'un milieu donné.

L'environnement physique dans lequel évoluent les organismes présente aussi des caractéristiques spatiales non-homogènes qu'on qualifie généralement en termes d'hétérogénéité spatiale. Les composantes chimiques et les forces physiques de chaque habitat sont grandement variables tant spatialement que temporellement (Wetzel 1983; Robertson *et al.* 1988; Downing 1991; Roese *et al.* 1991). Le lien écologique qui unit les facteurs biotiques et abiotiques se traduit, selon Taylor (1984), par la réaction que présente chaque organisme aux caractéristiques propres et variables du milieu, créant ainsi une dynamique de leur répartition spatiale. Cette dynamique est cependant complexe. Elle peut être fonction non seulement de l'effet de la non-uniformité de l'habitat, mais aussi du comportement animal soit de l'attraction ou de la répulsion entre les individus ou groupes d'individus (Brown et Orians 1970; Chesson et Rosenzweig 1991). La relation en-

tre l'hétérogénéité spatiale du milieu et la répartition des organismes représente un domaine d'étude important en écologie: l'étude de l'agrégation spatiale.

## **1.2 Bref historique de l'étude de l'agrégation spatiale**

Les premiers travaux traitant de l'agrégation spatiale remontent aux années 1870 avec les travaux de Victor Hensen en Allemagne (Lussenhop 1974). Ce physiologiste, intéressé par la vie marine, fut un pionnier dans le développement de méthodes statistiques d'échantillonnage. À cette époque, Hensen voulut estimer le stock de poissons (morue, plie et flétan) à l'aide d'échantillons quantitatifs d'oeufs pélagiques de ces espèces, ainsi que de l'abondance du plancton, la principale nourriture disponible pour ces poissons. L'axe de ses travaux était dirigé essentiellement par le besoin de prédire la productivité des pêcheries.

De cette époque jusqu'à la période de la seconde guerre mondiale, l'écologie fut préoccupée avant tout par la description des communautés de plantes et d'animaux. La distribution spatiale des organismes en tant que discipline était durant cette époque très superficielle et rudimentaire.

Le véritable intérêt pour l'étude de l'agrégation spatiale n'a pris son essor que vers les années 45-50 de notre siècle. L'écologie s'est alors orientée vers la description de processus et de mécanismes beaucoup plus complexes tels la crois-

sance des populations, les flux d'énergie, les cycles de nutriments, les niveaux d'organisation et de régulation des communautés, etc. (Gorham 1990).

De nos jours, il est bien reconnu que plusieurs concepts fondamentaux en écologie (théories de compétition, de reproduction, de succession, de croissance des populations, d'interaction prédateur-proie, de comportement social, de parasitisme, de maintien de la diversité des espèces, de la génétique des populations, etc.) dépendent de l'état de l'agrégation des populations (Legendre et Fortin 1989; Roese *et al.* 1991; Wilson et Hassell 1997). La position spatiale qu'occupent les individus les uns par rapport aux autres devient un élément clé et les conséquences de cet état sont multiples et d'une grande complexité (Naeem et Colwell 1991).

### **1.3 Les avantages et les inconvénients d'être agrégés**

La plupart des travaux sur les patrons d'agrégation des animaux considèrent que le fait de vivre en groupe implique une variété étendue de coûts et de bénéfices (Caraco *et al.* 1980). Les avantages les plus fréquemment mentionnés dans la littérature se traduisent par une augmentation des chances de survie ou de reproduction en diminuant le risque d'être parasité (Itô *et al.* 1988), ou capturé par un prédateur (Hamilton 1971; Taylor 1976; Rasmussen et Downing 1988; Knowles et Weigl 1990; Chesson et Rozenzweig 1991; McLaughlin et Roughgarden 1991).

D'autres avantages de la vie en groupe se manifestent par une plus grande facilité à exploiter les ressources (Lack 1966; Brown et Orians 1970), ou à défendre un site d'alimentation (Paker *et al.* 1990; Williams 1992), ou encore un territoire (revu par Brown and Orians 1970). De plus, le comportement social, l'adaptabilité individuelle (Tanaka 1991; Richards et Packer 1995), et les chances de persistance des populations (Murdoch *et al.* 1985) s'en trouvent renforcés. Finalement, l'agrégation contribue à la stabilité de la dynamique de la population (Ives et May 1985) et facilite la rencontre d'un partenaire sexuel (Timms et Kleerekoper 1972; Benhamou 1989; Harrington *et al.* 1990).

Parmi les coûts associés à l'agrégation spatiale on remarque une augmentation de la compétition intraspécifique (Hamilton 1971; Waser 1985; Rasmussen et Downing 1988; Hochberg et Lawton 1990; Caraco *et al.* 1995), une dégradation de l'habitat due à l'exploitation sévère des ressources (Györffy et Karsai 1991), des coûts de déplacement élevés lors des migrations (Baker 1978, Dodson 1990; Berthold et Therril 1991), ou lors de la recherche de nourriture (Itô *et al.* 1988), une diminution de la variance génotypique par isolation génétique, chez certaines populations (Waser 1985; Leberg 1992; Whitlock 1992; Baur et Baur 1993; Good *et al.* 1997) et, plus récemment, une réduction de la stabilité de la dynamique de la population observée dans les cas extrêmes d'agrégation (Taylor 1993; Taylor 1997).

## 1.4 Le rôle de la locomotion

De façon générale les populations tendent vers un équilibre entre les avantages d'être agrégées et ses inconvénients (Packer *et al.* 1990). Cet équilibre est obtenu par le déplacement physique des organismes les uns par rapport aux autres selon une dynamique temporelle associée aux divers besoins spécifiques tel que la reproduction, la protection, l'alimentation, etc. De même, plusieurs caractéristiques des populations incluant la structure en âge, le taux de croissance, la fécondité, la mortalité, etc. sont directement influencées par le changement de position spatiale relative des individus. L'étude du déplacement animal devient, de ce fait, un élément fondamental de l'analyse spatiale (Roese *et al.* 1991).

L'analyse spatiale a pour objet l'analyse des patrons de déplacements ainsi que des caractéristiques propres des mouvements d'organismes, qu'il s'agisse d'animaux migrateurs (Berthold et Terrill 1991), d'individus sédentaires (Baur et Baur 1993; Roese *et al.* 1991), ou même sessiles, si leurs larves peuvent se disperser (Hughes 1990). La locomotion devient un moyen pour chaque population d'optimiser les effets entre les avantages et les inconvénients de l'agrégation spatiale. L'étude des patrons spatiaux se révèle en conséquence un champ où s'allie de près l'éthologie et l'écologie (Ives 1995).

## **1.5 L'importance des changements de configuration spatiale**

Beaucoup de travaux ont été faits depuis les vingt-cinq dernières années dans le but de modéliser la dynamique des populations. L'importance de l'approche spatiale y est soulignée par une littérature abondante traitant surtout d'interrelations entre différentes populations ou entre des populations et leur habitat. Peu d'études ont été réalisées sur les changements de configurations spatiales des organismes (Ives et May 1985; Taylor 1990). Les divers patrons spatiaux observés n'ont fourni jusqu'à ce jour qu'une "image" plutôt vague de l'agrégation et de ses conséquences. Ceci est dû en partie par le fait que les modèles empiriques et statistiques demeurent peu flexibles face à la complexité de l'ensemble des processus impliqués (Miller et Carroll 1989).

## **1.6 Outils et approches classiques**

L'analyse spatiale a pour objet l'évaluation quantitative des variations de positions, ou des changements d'orientations des organismes, sur une surface ou dans un volume donné. Si dans certains cas le type de patron spatial est apparent, dans d'autres cas, l'écologiste devra recourir à des outils quantitatifs, en l'occurrence des indices d'agrégation. Ces indices serviront à décrire d'une façon explicite un patron spatial ou encore à tester si la distribution observée est significative-



ment différente d'une distribution aléatoire (Patil et Stiteler 1974). Les différents indices retrouvés dans la littérature peuvent être regroupés en deux catégories selon que les échantillons proviennent de quadrats, ou de mesures de distances (Patil et Stiteler 1974).

Parmi les outils les plus fréquemment rencontrés dans la littérature pour l'évaluation des niveaux d'agrégation, on retrouve le rapport *variance:moyenne* ( $(s^2 = am^b)$  de la loi de Taylor (1961)) qui permet de déterminer si la population est distribuée aléatoirement ( $s^2 = m$ ), de façon agrégée ( $s^2 > m$ ), ou uniforme ( $s^2 < m$ ). On rencontre aussi de plus en plus d'outils issus du domaine de la géostatistique qui visent à déterminer le degré de dépendance entre les observations (autocorrélation spatiale) basé sur la distance et l'orientation des différents échantillons. On y utilise notamment des corrélogrammes, des tests de Mantel, des ordinations et groupements (Upton et Fingleton 1988; Legendre et Fortin 1989; Schotzko et O'Keeffe 1990; Schotzko et Smith 1991). D'autres approches, moins fréquemment rencontrées, utilisent le paramètre  $k$  de la distribution binomiale négative ( $k = \mu/\sigma^2 - \mu$ ) selon laquelle une population serait distribuée aléatoirement lorsque  $(1/k) = 0$ , agrégée lorsque  $(1/k) > 0$ , et distribuée régulièrement lorsque  $(1/k) < 0$ . On rencontre aussi l'indice  $I_\delta$  de Morisita qui est une mesure de concentration, ou de diversité d'individus classifiés en groupes. Le *Lloyd's Mean Crowding Index* est aussi utilisé et tient compte du patron spatial et de la densité. Enfin, on retrouve l'indice d'*Iwao* qui est fondé sur la relation linéaire entre le *Lloyd's Mean Crowding Index* et la densité moyenne de la population. L'ordonnée à l'origine de cette relation représente une mesure du groupement alors que la pente décrit la disposition spatiale du groupement. Finalement on retrouve l'analyse du plus proche voisin (*Nearest*

*Neighbor Analysis*) dans laquelle la distance moyenne du premier voisin permet, selon une procédure particulière, de quantifier l'éloignement de la distribution observée par rapport à une distribution aléatoire. Cette approche nécessite la position géographique de chaque individu. Cette liste de méthodes couramment utilisées n'est pas exhaustive. De nombreux exemples, descriptions et critiques de ces outils sont donnés dans Patil and Stiteler (1974), de même que dans Downing (1991).

## 1.7 Intérêt de la moule unionide

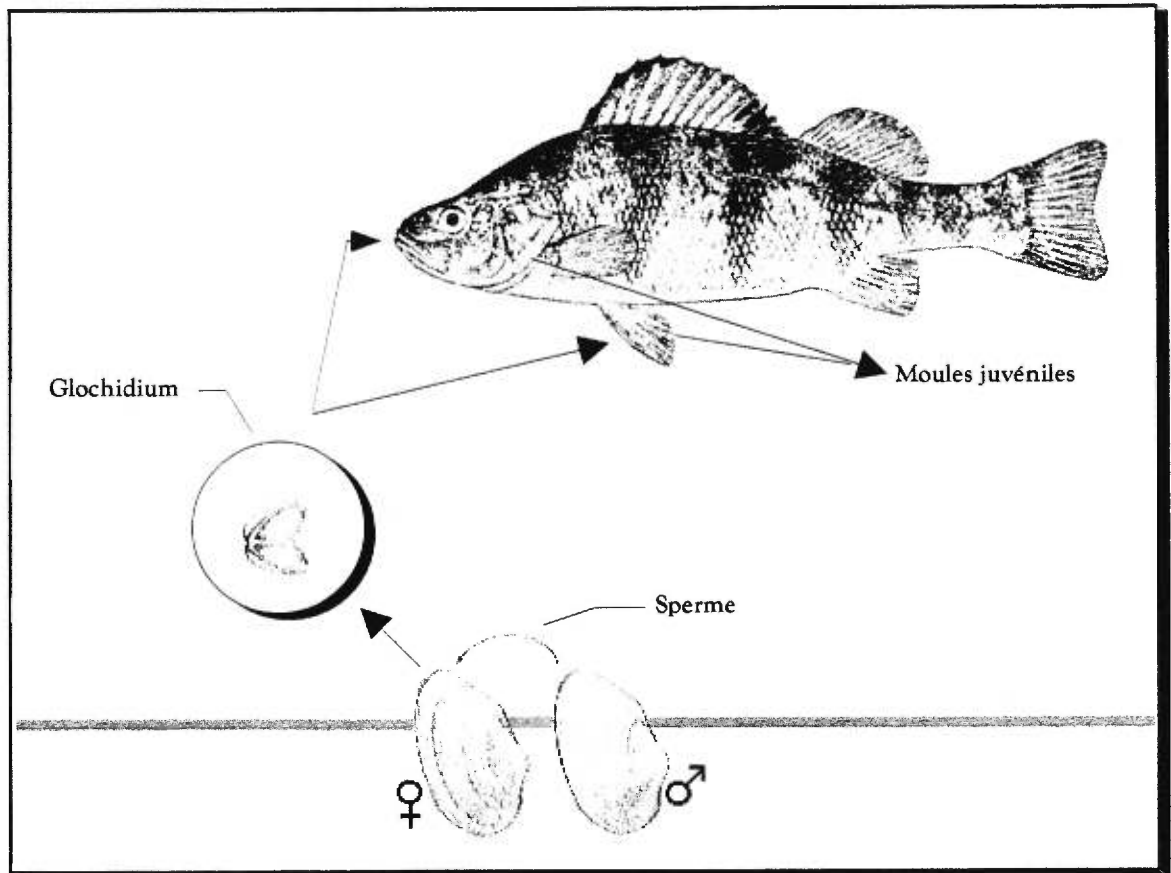
En milieu naturel, la distribution non homogène des individus est omniprésente. Ceci est particulièrement remarquable dans les habitats aquatiques (Pinel-Alloul *et al.* 1988; Downing 1991; Pinel-Alloul 1995). Parmi l'ensemble des organismes présents dans ces milieux, la moule unionide, aussi appelée bivalve d'eau douce, est un macro-invertébré très répandu dans nos lacs et rivières et constitue un maillon très important de ces écosystèmes. On la retrouve sur tous les continents (sauf en Antarctique) et elle atteint la plus grande diversité en espèces à l'Est de l'Amérique du Nord où 281 espèces et 16 sous-espèces sont dénombrées (Williams *et al.* 1993). L'importance économique des moules unionides demeure non négligeable, particulièrement en Amérique du Nord. Avant la venue du plastique, on récoltait de grandes quantités de moules pour leurs coquilles utilisées dans la manufacture de boutons (Coker 1921). Aujourd'hui, la valeur commerciale des

moules se reflète par l'utilisation des coquilles dans l'industrie perlière. Après avoir été coupées, arrondies et polies, les parcelles de coquilles sont exportées pour la production de nuclei perlier chez les huîtres cultivées. La valeur annuelle des exportations est estimée à quelques 20 millions \$.

La moule unionide présente plusieurs qualités d'ordre pratique pour l'étude de la distribution spatiale et offre une polyvalence concernant la variété d'études auxquelles on peut la soumettre. Elle présente des relations écologiques particulières. À titre d'exemple, plusieurs espèces de moules d'eau douce ont un stade larvaire parasitaire avec certains poissons (Matteson 1948) ou autres vertébrés aquatiques (Howard 1951; Watters 1997), essentiel à leur cycle vital. Les larves de moules, aussi appelées glochidia, se fixent préférentiellement sur les branchies du poisson hôte, et quelques fois sur les nageoires pendant le stade parasitaire, et entament un processus de métamorphose qui s'échelonne sur une période d'environ quatre semaines (Fig. 1). La présence de glochidia sur les branchies des poissons forme des cystes qui peuvent incommoder et même être fatal pour l'hôte (Matteson 1948) (Fig. 2). De plus les moules peuvent, par leur mode de nutrition (Tessier *et al.* 1984) et leur taux de filtration élevé (Price et Schiebe 1978; Libois 1988; Ogilvie et Mitchell 1995; Kiibus et Kautsky 1996) influencer grandement la communauté de phytoplancton et présenter un potentiel d'épuration des eaux (Matteson 1955; Nalepa *et al.* 1991; Ogilvie et Mitchell 1995). L'importance des moules unionides dans les écosystèmes aquatiques se reflète par une abondance pouvant représenter jusqu'à 90% de la biomasse benthique (Ökland 1963; Mann 1964; Negus 1966). Sa taille relativement grande fait d'elle un organisme facile à manipuler et, bien que ce ne soit pas clairement démontré, elle semble insensible à

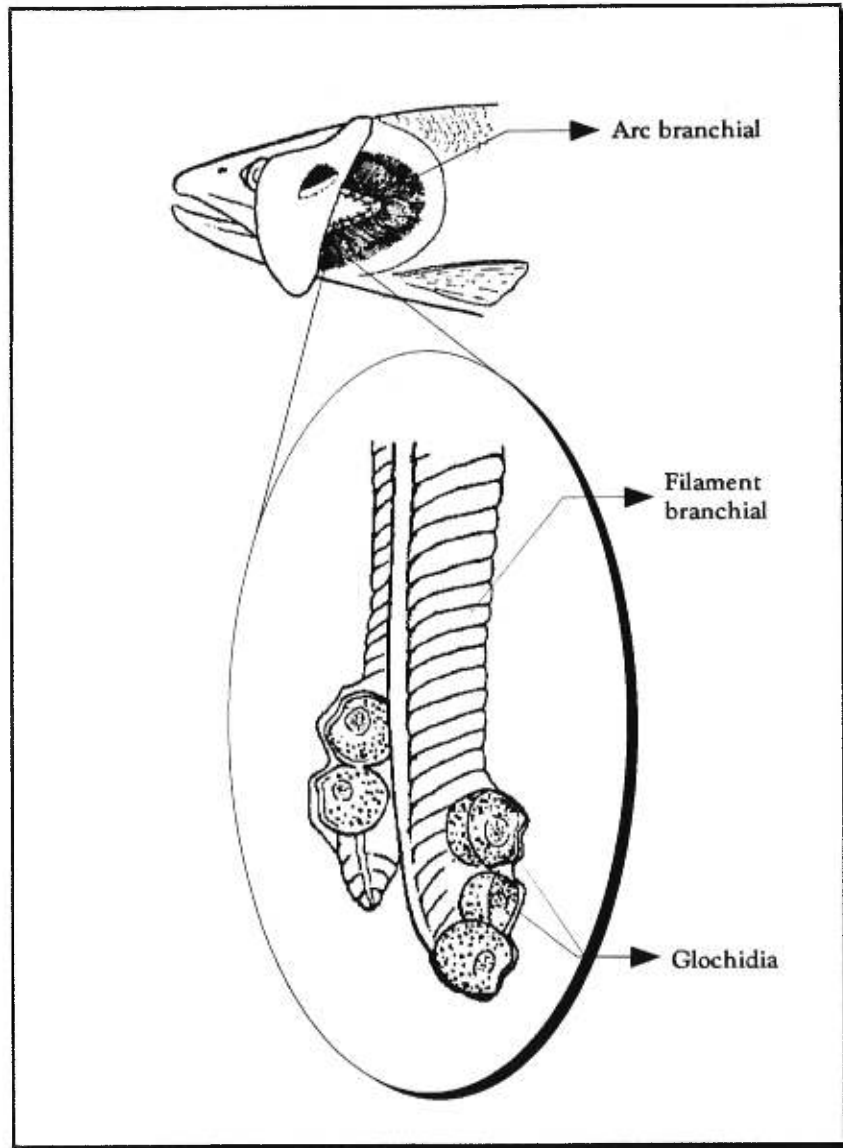
**Figure 1.**

Les étapes du cycle parasitaire associé à la reproduction chez la moule d'eau douce *Elliptio complanata*.



**Figure 2.**

Encystement des glochidia sur les branchies du poisson hôte.



de légères manipulations (Waller *et al.* 1995). Son taux de déplacement relativement faible (Long 1983) la rend facile à suivre en milieu naturel. Les moules unioïdes sont aussi largement utilisées à titre d'organisme bio-indicateur dans l'évaluation des effets de perturbations environnementales (Curry 1978; Dietz et Byrne 1990; Metcalfe et Charlton 1990; Pynnönen 1990; Keller et Zam 1991; Couillard *et al.* 1993; Metcalfe-Smith *et al.* 1996).

Cependant, plusieurs aspects du cycle vital de ces organismes sont mal compris (Kat 1982), et une somme très importante de travaux sont faits actuellement à son sujet pour mieux comprendre les raisons du déclin de plusieurs populations amorcé depuis plus de deux décennies (Strayer 1980). Plus récemment on a estimé que près de 70% des espèces indigènes nord-américaines sont menacées (Williams *et al.* 1993). Ce problème s'est considérablement aggravé depuis l'introduction d'espèces exotiques telles que la moule asiatique, *Corbicula fluminea* (Leff *et al.* 1990) et la moule zébrée, *Dreissena polymorpha* (Herbert *et al.* 1991; Ricciardi *et al.* 1995, 1996). Dans ce contexte, l'utilisation courante des moules unioïdes, dans les études écotoxicologiques ou environnementales, justifie de plus en plus l'importance d'entreprendre de nouvelles recherches afin de mieux connaître l'écologie propre à ce groupe. À la lumière des connaissances actuelles, il peut être délicat d'interpréter certains résultats d'études écotoxicologiques lorsque celles-ci s'appuient sur des prémisses de croissance, de reproduction, de survie, ou de recrutement des moules d'eau douce puisque ces notions demeurent encore mal comprises.



## 1.8 La locomotion chez les moules

La distance physique existant entre les organismes est, de façon générale, implicitement imbriquée à l'intérieur de chacun des concepts écologiques mentionnés plus haut. Ceci est très probable chez les populations de moules, mais non démontré jusqu'à présent. Des observations personnelles récentes suggèrent que les moules d'eau douce seraient plus agrégées en saison de reproduction. En appui à ces observations, il a été démontré que chez la moule *Elliptio complanata*, le succès de fertilisation des oeufs nécessite une distance relative correspondant à une densité minimale de population d'environ 10 individus  $m^{-2}$  (Downing *et al.* 1993). Il devient de ce fait intéressant d'explorer plus à fond les mécanismes régissant la distribution spatiale des moules.

Globalement, il devrait exister des avantages et des inconvénients au phénomène d'agrégation spatiale qui soient communs aux différents groupes d'organismes, qu'il s'agisse d'oiseaux, de mammifères, de poissons, d'insectes, ou autres. Les discussions à ce sujet réfèrent habituellement à des groupes d'organismes dotés de mécanismes évidents de reconnaissance des autres membres de l'espèce (vision, odorat, ouïe, etc.). Chez les moules unionides, on remarque de telles agrégations en dépit de leur incapacité apparente à se déplacer directement vers un autre membre, pré-localisé, de leur espèce. Il existe actuellement très peu d'information sur les mécanismes de perception et les organes sensoriels chez les moules d'eau douce. Leur habileté à détecter un autre individu de la même espèce reste à démontrer.

En raison de leurs caractéristiques propres, les moules unionides représentent un système idéal pour répondre aux questions actuelles de l'agrégation spatiale. De nouvelles informations relatives à la locomotion et au taux de déplacement de ces bivalves, dans un contexte à la fois spatial et temporel, apporteraient des éclaircissements importants sur les mécanismes et le rôle de l'agrégation.

Nous connaissons assez bien la mécanique du déplacement des moules (Trueman 1968; 1975), mais nous ignorons les fondements qui stimulent certaines moules à se déplacer. Ces motifs, s'ils existent, seraient au coeur de la problématique concernant la dynamique de l'agrégation chez ce groupe d'organisme. L'observation, en milieu naturel, d'amas de moules et de traces signalant un déplacement récent soulève des questions importantes, par exemple:

1. Quelle est la nature et l'importance de ces déplacements? Ces déplacements sont-ils plus fréquents durant le jour que durant la nuit? Selon nos connaissances, aucune donnée quantitative n'a été publiée à ce sujet jusqu'à maintenant.
2. Existe-il différents types de déplacement chez ces organismes? Le type de déplacement le plus fréquemment observé se fait sur un plan horizontal, attribuant à ces organismes un comportement typiquement épibenthique. Mais il a été observé qu'elles peuvent aussi se déplacer selon un axe vertical leur donnant la possibilité de s'enfouir ou d'émerger des sédiments.

3. Est-ce que les déplacements modifient l'état d'agrégation de la population? Si oui, est-ce que le niveau d'agrégation varie avec le temps? Nous savons que certains individus se déplacent sur le lit de sédiment, mais aucune information n'est disponible à savoir s'il y a un quelconque ordre dans les déplacements, soit spatial ou temporel, ou si ces mouvements sont purement aléatoires.

4. Si l'agrégation varie dans le temps, est-ce que certains individus contribuent plus que d'autres à cette dynamique (classes de taille ou de sexe)?

5. Est-ce que le patron de distribution de ces organismes peut avoir une influence sur le succès de reproduction de la population? S'il existe de telles variations, il devient pertinent de connaître parmi la population qui sont les individus qui y participent. Par exemple, est-ce que les mâles et les femelles montrent des taux d'activité de déplacements similaires, ou encore, est-ce que ces activités sont synchronisées dans le temps? Il est démontré que le succès de fertilisation des oeufs chez les moules est privilégié lorsqu'il y a un rapprochement entre mâles et femelles (Downing *et al.* 1993). Si les moules disposent véritablement d'une stratégie de reproduction, basée sur un rapprochement des individus au printemps, on pourrait s'attendre à ce que les femelles dépensent moins d'énergie à la locomotion que les mâles durant cette période puisqu'elles doivent utiliser une somme importante d'énergie pour la fabrication de près d'une centaine de milliers d'oeufs (Matteson 1948). De plus, une dynamique de rassemblement ne comportant que des juvéniles ou encore que des individus très âgés, pourrait mettre en doute la possibilité de se regrouper dans un but de reproduction. Si le niveau d'activité chez les moules est similaire à ce que l'on observe généralement dans le règne animal, ce devrait

être les moules nouvellement adultes, ou de taille moyenne qui présentent les plus hauts taux d'activité de déplacements.

6. Est-ce que des variations météorologiques influencent le déplacement des moules? Ces organismes étant poïkilothermes, on peut s'attendre à ce qu'un abaissement de la température du milieu réduise l'activité métabolique, ainsi que l'activité musculaire nécessaire au déplacement. Existe-t-il une corrélation entre la température maximale de l'eau et le taux de déplacement des moules? Par ailleurs, nous savons que les vagues, sous l'effet du vent, créent de la turbulence. Cette turbulence peut-elle affecter le comportement des moules? Si oui, atténue-t-elle ou stimule-t-elle l'activité locomotrice? Aussi, les moules peuvent, d'une certaine façon, percevoir la lumière. Est-ce que le nombre d'heures d'ensoleillement par rapport au nombre d'heures d'ennuage peut influencer leurs déplacements?

7. Quels pourraient être les avantages et les inconvénients de l'agrégation chez ces moules? Les explications classiques de l'agrégation peuvent-elles s'appliquer à ce groupe d'organismes?

## **1.9 Objectif de cette étude**

Ce travail a pour but d'observer *in situ* l'évolution temporelle de l'état d'agrégation d'une population de la moule *Elliptio complanata*. Les approches choisies permettront d'évaluer la dynamique spatiale et temporelle de la distribution des or-

ganismes par la mesure et le suivi dans le temps de la position spatiale de chaque individu durant trois années consécutives. Cette dynamique spatiale sera évaluée en tenant compte des caractéristiques des individus (classes de taille et de sexe). L'utilisation d'un indice d'agrégation issu de la comparaison de la distribution observée avec une distribution aléatoire permettra de déterminer s'il existe des patrons d'agrégations variables selon une échelle temporelle.

La première étape de ce travail a été d'évaluer, à l'aide d'un projet pilote, la fréquence, l'amplitude et le rythme de déplacement de la moule *Elliptio complanata* de façon à pouvoir élaborer une stratégie d'échantillonnage adéquate.

Les hypothèses suivantes ont été testées:

1. Les moules sont diurnes quant à leurs déplacements.
2. Le taux de déplacement est plus important pendant la saison de reproduction.
3. Le niveau d'agrégation de la population est variable selon les saisons.
4. L'agrégation est à son maximum pendant la période de reproduction.
5. Les moules de taille moyenne ont des taux de déplacement significativement plus élevés que les autres.
6. Les moules mâles se déplacent plus que les femelles.
7. Le déplacement favorise le succès de fertilisation des oeufs.
8. Des facteurs météorologiques influencent le nombre de moules qui se déplacent et l'amplitude des déplacements.
9. Les moules procèdent à des migrations verticales temporaires ou saisonnières.
10. Le comportement endobenthique s'observe chez une fraction significative de la population.

11. La fraction de la population endobenthique varie avec la profondeur de l'eau, entre différents sites, ou entre les saisons.

12. Il existe une différence morphologique entre les moules retrouvées à la surface des sédiments (épibenthiques) et celles enfouies dans les sédiments (endobenthiques).

## Chapitre 2

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### **Endo- and epibenthic distribution of the unionid mollusc *Elliptio complanata*.**

Jean-Pierre Amyot et John A. Downing (1991)

*Journal of the North American Benthological Society* 10(3) 280-285

## Abstract

18% of a population of *Elliptio complanata* was found living completely buried in the sediments of a Québec lake during mid-summer. This population was found to descend into the sandy sediment as winter approached, and emerged in the spring. More than 60% of the population was endobenthic during late autumn. Endobenthic mussels were significantly smaller than epibenthic mussels (50-60% of average length) and most mussels that were endobenthic during mid-summer were juveniles. Shell morphology did not vary significantly between epi- and endobenthic mussels. Failure to count endobenthic *E. complanata* in population surveys could result in severe underestimates of actual population densities. A sampling program based strictly on epibenthic mussels would underestimate the contribution of young mussels to the biomass and production of this population.



## Introduction

Freshwater bivalve molluscs can represent as much as 90% of the standing biomass of benthic invertebrates (Ökland 1963, Mann 1964, Negus 1966). Filter feeding bivalves can play a significant role in removing particulate matter from lake water (DeBruins and Davids 1970, Lewandowski and Stanczykowska 1975, Price and Schiebe 1978, Libois 1988). The sensitivity of large freshwater bivalves to pollutants (e.g., Matteson 1955) makes them useful in monitoring and evaluating impacted ecosystems (Foster and Bates 1978, McCuaig and Green 1983, Green *et al.* 1989, Hinch and Green 1989). In addition, they are one of the most widely distributed groups of organisms found in the sediments of ancient lakes, and their species composition and shell characteristics can therefore be used to infer long-term variations in abiotic factors (Tolstikova 1978, McCuaig and Green 1983, Green *et al.* 1989).

Several details of the life history of unionid bivalve molluscs remain poorly understood (Kat 1982). A long-standing mystery of unionid ecology is the fact that juveniles are rarely found (Isely 1910). The most frequently cited explanation for the absence of young mussels in population samples is that recruitment is irregular among years (Matteson 1948, Ökland 1963, Negus 1966, Norelius 1967, Fisher and Tevesz 1976, Green 1980, Hanson *et al.* 1988a, 1988b, Libois 1988). Others have suggested that the absence of juvenile mussels is coincident (Lewandowski and Stanczykowska 1975); or they are eaten by fish (Mann 1964, Negus 1966, Fisher and Tevesz 1976, Libois 1988); their habitats differ from those of adults

(Magnin and Stanczykowska 1971, Lewandowski and Stanczykowska 1975, Kat 1982); or they are too sparse to be sampled efficiently by large quadrats (Lewandowski and Stanczykowska 1975, Green 1980); or killed by pollution (Green 1980). If recruitment failure were frequent, or fish predation prevalent, we would expect adult populations to fluctuate widely over time. Recent observations (Amyot, unpublished data) suggest a simpler explanation for the absence of juvenile mussels from population samples. In a recent study, we exhaustively marked 557 individuals of *E. complanata* and recorded their movement over time. We found, curiously, that several adult mussels disappeared from the surface of the sediment, then reappeared in about the same place several days or weeks later. Further, during the first and second week of July, we observed that many unmarked young mussels, mostly about 6 yr old, appeared suddenly and unexpectedly at the sediment surface, among the marked adult population. These observations suggested to us that a fraction of the mussel population might be endobenthic.

Epi- and endobenthic mussels would be subject to very different forces and therefore may differ in shell morphology. Green *et al.* (1989), for example, found evidence of intra-specific variation in shell form when mussels were subjected to different level of water turbulence. It is well established that *E. complanata* has a heavy shell and thus is rarely found on soft substrata in deep water. We therefore investigated possible morphological adaptation of the shell between epibenthic and endobenthic mussels found on hard and soft substrata. For example, obesity, which is the width of the shell relative to its length, may indicate an adaptation to soft sediment conditions (Ghent *et al.* 1978).

The purpose of this study was to find whether a significant fraction of a population of *E. complanata* in a north temperate lake was endobenthic. We also tested the hypotheses that the fraction of the population found to be endobenthic varied with water depth, between sites, or among seasons. Finally we tested the hypothesis that there were morphological differences between endobenthic and epibenthic mussels.

## Methods

Tests of the hypotheses were performed at two sites in Lac de l'Achigan (Fig. 1), situated 60 km north of Montréal, Québec. Lac de l'Achigan is a soft-water, oligotrophic lake with a mean annual total phosphorus concentration of 6.4  $\mu\text{g/l}$ , and an average alkalinity of 11.5 mg  $\text{CaCO}_3/\text{l}$  (Lamontagne and Gauthier 1974). The littoral zone of the north shore is composed mostly of sandy beaches of low slope. *Elliptio complanata* is the most abundant mussel found in this lake and it reaches maximum densities of 70 individuals/ $\text{m}^2$  (Downing *et al.* 1989). The most common fishes in this lake are *Lepomis gibbosus*, *Perca flavescens*, *Microp-terus salmoides* and *Catostomus catostomus*.

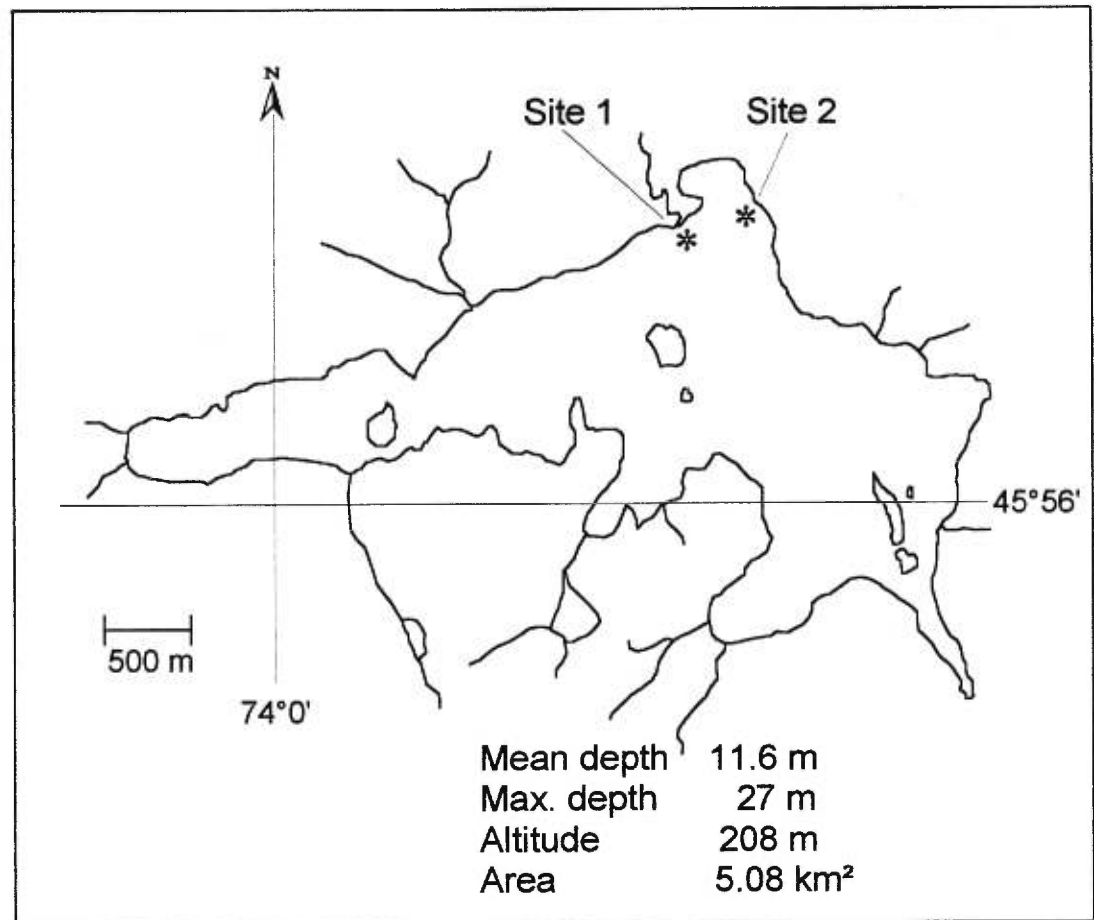
Samples at each site were taken with a 1 m x 1 m Plexiglas™ open box that was pushed into the sediment to a depth of 30 cm which corresponds to the average thickness of loose sediment in the littoral zone of this area of the lake. Beyond

that sediment depth, sediment was too compact to be easily removed by hand or penetrated by mussels. First, we collected all the epibenthic mussels enclosed within each open box, then all the endobenthic mussels were collected quantitatively by passing all the sediment enclosed within the box through a 5-mm mesh plastic sieve until compacted sediment was reached. Epibenthic and endobenthic mussels were held in two separate Nyltex™ bags. Length (L), height (H), and width (W) of each mussel were measured using a digital caliper ( $\pm 0.01$  mm). Annual rings of adult *E. complanata* are sometimes difficult to distinguish (Strayer *et al.* 1981), therefore we did not determine the age of mussels in our study. Tests for differences in shell morphology between endo- and epibenthic mussels followed the protocol of Bailey and Green (1988) and considered three morphological variables: length, relative height, and obesity. Relative height is  $H/L$  and obesity is  $W/L$ . All measurements were transformed to their logarithms to equalize the variances (Legendre and Legendre 1984).

The fraction of the population found beneath the sediment surface was determined during July 1989, at six different water depths (0.5, 1.0, 1.5, 2.0, 2.5, 3.0 m) at site 1 by collecting five replicate samples at each depth. The observations were repeated at site 2 during August 1989 by taking 10 replicate samples at each of three depths (1.0, 2.0, 3.0 m). A lateral distance of at least 1 m was left between quadrat samples to avoid sampling disturbed sites. The average sediment organic content was determined by drying ( $50^{\circ}\text{C}$  for 52 hours) and burning ( $550^{\circ}\text{C}$  for 5 hours) sediments. At both sites, sediments were similar and were composed almost entirely of sand with only 0.9% ( $n = 10$ ,  $SD = 0.14$ ) of organic matter at 1 m

**Figure 1.**

Study sites in Lac de l'Achigan, Québec.



depth. The organic matter content increased with water depth to 2.4% ( $n = 10$ ,  $SD = 1.37$ ) at 2 m, and reached 3.8% ( $n = 10$ ,  $SD = 0.90$ ) at 3 m.

Seasonal variation in the proportion of endobenthic mussels was followed by marking, in mid-June 1988, all the sediment surface dwelling-mussels ( $n = 557$ ) found at a water depth of 1.5 to 2 m within a 5 m x 8 m area. This area was situated close to site 1 and had similar sediment composition. Each of 40 1-m<sup>2</sup> contiguous "quadrats" was delimited by four corner stakes, allowing free mussel movement. All mussels were carefully marked underwater, by attaching Dymo<sup>TM</sup> plastic labels to the posterior margin of the valves with underwater glue (Devcon<sup>TM</sup> Wet Surface Repair Putty), limiting disturbance to a few light touches with the divers' fingers. The position of each mussel was later determined by triangulation using rulers attached to each corner stake. A 5.5 m x 1 m movable plastic frame was used to keep divers at 40 cm above the sediment surface avoiding direct contact with organisms. This procedure was performed to measure mussel locomotion (Amyot in prep.) but also allowed us to measure the proportion of marked mussels found at the sediment surface each week during each of two summers and at 2 week intervals during autumn and spring. Because sampling of the surface-dwelling mussels was exhaustive, and few mussels attained the rate of locomotion necessary to leave our 5 m x 8 m area, these measurements allowed us to estimate the fraction of the marked mussels found to be epibenthic at our study site at different times of the year. Although unmarked mussels appearing within our study area were subsequently marked, only the 557 original marked surface mussels were considered in testing for seasonal variation in the proportion of epibenthic mussels.

The effect of depth and sampling site on the relative abundance of endobenthic mussels was tested using multiple regression analysis, entering water depth (Z), sites (S), and a depth x site [Z x S] interaction term as independent variables. Multiple regression analysis was also used to determine whether shell morphology was different in endo- and epibenthic mussels or in mussels found at different water depths or sites. The hypothesis that epibenthic mussels were longer than endobenthic ones was tested by regressing shell length on water depth, sites, the dummy variable E (epibenthic: E = 0; endobenthic: E = 1), and their interaction terms, as independent variables. Finally, the effect of water depth, sites, shell length, and endobenthic habitat on shell relative height and obesity was tested similarly using multiple regression analysis.

## Results and Discussion

The fraction of the 855 mussels found at site 1 and 2 that were endobenthic varied from 0% to 62.5% in the 60 samples. Overall, an average of 23% of mussels at sites 1, and 13% at site 2 were found beneath the sediment surface (Fig. 2). The fraction of the mussels that were endobenthic did not vary significantly among water depth ( $P = 0.925$ ) or sites ( $P = 1.000$ ) (Fig. 2). *Elliptio complanata* is rarely found in water deeper than about 3 m in this and other North American lakes (Fisher and Tevesz 1976, Ghent *et al.* 1978). Thus, according to our data, it appears that a fairly constant proportion of this population is endobenthic during mid-summer, regardless of water depths or sites. Our data, collected using both sedi-

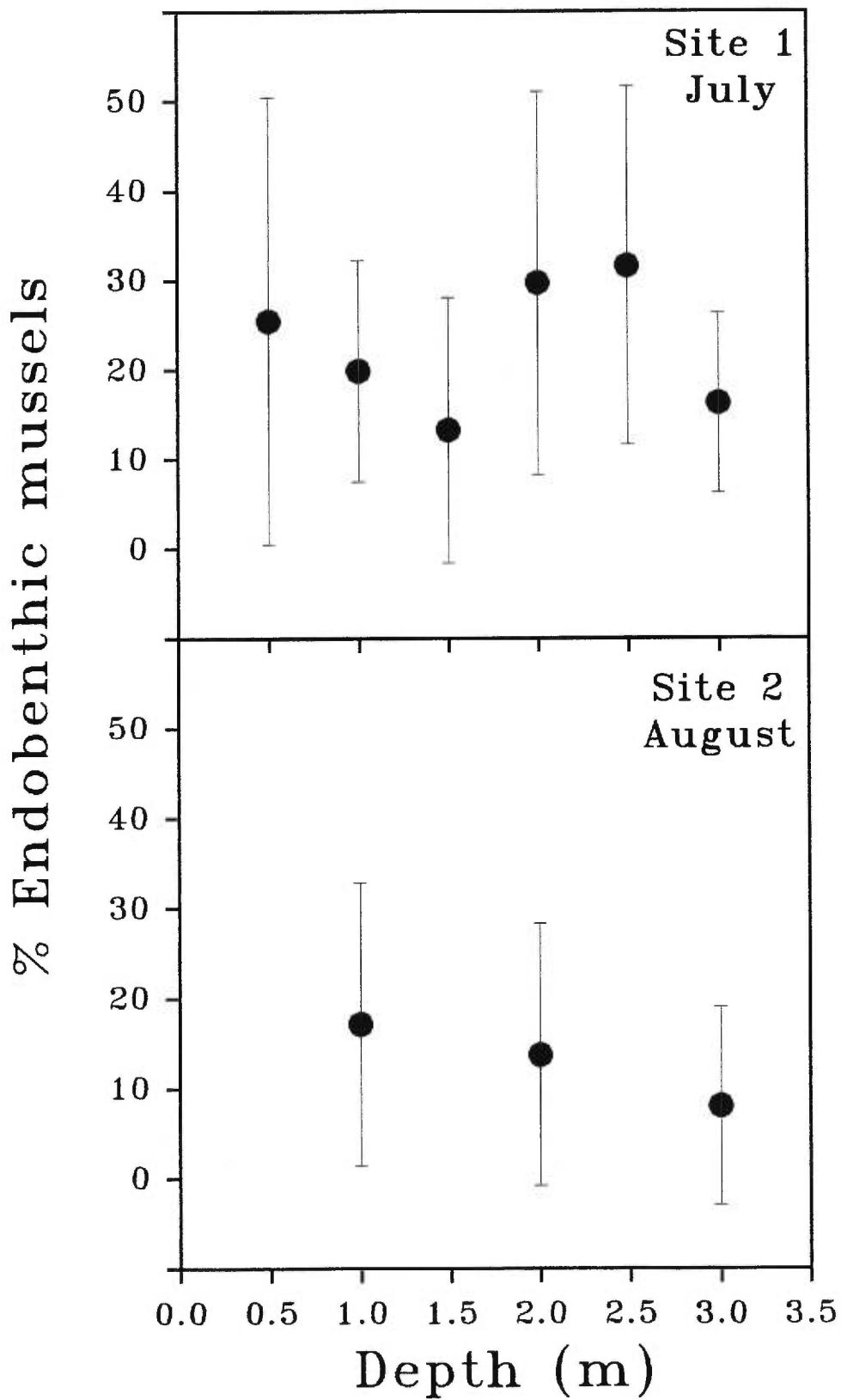


ment surface hand picking and sediment sieving methods, show that a significant fraction of the mussel population in Lac de l'Achigan was found beneath the sediment, rarely deeper than about 20 cm. A study of this same population considering only epibenthic mussels would have underestimated the population of *E. complanata* by an average of 18%. Our results suggest why Hanson *et al.* (1988b) found that hand picking sampling alone underestimated the density of *Anodonta grandis simpsoniana* in Narrow Lake, Alberta, by 23%, and why Haukioja and Hakala (1974) found that hand picking at the surface underestimated the population of several unionid species by an average of 14.5% in Mätikkö Lake, Finland.

*Elliptio complanata* changes seasonally from an epi- to endobenthic habitat. Although 100% of our labelled mussels were visible at the surface at the end of June 1988, they gradually disappeared into the sediments as the season progressed (Fig. 3). At the end of October, only 39% of the 557 labelled mussels were still found at the sediment surface. The following spring (end of May 1989), 96% ( $n = 532$ ) of the original marked population was again found at the sediment surface at the same site. The same seasonal vertical migration was found in 1989 with only 38% of the initial population remaining at the sediment surface in late October 1989 (Fig. 3). Our data demonstrate that most of this population undergoes a seasonal vertical migration. To our knowledge, this is the first demonstration of a seasonal vertical migration in unionid molluscs. A sampling program based solely on the epibenthic fauna could seriously underestimate the density and biomass of a mussel population, and this bias would be most serious if sampling were performed during late summer, autumn or winter.

**Figure 2.**

The average fraction ( $\pm 1$  SD) of *Elliptio complanata* found beneath the sediment surface at site 1 in July and site 2 in August. Each mean is the result of five replicate samples at site 1 and ten replicate samples at site 2.

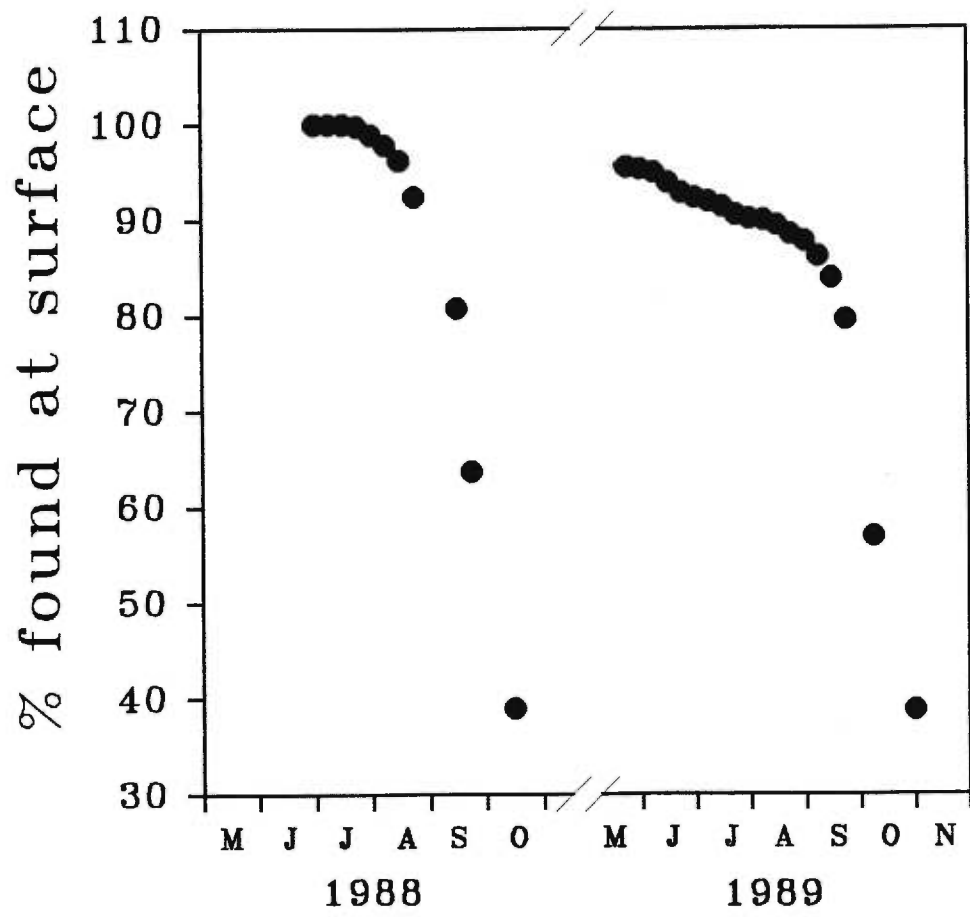


Endobenthic mussels were smaller than epibenthic ones, and shell length varied among water depths and sites (Table 1A). The average length of endobenthic mussels was only 69% (site 1) and 55% (site 2) of the average length of epibenthic mussels (Table 2). Because the shell length and age of mussels are closely correlated in this (Downing *et al.* 1989) and other (Hanson *et al.* 1988b) lakes, we think it is likely that mussels found to be endobenthic in mid-summer were the younger members of the population. This finding perhaps explains why small or young mussels are only rarely found in studies of mussel populations when samples are hand-collected at the sediment surface (Cvancara 1972, Haukioja and Hakala 1974, Fisher and Tevesz 1976, Ghent *et al.* 1978, Green 1980, Strayer *et al.* 1981, McCuaig and Green 1983, Hanson *et al.* 1988a, 1988b, Libois 1988, Bailey and Green 1989). Young mussels are, however, frequently found in studies collecting mussels with dredges or grabs (e.g., Matteson 1955, Ökland 1963, Mann 1964, Negus 1966, Lewandowski and Stanczykowska 1975, Hanson *et al.* 1989). The significant [Z x S] interaction (Table 1A) suggests that shell length decreased significantly with depth at site 2. This may be either because juveniles tend to settle in deeper waters and migrate into the shallows as they age or simply because mussels grow more slowly in colder, deeper waters (Cvancara 1972, Strayer *et al.* 1981). The significant effects of sampling sites ( $P = 0.0008$ ), the [E x S] interaction ( $P < 0.0001$ ), and the [Z x S] interaction ( $P = 0.0159$ ) show that epibenthic mussels were slightly larger at site 2 than at site 1 but that the smallest average length of mussels was found in the deepest water samples at site 2. The single term depth (Z) in this regression was not significant.

**Figure 3.**

Seasonal vertical migration of *Elliptio complanata* in Lac de l'Achigan.

Dots represent the percentage of marked mussels observed on the surface of the sediment bed in a 40-m<sup>2</sup> area. Measurements were made each week during the summers of 1988 and 1989. The initial population (100%) was composed of 557 mussels marked at the end of June 1988.



**Table 1.**

A) The relationship of shell length of *Elliptio complanata* to endobenthic habitat, site and depth. The regression model was:  $\log_{10}$  Length =  $f$  (Z, S, E, [Z x S], [E x S], [Z x E]). Intercept = 1.839.

B) The relationship of relative height to endobenthic habitat, site and depth. The regression model was:  $\text{Log}_{10}$  Height =  $f$  (Z, S, E, [Z x S], [E x S], [Z x E], L). Intercept = -0.324.

C) The relationship of obesity to endobenthic habitat, site and depth. The regression model was:  $\text{Log}_{10}$  Width =  $f$  (Z, S, E, [Z x S], [E x S], [Z x E], L). Intercept = -0.820. E = 0 = epibenthic; E = 1 = endobenthic, S = 0 = site 1; S = 1 = site 2, Z = depth in meters and L =  $\text{Log}_{10}$  length in mm.  $n = 855$ . Only the significant variables ( $P < 0.05$ ) are shown.

Table 1, suite...

Independent			
variables	Effect	<i>P</i>	Coefficient
A) Shell length			
E	-	0.0000	-0.1611
S	+	0.0008	0.0627
[E X S]	-	0.0001	-0.1003
[Z X S]	-	0.0159	-0.0202
B) Relative height: shell height / shell length			
Z	-	0.0004	-0.0038
L	+	0.0000	1.0214
[Z X S]	+	0.0000	0.0033
C) Obesity: shell width / shell length			
S	+	0.0000	0.0234
Z	-	0.0000	-0.0095
L	+	0.0000	1.1290



**Table 2.**

The average shell length (mm) of epibenthic and endobenthic mussels. Five replicates were taken at each of the 6 depths of site 1 (July) and ten replicates at each of the 3 depths of site 2 (August).

Depth (m)	Epibenthic		Endobenthic	
	Length (SD)	<i>n</i>	Length (SD)	<i>n</i>
<b>Site 1</b>				
0.5	48.0 (10.80)	16	41.3 (15.26)	5
1.0	73.3 (16.47)	84	49.7 (26.29)	15
1.5	75.9 (14.35)	104	68.1 (21.04)	17
2.0	67.5 (16.16)	52	56.9 (17.84)	29
2.5	71.7 (17.28)	38	46.8 (19.80)	16
3.0	67.2 (14.57)	63	41.0 (17.64)	16
<b>Site 2</b>				
1.0	78.6 (15.07)	154	44.2 (23.11)	34
2.0	72.6 (14.18)	99	53.6 (22.27)	18
3.0	70.3 (13.62)	86	44.0 (21.11)	9

Endobenthic mussels were not significantly different in body form than epibenthic mussels, but both relative height and obesity varied significantly among mussels found at different water depths and sites. *Elliptio complanata* found at greatest water depths had a significantly ( $P = 0.0004$ ) smaller relative height (Table 1B) and were significantly ( $P < 0.0001$ ) less obese than those found in shallow water (Table 1C). Like Cvancara (1972) and Hinch *et al.* (1989), we found a significant decrease in obesity (of both epi- and endobenthic mussels) with increasing water depth. According to Hinch *et al.* (1989), a smaller relative height of the shell would facilitate burrowing into the sediment in turbulent areas and therefore could be an adaptation making mussels less easily dislodged by wave action. Our results show that both epi- and endobenthic mussels in Lac de l'Achigan had lower relative heights at greater water depth even though substrates were softest at depths. Our results were contrary to our expectation that variations in shell morphology are linked to adaptations against sinking in soft sediments. If this were true, we would expect mussels at greater water depth to be more obese and have higher relative height (*cf.*, Table 1A-C). But because regression coefficients associated with obesity and relative height are small, it would be unwise to conclude that epi- and endobenthic *E. complanata* are morphologically adapted to depth or substrate types in Lac de l'Achigan.

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## Chapitre 3

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**Seasonal variation in vertical and horizontal movement  
of the freshwater bivalve *Elliptio complanata*  
(Mollusca: Unionidae)**

Jean-Pierre Amyot and John A. Downing (1997)

*Freshwater Biology* 37:345-354

## Abstract

1. Vertical and horizontal movement was studied in the freshwater bivalve *Elliptio complanata* at a sandy site in an oligotrophic lake over three years. Mussel movement did not vary significantly between day and night. On average, between 2 and 8% of 527 mussels moved each month during the ice-free season and the distance travelled by moving mussels averaged  $0.6 \text{ cm day}^{-1}$ .

2. Mussels were endobenthic during the winter, emerged from the sandy substrate in mid-May, peaked in sediment surface abundance in July, and descended into the sediments for the winter in September-October. Vertical displacement of mussels was closely correlated with water temperature although daylength may play a role. Mussels apparently move very little beneath the sediment during the winter.

3. The number of mussels moving horizontally at any given time was linearly correlated with daylength, but the distance travelled during a sampling period was related to daylength in a nonlinear fashion. Greatest horizontal displacement of epibenthic mussels was found during spring and early summer, coincident with spawning in *E. complanata*.

## Introduction

Interest in animal locomotion derives from the important role that it plays in many fundamental ecological processes. Competition, reproduction, growth, predator-prey interaction, succession, population genetics and social behaviour of both vertebrates and invertebrates are all linked in some way to physical movement of individuals. The importance of spatial dynamics has become more apparent in the recent literature, particularly with respect to questions of population aggregation (Downing 1986, Roese *et al.* 1991).

An understanding of ecological relationships of animal populations should include the dynamics of the spatial configurations of populations. Patterns of locomotion are important in most organisms whether they are migratory (Berthold and Terrill 1991), sedentary (Baur and Baur 1993) or sessile, if larvae can disperse (Hughes 1990).

Historically long-distance migration is the form of locomotion that has attracted more attention than the important, yet neglected, locomotion of less mobile animals. Small-scale displacement can have great implications for the structure and control of populations (Greenwood and Swingland 1983). For most species, survival is a function of locomotion, which aids in the finding of food, escaping predators, avoiding adverse environmental conditions, and finding mates.

The life histories of freshwater bivalve molluscs have been studied since the

early 1900's, yet their locomotion is poorly documented. The traces left in the sand by mussels are observed frequently, but little is known about when they move, how far they move, or why they move.

Although the mechanics of displacement of freshwater mussels has been described (Trueman 1968, 1975), investigations of the mechanisms stimulating or inhibiting displacement in nature are rare. There is some evidence that such movements are made in random directions, and that distances travelled over a year are small (Balfour and Smock 1995). Such information is essential to an understanding of their population ecology and would allow insight into their reproductive and recruitment dynamics (Downing *et al.* 1993).

Freshwater mussels of the families Margaritiferidae and Unionidae are widely distributed throughout North America (Clarke 1973). Many species were intensely exploited for button manufacture during the early 1900's (Coker 1921), and several species are still exploited today (Williams *et al.* 1993). This group represents an important component of aquatic ecosystems since it can make up as much as 90% of the benthic invertebrate biomass in lakes (Ökland 1963, Mann 1964, Negus 1966). Their suspension feeding (Price and Schiebe 1978, Libois 1988) can modify the phytoplankton community (Matteson 1955, Nalepa *et al.* 1991) and their obligate parasitic larval stage makes them important parasites of fishes (Matteson 1948). Despite their increasing use as bio-monitoring organisms (Curry 1978, Keller and Zam 1991, Couillard *et al.* 1993), many essential aspects of their ecology remain poorly understood (Kat 1982, Strayer and Ralley 1993, Balfour and Smock 1995). There is an urgent need for more information on freshwater

mussels because of their precarious status, particularly because the introduction of exotic species like the Asian clam, *Corbicula fluminea* (Leff *et al.* 1990) and the zebra mussel, *Dreissena polymorpha* (Herbert *et al.* 1991; Ricciardi *et al.* 1995, 1996) threaten them with extirpation. More than 71% of known native freshwater mussels are either listed as threatened or endangered (Williams *et al.* 1993).

The purpose of this study was to quantify unionid movement, highlighting the temporal dynamics of displacement, in a natural lentic population. We studied the native freshwater mussel *Elliptio complanata*, one of the most common lake and stream-dwelling species in eastern North America. We focus here on the seasonal variation that might be linked to mussel locomotory behaviour.

First we sought to find whether movement was diurnal or nocturnal. We then tested the hypotheses that: (1) vertical displacement varies seasonally with light and temperature and (2) that seasonal variations in the horizontal locomotion of epibenthic mussels are correlated with variations in temperature, light, or water turbulence.

## **Materials and Methods**

Field experiments were conducted in Lac de l'Achigan, situated 60 km north of Montréal, Québec, Canada. Lac de l'Achigan is a soft-water, oligotrophic lake with an annual mean total phosphorus concentration of  $6.4 \mu\text{g l}^{-1}$ , and an average

alkalinity of  $11.5 \text{ mg CaCO}_3 \text{ l}^{-1}$  (Lamontagne and Gauthier 1974). The littoral zone of the north shore is composed mostly of sand beaches of low slope. *Elliptio complanata* is the most abundant mussel found in this lake, reaching densities of 70 individuals  $\text{m}^{-2}$  in the sandy shallows of the north shore (Downing *et al.* 1989). Studies of mussel locomotion were performed in two phases, a short-term, high frequency study and a long-term analysis.

#### *High frequency study*

In order to determine the appropriate sampling design for a longer term study we first measured the displacement of mussels at short time intervals. We determined the amount of movement during day (8h00-17h00) and night (17h00-8h00), and the frequency and amplitude of mussel displacement. Twice daily we measured the position of 157 marked individuals distributed over  $5.4 \text{ m}^2$  of sandy littoral zone between July 22 and August 9, when water temperature was near its seasonal maximum. The hypotheses tested in this analysis were that, (1) movement is diurnal, and (2) weekly measurement of mussel displacement would lead to little bias in estimates of actual distances travelled by freshwater mussels.

#### *Long-term study*

To determine the factors influencing locomotion on an annual scale, we measured the positions of marked individuals over almost 3 years. The study site was a gently-sloping  $5 \times 8\text{-m}$  sandy surface (depth 1.5-2 m) delimited by stakes placed to mark the corners of 40  $1\text{-m}^2$ , contiguous quadrats. Quadrat boundaries

were not marked so mussels could move freely within the study area. A total of 781 individuals of *E. complanata* were marked over the course of the experiment. Since some mussels situated near the edges of the site left the study area, some endobenthic juveniles became epibenthic, and a few others died during the experiment, we limited the sample analyzed here to the 527 individuals that were marked at the very beginning and could be followed to the end of the study.

Each individual was marked underwater using SCUBA to minimize perturbation. Marking was performed one week prior to the beginning of the long-term survey. Mussels were marked by attaching numbered plastic labels (*Dymo*<sup>TM</sup>) to the posterior face of one valve with underwater glue (*Devcon Wet Surface Repair Putty*<sup>TM</sup>) delivered with a disposable syringe. Disturbance was minimal since animals were only touched gently during labelling. We assessed the displacement of *E. complanata* weekly during the summer season and twice each month during spring and autumn. No observations were made during winter because of heavy ice cover.

On each sampling date, we recorded the relative position of each mussel with rulers attached to stakes delimiting the corners of 1m<sup>2</sup> quadrats. These geometric data were transformed to x-y coordinates by triangulation. The x-y position data, when compared among weeks, allowed us to calculate the distances travelled and the direction of each movement, as well as the frequency of mussel displacement over the ice-free season. Each position estimate had an imprecision consisting of a small diamond-shaped surface which varied slightly in size according to its position in the quadrat. This led to an error in distance estimates. The mean error

[ $\frac{1}{2}$  (longest - shortest distance between two position imprecision surfaces)], assuming a linear measurement error of 2 cm, was 2.6 cm ( $SD = 0.22$ ), which represents about 24% of the length of the longest mussel in the sample. Distance estimates less than the error were assumed equal to zero.

The *in situ* setting, which permitted mussels to travel freely within and among quadrats, also allowed us to measure the proportion of marked mussels found at the sediment surface at different times of the year. We considered a mussel to be epibenthic if it protruded visibly from the sediment surface and endobenthic when it buried itself enough to disappear completely.

Disruption of mussels during position measurement was avoided by using an ABS<sup>TM</sup> mobile support (5.5 x 1 m) to keep divers at a distance of 40 cm above the sediment surface. Studies were performed during July-November 1988, May-November 1989, and May-July 1990. All epibenthic mussels were removed from the surface of the study site at the end of the study and sediment of the site was sieved, down to 30 cm, to removed all marked and unmarked endobenthic mussels.

### *Abiotic variables*

Several abiotic variables, postulated to influence mussel locomotion, were estimated directly or indirectly. Due to equipment malfunction, only 17 *in situ* water temperature ( $T$ ) estimates were obtained. Fortunately water temperature can be estimated accurately from latitude and mean depth of the lake, using the method of Straškraba (1980). Fig. 1 shows that these estimates accurately reflect actual



temperatures. Sunlight intensity ( $S$ ), wind velocity and wind orientation between each pair of visits to the field, and daylength ( $L$ ), the time between sunrise and sunset, were obtained from the nearest government meteorological station (*Environnement Canada, Section de l'Environnement Atmosphérique, Ste-Agathe, Québec*), situated 12 km northwest of the lake.

The effect of water turbulence ( $Wt$ ), generated by wave action, was estimated as the horizontal acceleration of a unit of water at a specific depth.  $Wt$  was calculated using the average wind speed and orientation (between 8h00 and 20h00) as well as the maximum fetch at the lake surface ( $f$ , in m), and the depth of water at the site ( $d$ ). Estimates of  $Wt$  were made using standard equations (Department of the Army Waterways Experiment Station 1984):

$$Wt = \frac{H \pi}{\tau} \sqrt{g/d} \quad (1)$$

Where  $H$  is the height of surface waves calculated:

$$H = 0.283 \tanh \left( 0.53 \left( \frac{g D_m}{U_a^2} \right)^{0.75} \right) \tanh \left( \frac{0.00565 \left( \frac{g f}{U_a^2} \right)^{0.5}}{\tanh \left( 0.53 \left( \frac{g D_m}{U_a^2} \right)^{0.75} \right)} \right) \frac{U_a^2}{g} \quad (2)$$

$\tau$  is the wave period calculated:

$$\tau = 7.54 \tanh \left( 0.833 \left( \frac{g D_m}{U_a^2} \right)^{0.375} \right) \tanh \left( \frac{0.0379 \left( \frac{g f}{U_a^2} \right)^{0.333}}{\tanh \left( 0.833 \left( \frac{g D_m}{U_a^2} \right)^{0.375} \right)} \right) \frac{U_a}{g} \quad (3)$$

where  $U_a$  is a wind stress factor approximated as:

$$U_a = 0.71 w^{1.23} \quad (4)$$

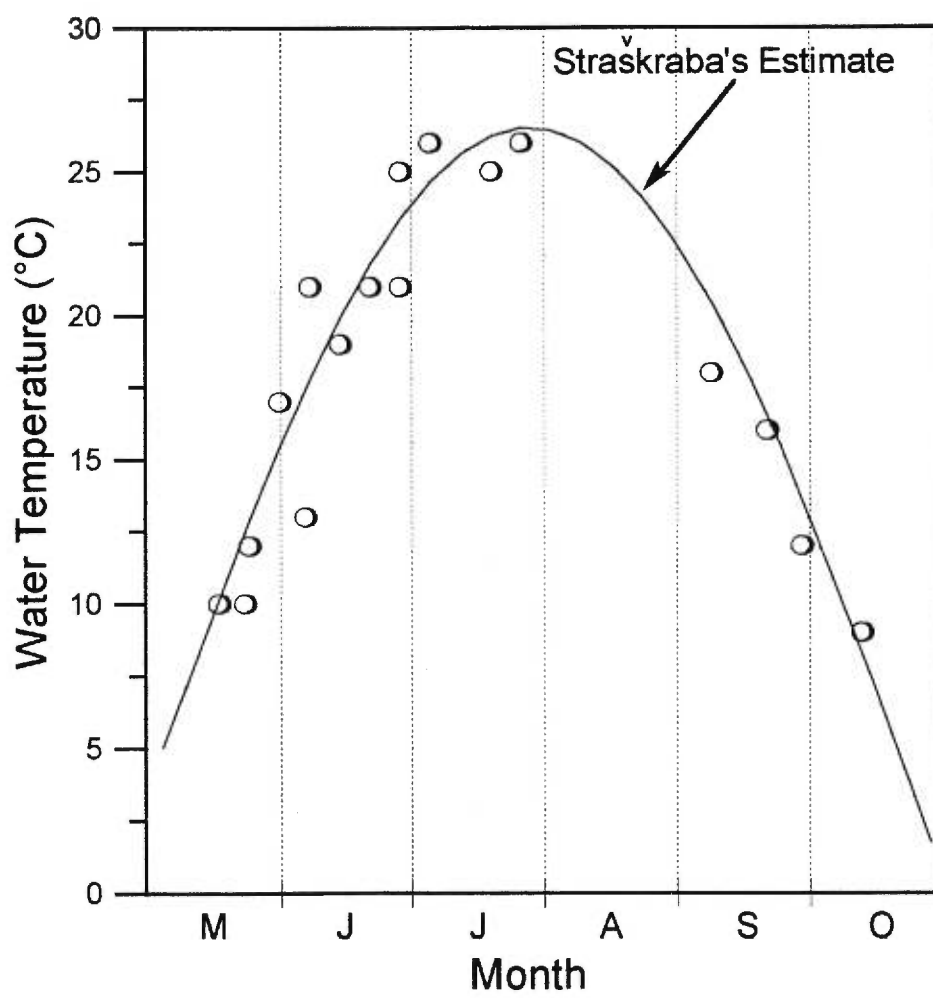
In all of the above equations,  $g$  is the acceleration due to gravity ( $\text{m s}^{-2}$ ),  $D_m$  is the mean depth of the lake,  $w$  is the wind velocity and  $f$  is the maximum fetch at the lake surface.

### *Statistical analysis*

We compared the number of mussels that moved and the distances travelled by mussels during night and day using the Wilcoxon Signed Rank Test (Snedecor and Cochran 1980). Stepwise multiple regression analysis was used to examine the relationships between (1) the fraction of mussels epibenthic, (2) the fraction of epibenthic mussels moving per unit of time and, (3) the average distance travelled by a mussel per unit of time, and water temperature, daylength, water turbulence and sunlight intensity. Polynomial regression analysis was employed when residual analyses suggested curvilinearity. Standardized independent variables ( $x_{\text{std}} = x_i - \bar{x}$ ) were used in polynomial regressions to reduce the effects of multicollinearity (Neter *et al.* 1990). Since significant correlation existed between some independent variables (water temperature, daylength, and its corresponding interaction term), ridge regression analysis was also used to eliminate potential bias (Marquart and Snee 1975). All data were satisfactorily close to a normal distribution (Wilk-Shapiro normality statistic > 0.72) to avoid transformation.

**Figure 1.**

*In situ* measured water temperature (○) compared with water temperatures estimated from latitude and mean depth of the lake (Straškraba 1980). The correlation (Pearson's  $r$ ) between *in situ* data and estimates is 0.948 ( $P < 0.0001$ ).



## Results

### *High Frequency Study*

The high frequency study showed that relatively few mussels moved from week to week (Table 1). Only 38% of the 157 marked mussels moved at least once during this 18 day period and only 4% moved more than once. In addition, the mean distance travelled by individual mussels in one week during mid-Summer was 12 cm. Because the track left in the sediment by moving mussels is not always straight, and because mussels move infrequently, we also wanted to determine possible biases that might be introduced into measures of movement by measuring positions only once per week. We estimated the actual distances travelled by summing all of the twice-daily measured distances and comparing them to the gross linear displacement of a mussel estimated as the vectorial distance travelled over the interval. A seven day sampling interval underestimated actual locomotion by between 0 and 4 cm ( $\bar{x} = 0.19$  cm) thus the average error rate was about 1%. Since very few mussels moved more than once during a one week period, and since the average error was very small (0.19 cm represents less than 2% of the length of the longest mussel found), we concluded that satisfactory measurements of mussel displacement could be made on a weekly basis without introducing great error.

Over a period of 18 days during the warmest part of the year, there was no significant difference between the frequency distribution of the fraction of mussels

**Table 1.**

Locomotion of *E. complanata* determined in the high frequency study.

	First 7 day period	Second 7 period	Last 4 day period	Weekly average
Mussels that moved	38 (24%)	18 (11%)	4 (2%)	23.3 (14.8%)
Sum of distances moved (cm)	483	213	29	282
Average distance travelled (cm)	12.7	11.8	7.1	12.0

moving during day and night (Table 2,  $P = 0.97$ ).

### *Seasonality and effects of abiotic variables*

#### *Vertical locomotion*

As we have shown elsewhere (Amyot and Downing 1991), the vertical distribution of *E. complanata* varied seasonally. Mussels descended abruptly into the sediment in autumn and gradually appeared at the sediment surface during spring (Fig. 2). Measurements made only two days after ice-out in 1990, showed less than 24% of the marked population visible at the sediment surface. Mussels emerged rapidly from the sediment surface during the later part of May. The maximum fraction of the population observed at the sediment surface (96 %) occurred near the middle to end of July. Mussels buried themselves sporadically for a few days throughout the study, so there were always some endobenthic individuals. At the end of the ice-free season, around 67% of the marked mussels had descended into the sediment again. This same vertical dynamic was repeated in all years of the study.

Mussels did not appear to move horizontally once buried in the sediments. Almost all the marked mussels reappeared the next spring at nearly the same place where they disappeared into the sediment the previous autumn. For example, on May 4, 1990, 99% (all but four) of the mussels reappeared < 10 cm from the positions at which they were found during the preceding October.

We sought cues to vertical migration by measuring the correlation between



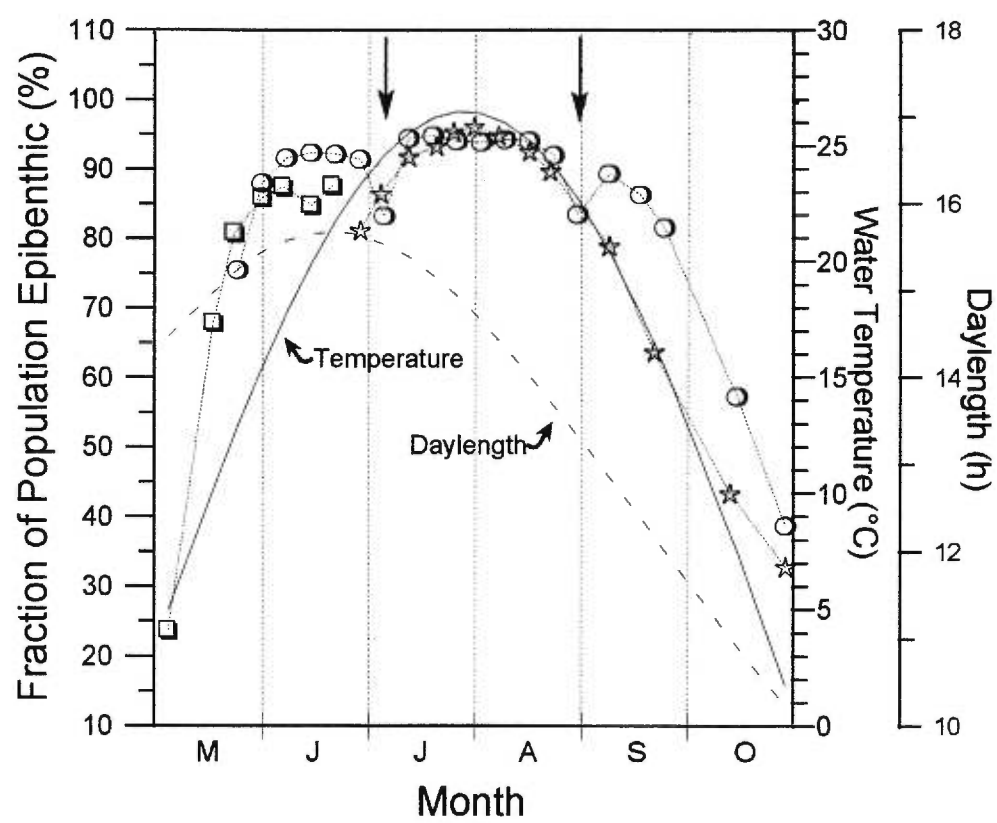
**Table 2.**

Diel variation in locomotion of *E. complanata* measured during the day (8h00-17h00) and at night (17h00-8h00). *P* is the probability of a day / night difference, estimated using the *Wilcoxon Signed Rank Test*.

	Day	Night	<i>P</i>
Number of mussels that moved	30 (19 %)	30 (19 %)	0.968
Sum of all distances moved (cm)	340	384	0.906
Longest distance travelled (cm)	101	75	-
Average ( <i>SD</i> ) distance travelled (cm)	11.3 (18.5)	12.8 (17.6)	-

**Figure 2.**

Temporal variation in the proportion of the mussel population found at the sediment surface (epibenthic) in 1988 (☆), 1989 (○) and 1990 (□). The dashed line shows seasonal variation in daylength; the solid line shows water temperature. The arrows indicate major summer holidays when personal watercraft traffic was intense.



the fraction of mussels found at the surface and water temperature, light regime and other physical factors. In Lac de l'Achigan the vertical migration of mussels was correlated most strongly with water temperature. Residual analysis indicated a curvilinear positive relationship ( $r^2 = 0.860$ ,  $P < 0.0001$ ) (Table 3). Water turbulence and sunlight intensity were not significantly correlated with vertical migration of *E. complanata*. Although day-length was not retained in multiple regression analyses, the early emergence of mussels from the substrate may be triggered by daylength and water temperature, since the rate of emergence from the sediments in early spring, when daylengths were longer, seemed faster than rate of submergence into sediments in autumn (Fig. 2).

#### *Horizontal displacement*

In spite of the long traces that can sometimes be observed in shallow waters, horizontal movement in *E. complanata* was infrequent and usually covered only short distances (Table 4). The proportion of the mussel population moving from one week to the next and weekly distances travelled by moving mussels were correlated with daylength (Table 3 and Fig. 3). Rates of movement increased rapidly after ice-out, peaking near the end of June. Following this peak, the proportion of mussels moving and the distances traveled declined steadily until ice-cover the following winter. Surprisingly, the greatest locomotory activity was not synchronized with seasonal variations in water temperature as might be expected in poikilotherms, but coincided instead with the spawning period of this species (Matteson, 1948). Water turbulence and sunlight intensity did not account for significant variation in stepwise multiple regression analyses of mussel locomotion.

**Table 3.**

Results of multiple regression analyses using water temperature ( $T$ ), daylength ( $L$ ), water turbulence ( $Wt$ ), and sunlight intensity ( $Si$ ) as candidate variables: (A) Fraction of mussel population found epibenthic. (B) Fraction of epibenthic mussels that moved ( $\text{day}^{-1}$ ). (C) Average distances travelled by moving, epibenthic mussels ( $\text{cm day}^{-1}$ ). Insignificant variables ( $P > 0.05$ ) are not shown.

Independent variables	Coefficient	SE	P
<b>A) % mussels found epibenthic (<math>r^2 = 0.860</math>)</b>			
Constant	86.538	1.554	<0.0001
$T_{\text{std}}$	1.5400	0.223	<0.0001
$T^2$	-0.0959	0.217	0.0001
<b>B) Mussels that moved (<math>r^2 = 0.534</math>)</b>			
Constant	-0.0958	0.025	0.0005
$L$	0.0111	0.001	<0.0001
<b>C) Average daily distances (<math>r^2 = 0.755</math>)</b>			
Constant	1.3781	0.088	<0.0001
$L_{\text{std}}$	0.5704	0.068	<0.0001
$L^2$	0.0903	0.026	0.0015

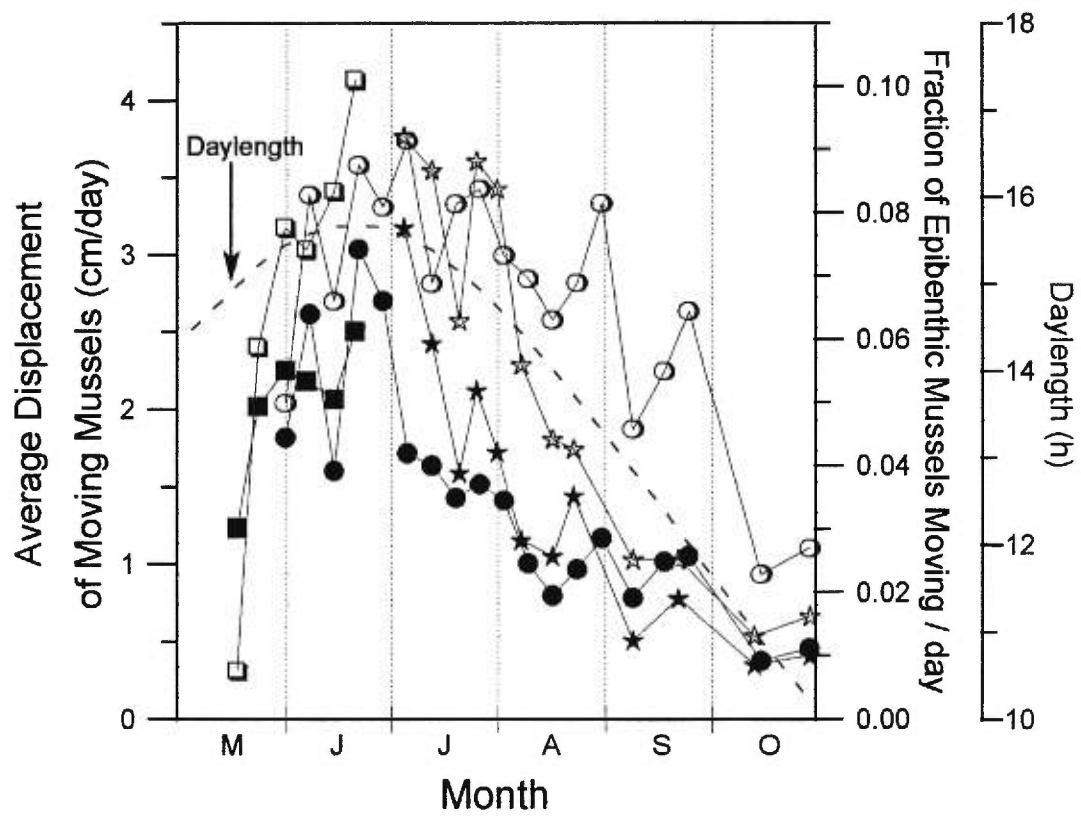
**Table 4.**

Seasonal variations in horizontal locomotion for 527 individual *E. complanata* followed from 1988-90. (A) Mean percentage of the population that moved each month [ $(\Sigma \text{ mussels that moved} / \text{mussels epibenthic} / \text{days between observations}) \times 100$ ]. (B) Mean daily distance travelled ( $\Sigma \text{ distances} / \text{mussels that moved} / \text{days between observations}$ ) for each month.

	May	Jun.	Jul.	Aug.	Sep.	Oct.
Mean % that moved	3.3	7.8	8.1	6.4	4.3	1.9
Mean daily distance (cm)	1.6	2.3	1.9	1.1	0.8	0.4

**Figure 3.**

Temporal variation in the fraction of the epibenthic mussel population that moved per unit time in 1988 (☆), 1989 (○) and 1990 (□), and temporal variation in daily average distance travelled by epibenthic, moving *Elliptio complanata* per unit time in 1988 (★), 1989 (●) and 1990 (■). The dashed line is daylength.





## Discussion

In general, Mollusca do not present well defined patterns of activity and rest, even in very rhythmic environments (Cloudsley-Thompson 1961). Salánki (1961) and Imlay (1968), however, have shown rhythmicity in the mussels *Anodonta cygnea* and *Elliptio complanata*, respectively. They concluded that diel light-cycles affect molluscan behaviour (Imlay 1968), independently of temperature (Salánki 1961).

Though freshwater bivalves are generally eyeless, photoreceptors or pigmented light-sensitive spots in this group have been known for over a century (Sharp 1883; cited in Wilbur and Yonge 1966). The function of these specialized cells is not well understood but mussels have long been known to respond to changes in light intensity (Dubois 1889; cited in Wilbur and Yonge 1966). Our data suggest that, even though they may be able to sense variations in light level, this population of *E. complanata* does not vary its locomotory behaviour on a diel cycle. However, our finding that seasonal variations in mussel locomotion are strongly correlated with daylength, suggests that freshwater mussels can sense variations in the light climate. It is possible that mussels can differentiate even between changes in light due to shadows and those occurring at sunset. Braun and Faust (1954; cited in Imlay 1968) observed that *E. complanata* reacted to very slow variations in light but were insensitive to variations in light under rapidly shifting light and shadows.

Many aspects of *E. complanata*'s movement observed in Lac de l'Achigan are substantially similar to the findings of Balfour and Smock (1995) in a headwater stream. The seasonal vertical migration of *E. complanata* observed in lotic and lentic environments was clear and unambiguous. Assuming that such vertical dynamics are not unique, this may be an important source of error in epibenthic samples at certain times of the year. This bias could be serious if most young *E. complanata* in lakes (Amyot and Downing 1991), and streams (Balfour and Smock 1995) are endobenthic. Based on low population densities in littoral zone samples taken in the spring, Hanson *et al.* (1988) suggested that freshwater mussels must migrate out of the littoral zone in autumn, winter and spring to escape low temperatures. Kat (1982) marked mussels inside quadrats on May 10 and found that there were 28% "new" unmarked mussels on July 10 the following year, concluding that *E. complanata* migrates horizontally in lotic environments. Endobenthic vertical migrations that we observed show that epibenthic mussel densities in mid-May can average 30% less than the density determined in mid-July, due to vertical migration alone. Many of the "immigrants" in Kat's and others' quadrats may simply have been endobenthic at the time of sampling or marking.

A fraction of the population (nearly 10% of epibenthic mussels) descended into the sediment during the first week of July and the last week of August 1989 (see arrows on Fig. 2). These are Canada's two most important summer holiday periods. During 1989 alone, visitors to the lake were allowed to use personal water craft (e.g. Seadoo™, Jetski™). Several of these were observed speeding back and forth near the study site. Few personal water craft have been seen on the lake since then. Although this interpretation is based on a few weeks' samples, turbu-

lence, noise or vibrations made by these water craft may have disturbed the normal activity of *E. complanata*.

Seasonal burrowing may have several functions in unionid mussels. Endobenthic mussels may, for example, be less subject to predation (Negus 1966), or may be protected against displacement by water currents during spring floods (Hinch *et al.* 1989), or by wave action during storms. Seasonal vertical migration may enhance survival during cycles in adverse conditions. Many species of freshwater bivalves are found in temporary aquatic habitats in North America (Mackie *et al.* 1980). Because most freshwater mussels are obligate suspension feeders, and must be immersed to feed and survive, survival of burrowing mussels may have been greater in temporary habitats. According to McKee and Mackie (1981) and Burky (1983), similar life-cycle adaptations to temporary aquatic habitats are seen in other species even when they are living in permanent water bodies. Seasonal vertical migration observed in *E. complanata* may simply be a relict of evolutionary adaptation to seasonally dry conditions. Similarly, in shallow waters that freeze to the bottom in winter, mussels that do not descend into the sediments may risk being frozen solid, or frozen into mobile ice-cover. Winter immersion in sediments may allow mussels to live at temperature closer to that of the groundwater, and thus provide a refuge against extremely cold winter temperatures in shallow waters. On the other hand, summer emergence from the sediments is essential if reproduction, respiration, feeding, and growth are to be achieved.

Temporary burying of some mussels during mid-summer remains obscure. It is known that vibrations (Barnes 1955) and mechanical disturbances (Imlay 1968)

can modify mussel activity. Mussels usually react by closing the valves and remaining immobile for a period of time. On the other hand, physical disturbance might increase locomotion because most disturbed mussels move during the next hour or so after disruption (J.-P. Amyot, unpublished data). *Elliptio complanata*, abundant in shallow waters exposed to wave action, seems to distinguish between natural water turbulence (which does not affect activity) and a mechanical touch (Prior 1972). Allen (1923) indicated that mussels seem to avoid areas in which currents are reduced by rooted plants, and live instead where water movement can supply organic debris. Water turbulence may therefore stimulate normal feeding activity without negatively influencing locomotion. Further studies are needed to shed light on mussel perception of environmental disruptions, and their consequences for the behaviour of mussel populations, especially under anthropogenic stimuli such as intensive boating or bathing activities.

Although mussel locomotion is slow, its strong seasonal variation and association with physical cues suggests that locomotory behaviour is an essential component of their life-history strategies. Given the precarious state of mussel populations and species in North America, care should be taken not to impede the deliberate spatial dynamics of this fragile fauna.

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## Chapitre 4

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### **Locomotion in *Elliptio complanata* (Mollusca: Unionidae): a reproductive function?**

Jean-Pierre Amyot et John A. Downing (1998)

*Freshwater Biology* 39: 351-358

## Summary

1. Temporal variation in the spatial aggregation of the freshwater bivalve *Eliptio complanata* was studied at a sandy site in an oligotrophic lake over three years.
2. Epibenthic populations varied in aggregation over the season bringing animals closer together during spawning. The complex link between movements of mussels and aggregation dynamics suggested a functional reproductive role for horizontal locomotion of unionid mussels in lentic systems.
3. The rate of locomotion did not differ systematically among males, females or hermaphrodites, and was independent of gravidity, whether compared during spawning, after spawning, or throughout the ice-free season.
4. In spite of the high reproductive output of mussels and the energetic cost of locomotion, no relationship was found between the rate of movement of spawning gravid mussels and reproductive output.

## Introduction

The ecology of native North American freshwater mussels has recently gained importance due to a growing concern for the loss of species and the decline of many populations (Keller and Zam 1991; Allan and Flecker 1993; Williams *et al.* 1993). This deterioration has been linked to anthropogenic activities such as industrial pollution, agricultural activities and channel modification (Williams *et al.*, 1993), as well as impacts of exotic species (e.g. *Dreissena polymorpha* (Pallas, 1771); Ricciardi *et al.* 1995, 1996; Schloesser *et al.* 1996). Some species may even reach extinction before we gain a thorough understanding of factors affecting their populations (Bogan 1993).

The basic life cycles of freshwater bivalves have been well known for nearly a century (Lefevre and Curtis 1910; Coker *et al.* 1921; Negus 1966; Haukioja and Hakala 1978). The Unionidae of the temperate zone reproduce annually (Ellis 1978) and most have highly specialised life histories (Jones *et al.* 1986). Knowledge of reproductive details such as gametogenesis, breeding season, periods of glochidia release, fish hosts, and duration of fish parasitism is limited to a few species (Matteson 1948; Heard 1975), and much of their ecology is still poorly understood (Kat 1982; Strayer and Ralley 1993; Balfour and Smock 1995; Strayer *et al.* 1996).

Egg formation (Downing *et al.* 1989) and fertilisation (Matteson 1948) appear to be the most critical steps in the reproductive cycle. Sperm is generally and

synchronously liberated into the water and entrained by the inhalant siphon of females. The sperm fertilises the eggs in the suprabranchial chambers of the female. This mode of fertilisation requires sperm to be sufficiently concentrated in the vicinity of a female. In *Elliptio complanata* (Lightfoot, 1786), a common North American lake and stream dwelling mussel, although Matteson (1948) suggested that spermatozoa can swim considerable distances, the reproductive success has been associated with spatial aggregation of mussel populations, so that fertilisation failure is often complete when local density is  $< 10$  mussels  $m^{-2}$  (Downing *et al.* 1993). Male and female mussels must therefore be relatively close in order to achieve successful fertilisation.

Like most native freshwater mussels, *E. complanata* moves both horizontally over the sediment, and vertically in and out of it. The function of mussel locomotion remains unclear, and studies examining locomotion in freshwater mussels have focused on the burrowing mechanism (Trueman 1968). Horizontal locomotion, in particular, has been studied little. Recent evidences shows, however, that horizontal locomotion in *E. complanata* is minimal in both streams (Balfour and Smock 1995) and lakes (Amyot and Downing 1997). Furthermore, locomotion in this mussel, unlike many poikilotherms, is little influenced by water temperature but strongly related to daylength, at least in a lentic environment (Amyot and Downing 1997). Amyot and Downing (1997) have suggested that this correlation hints at a behavioural rather than a physiological origin for seasonal variations in locomotion. The coincidence of periods of greatest displacement with the breeding season suggests that seasonal locomotion may have a reproductive function.



From a bioenergetic point of view, because of the energy cost associated with bivalve displacement (Trueman 1983), the rate of displacement of females may be less than that of males. Such a strategy during the spawning period would enable females to conserve energy, allowing greater production of embryos, which is much more costly than producing sperm (Russell-Hunter 1979).

The hypothesis that the spatial dynamics of freshwater mussels might serve to enhance reproduction has not been examined explicitly in the literature. Such a study might greatly improve our knowledge of mechanisms governing the reproduction and viability of unionids. This knowledge is critical to the understanding of the basic life-history strategy of endangered freshwater bivalves.

The goal of our study was to examine the horizontal movement of members of a lentic population of the freshwater mussel *Elliptio complanata* as a process that could generate temporal aggregation dynamics, bringing male and female mussels closer together during spawning, and spacing them further apart during the rest of the year. We postulate (i) that spatial aggregation is seasonally dynamic in an epibenthic population of *Elliptio complanata*; (ii) that aggregation is most marked during spawning; (iii) that aggregation dynamics are linked with horizontal movements of mussels; (iv) that males move farther than females prior to spawning; (v) that both sexes have similar patterns of locomotion during the non-spawning period and (vi) that extreme movements of gravid mussels leads to decreased reproductive output.

## Materials and Methods

Experiments were conducted in the sandy littoral zone of Lac de l'Achigan (45°57' N, 73°58' W), 60 km north of Montréal, Canada. This lake (area, 5.08 km<sup>2</sup>) has a mean depth of 11.6 m, but the north shore is composed of gently sloping sand beaches. *Elliptio complanata* is the most abundant mussel in the lake with local densities reaching 70 m<sup>-2</sup> (Downing *et al.* 1989). We studied a population of *E. complanata* within a 5 m X 8 m area at depths ranging from 1.5 to 2 m. The site appeared homogeneously sandy with no trace of predation on mussels. Each mussel was labelled underwater using SCUBA equipment in order to minimise perturbation. Mussels were marked by attaching a numbered plastic label (*Dymo*<sup>TM</sup>) to the posterior face of one valve with underwater glue (*Devcon Wet Surface Repair Putty*<sup>TM</sup>) delivered using a disposable syringe. Disturbance was minimal because animals were only touched gently during labelling.

### *Measures of mussels positions*

The positions of marked individuals were measured over nearly 3 years in the same quadrat. On each sampling date, the relative position of each mussel was measured using rulers attached to stakes marking the corners of 1-m<sup>2</sup> quadrats. Since only quadrat corners were marked, movement of mussels across the study area was unrestricted. These geometric data were transformed to x-y coordinates by triangulation. Mussel positions, when compared between weeks, allowed the measurement of spatial aggregation as well as the distances each ani-

mal travelled, and the frequency of their movements throughout the ice-free season. The determination and measurement of locomotion are described elsewhere (Amyot and Downing 1997). In total, 781 individuals of *E. complanata* were marked over the course of the experiment, but since some mussels situated near the edges of the site left the study area, some endobenthic juveniles became epibenthic, and a few others died during the experiment, we limited the sample used in the analysis of locomotion to 527 individuals that were marked at the start and could be followed to the end of the study. Mussels were considered to be epibenthic if they protruded visibly from the sediment surface and endobenthic when completely buried, leaving a small depression at the surface. Disruption of mussels was avoided during position measurement by using a mobile support (5.5 x 1 m) made from 10-cm diameter ABS™ plastic pipes to keep divers at a distance of 40 cm above the sediment surface.

We recorded the position of *E. complanata* individuals weekly during the summer season and twice each month during spring and autumn. No observations were made during winter because of ice cover. Field works were performed during July-November 1988, May-November 1989, and May-June 1990. Field works ended on 25 June 1990, while female mussels still held maturing glochidia. This was ascertained by periodic sampling of adjacent mussels and visual inspection of the marsupial gills to estimate the maturity of larvae. Then, all epibenthic individuals were removed and brought to the laboratory. Each marked mussel was sealed underwater in an individual plastic bag to avoid loss of glochidia by spontaneous abortion (Lefevre and Curtis 1910; Matteson 1948). We also sieved the sediment of all quadrats to a depth of 30 cm to collect all marked and unmarked endobenthic

mussels. Only 10 (1.3%) marked individuals were found buried, leaving 8.9% of the initially marked population that had either died or emigrated.

### *Measure of aggregation*

The local population density at the sediment surface fluctuated in response to seasonal vertical migration cycles (Amyot and Downing 1991; 1997). Therefore, the distance to the nearest neighbour (Clark and Evans 1954) was chosen as an efficient (Pielou 1977) descriptor of spatial patterns of mussel populations. The distance to nearest neighbour yields a coefficient of randomness ( $R$ ). The x-y position of all epibenthic mussels was used to calculate the mean distance to nearest neighbours for each sampling date. The mean distance to nearest neighbour that would be expected if the individuals of that population were randomly distributed was also calculated. The ratio of observed mean distance to expected mean distance yielded the coefficient  $R$ , measuring the degree to which the observed distribution departs from random expectation:

$$R = \frac{\bar{r}}{E(r)} = \frac{\frac{\sum r}{n}}{(2\sqrt{\rho})} \quad (1)$$

where  $\bar{r}$  represents the mean distance to nearest neighbours in the observed

population, and  $E(r)$ , a derivation of Poisson's exponential function (see Clark and Evans 1954), represents the mean distance to nearest neighbour of a randomly distributed population.  $\rho$  is the density of the observed distribution expressed as the number of individuals per unit area.

A population can be considered aggregated when the index  $R$  is significantly less than 1. Clark and Evans (1954) provide a formula for estimating the error associated with  $R$ :

$$C = \frac{\bar{r} - E(r)}{\sigma_{E(r)}} = \frac{\bar{r} - E(r)}{\frac{0.26136}{\sqrt{n\rho}}} \quad (2)$$

where  $C$  is the standard variate of the normal curve and  $\sigma_{E(r)}$ , an integration of the product of the probability distribution function  $r$  by  $r^2$  (see Clark and Evans 1954), represents the standard error of the mean distance to nearest neighbour in a randomly distributed population of the same density as the observed population. Significant differences from randomness of each  $R$  value obtained were ascertained using this method.

As  $R$  is sensitive to sampling boundary effects, mussels living in a narrow strip along the edge of the sampling area were only used as "neighbours" in the analysis to avoid systematic overestimates of  $R$ . The width of the strip was pro-

portional to the observed mean distance to nearest neighbour (Pielou 1977).

### *Time of spawning*

According to Matteson (1948), the breeding time of *E. complanata* in Ocqueoc Lake in Michigan extended from the end of April to mid-June, reaching a maximum around mid-May. The spawning maximum coincided with the period when water temperatures reach 20 °C. The maturation of larvae takes roughly four weeks after spawning. In Lac de l'Achigan, ice melts and water temperature reaches 20 °C approximately 2 weeks later than in Ocqueoc Lake. Environmental conditions may vary from year to year but, based on our examination of maturing glochidia, spawning of *E. complanata* must have begun in early May in Lac de l'Achigan, reaching a peak at the end of May but continuing to the end of June.

### *Mussel characteristics*

Shell size, sex, and reproductive output of all epibenthic individuals followed throughout this study were determined at the end of the field study. Shell length was measured using a digital caliper ( $\pm 0.01$  mm). As *Elliptio complanata* is not sexually dimorphic, sex determination required removal and histological examination of the gonads. The gonadal mass of each mussel was preserved in 80% ethanol. Transverse sections of gonadal tissues were stained and observed under a microscope following the protocol of Heard (1975). Because some individuals can be hermaphroditic (Heard, 1975), sex was separated into five categories: < 10%, 10 to 40%, 40-60%, 60-90%, and > 90% male tissue, following Downing *et al.*

(1989).

Reproductive output was estimated as the number of glochidia or eggs present in the outer gills of each gravid female. This was determined by sectioning and putting the gills of each gravid mussel in a 1 litre glass container. The 100  $\mu\text{m}$  filtered contents of the sampling bag were added to collect any eggs or glochidia that may have been released by spontaneous abortion during transportation, and the glass container was filled to 800 ml with 80% ethanol. This solution was mixed briefly at moderate speed using a domestic electric beater to break gill structures and liberate the larvae. Reproductive output was estimated by counting the larvae in four 1ml sub-samples at 40X magnification.

### *Statistical analysis*

Correlation analysis (Pearson's  $r$ ) was used to test the relationship between (i) the level of aggregation and time; (ii) aggregation dynamics and the rate of horizontal locomotion of mussels (estimated as the daily average distance travelled by epibenthic mussels) and (iii) the movement of gravid females and their reproductive output. Comparison of locomotion among sexes considered two aspects: (i) total number of movements of each epibenthic mussel during a given period and (ii) the cumulative distance travelled (cm) by each epibenthic mussel. We compared the level of aggregation inside and outside the spawning period using one-way ANOVA. Error distributions of variables were satisfactorily close to normal (Wilk-Shapiro normality statistic  $> 0.93$ ), except for sex categories (Wilk-Shapiro = 0.66)

for which a Kruskal-Wallis one-way ANOVA was used to test for differences in locomotion.

## Results

### *Seasonal aggregation dynamics*

The analysis of nearest neighbour distances revealed that epibenthic mussels were frequently spatially aggregated in Lac de l'Achigan (Fig. 1). More than 75% of the estimates of  $R$  showed a distribution significantly different from random ( $P < 0.05$ ,  $C$  test). Populations became very aggregated around the end of May, the expected time of maximum spawning in this lake. Following spawning (vertical line in Fig. 1), aggregation declined and  $R$  increased systematically with time ( $r = 0.529$ ,  $P = 0.0005$ ), indicating clear seasonal dynamics in distribution. Moreover, comparison of the level of aggregation during spawning (mean  $R = 0.9184$ ,  $SD = 0.0246$ ), with that post-spawning (mean  $R = 0.9497$ ,  $SD = 0.0219$ ) showed that mussels were significantly more aggregated during spawning ( $P = 0.0003$ , one-way ANOVA). Because *E. complanata* migrated vertically, depending on season and temperature (Amyot and Downing 1991), between 4% and 76% of the population remains completely buried beneath sediment surface. When endo- and epibenthic mussels were considered together (as if sediments were transparent) no correlation ( $P = 0.127$ ) was found between aggregation and season. This can also be seen in



Fig. 2 by the small range of variation of  $R$  values for the complete population compared with the epibenthic population. Thus, members of the population that can reproduce, (i.e. epibenthic mussels), were significantly closer to each other than they were throughout the rest of the year.

### *Aggregation dynamics and horizontal movement*

A strong positive relationship was found between the rate of locomotion and daylength (see Amyot and Downing 1997). *Elliptio complanata* moves more frequently and further during periods of longest daylight. Figure 3 shows the degree of spatial aggregation (black circles) and the average distance travelled daily by epibenthic mussels (open circles) in all three years. Aggregation and horizontal locomotion were significantly, negatively correlated ( $r = -0.43$ ,  $P = 0.007$ ). In spring, the epibenthic population began moving in mid-May and accelerated until July. Then, even though there was no corresponding change in water temperature, the rate of movement decreased rapidly. During the period when locomotion declined, the spatial distribution of the epibenthic mussels changed from highly significantly aggregated to a spatial distribution approaching randomness. Movement then continued to decrease throughout the ice-free season.

### *Sex, reproduction and locomotion*

Other studies have shown that the Lac de l'Achigan population shows a significant degree of hermaphroditism (Downing *et al.* 1989). The population was biased towards males, having an overall male-female ratio around 1.5:1 (Table 1).

Males, females and hermaphrodites had similar rates of locomotion during spawning, after spawning and over the entire ice-free period (Kruskal-Wallis one-way ANOVA;  $P > 0.05$ ) (Table 2). Simple correlation analysis showed no significant relationship between the number of glochidia found in each gravid mussel (Fig. 4), or the amount of glochidia per dry weight of female visceral mass (Fig. 5) and locomotion from their last spawning period (May-June, 1990).

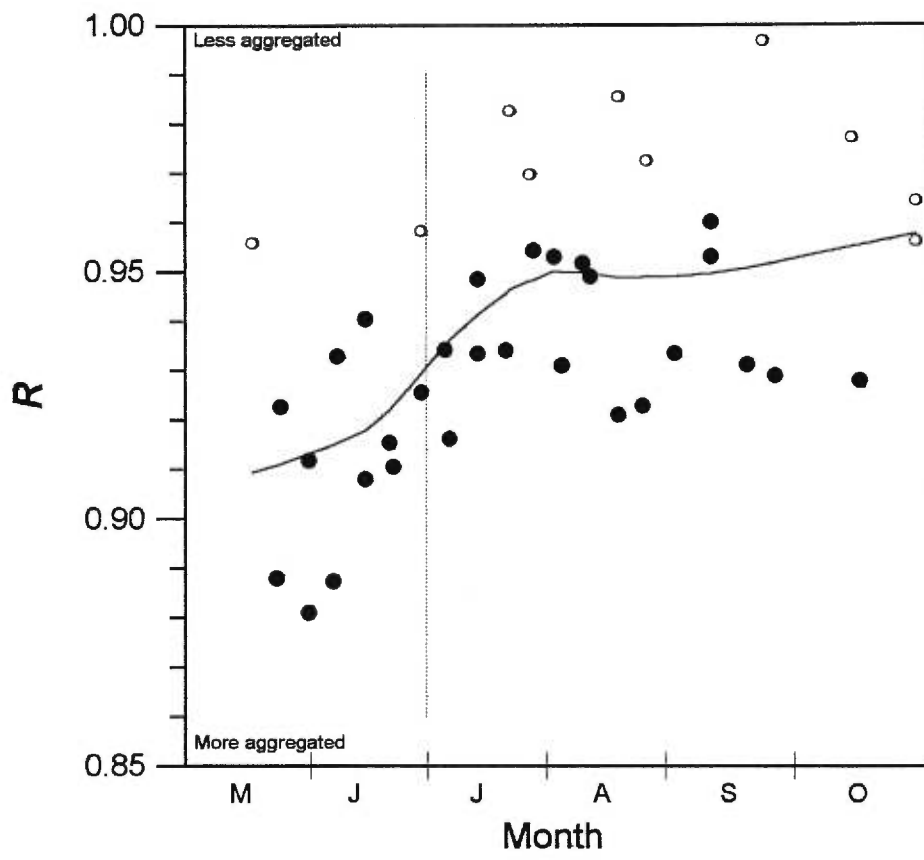
## Discussion

Reproduction in unionid molluscs is complex. The life-cycle of freshwater mussels includes a glochidia larva, parasitic on fishes, which is highly vulnerable since only a very small proportion of the glochidia are capable of attaching themselves to the fish (Jokela *et al.* 1991), and because many juvenile mussels do not find suitable substratum for continued growth (Negus 1966). Another factor reducing recruitment success is the spatial distribution of mature individuals. For example, Downing *et al.* (1993) clearly demonstrated that fertilisation success was strongly linked to the spatial aggregation of a population of *E. complanata* and pointed out that the spatial dynamics of mussel populations makes perception of this phenomenon difficult.

*Elliptio complanata* moves horizontally and vertically in both lotic (Balfour and Smock 1995) and lentic habitats (Amyot and Downing 1997) following a seasonal cycle. Downward movements may be useful against predation (Negus 1966),

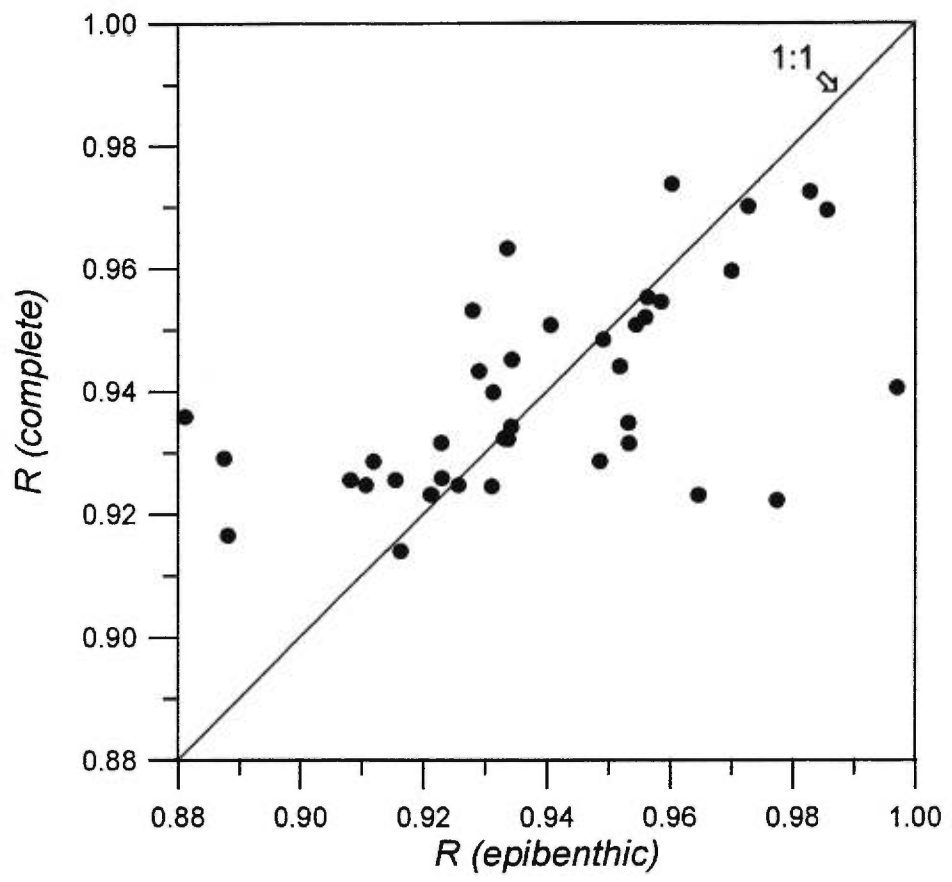
**Figure 1.**

Seasonal variation of the aggregation ( $R$ : coefficient of randomness) for an epibenthic population of *Elliptio complanata*. Open circles (○) represent the values of  $R$  that were not significantly different from randomness. The trend line was determined using locally-weighted sequential smoothing (LOWESS: Cleveland, 1979). The vertical broken line indicates the time at which spawning probably ceased.



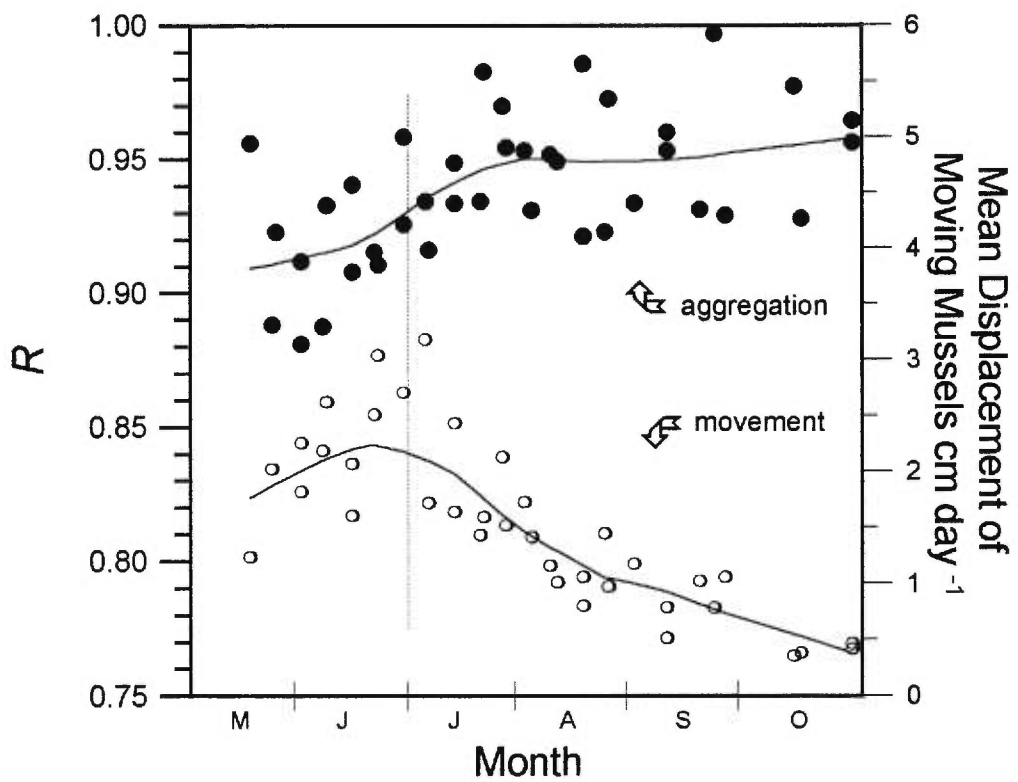
**Figure 2.**

Comparison of the level of aggregation ( $R$ : coefficient of randomness) between the complete population (i.e. epibenthic + endobenthic) and the epibenthic population of *E. complanata*.



**Figure 3.**

Comparison of seasonal patterns of aggregation (●) and mean daily distance travelled by epibenthic mussels (○). The solid curves represent LOWESS (Cleveland, 1979) fits to the data of each category.





**Table 1.**

Proportion of epibenthic population, size of shell and reproductive output of each sexual category of mussels. Sexual classes were based on the percentage of male tissue found in sectioned gonads.

$n = 701$

Sex (% male)	% of Epibenthic Population	Shell Length (mm) mean ( <i>SD</i> )	% with Eggs or Glochidia	Eggs or Glochidia/Gravid mussel mean ( <i>SD</i> )
0-10	38.4	67.9 (11.64)	25.2	24 450 (16 180)
10-40	1.8	69.3 (15.99)	1.3	17 030 (10 130)
40-60	1.8	66.5 (17.58)	1.1	16 410 (16 010)
60-90	0.8	52.6 (6.66)	-	-
90-100	57.2	64.9 (14.94)	-	-

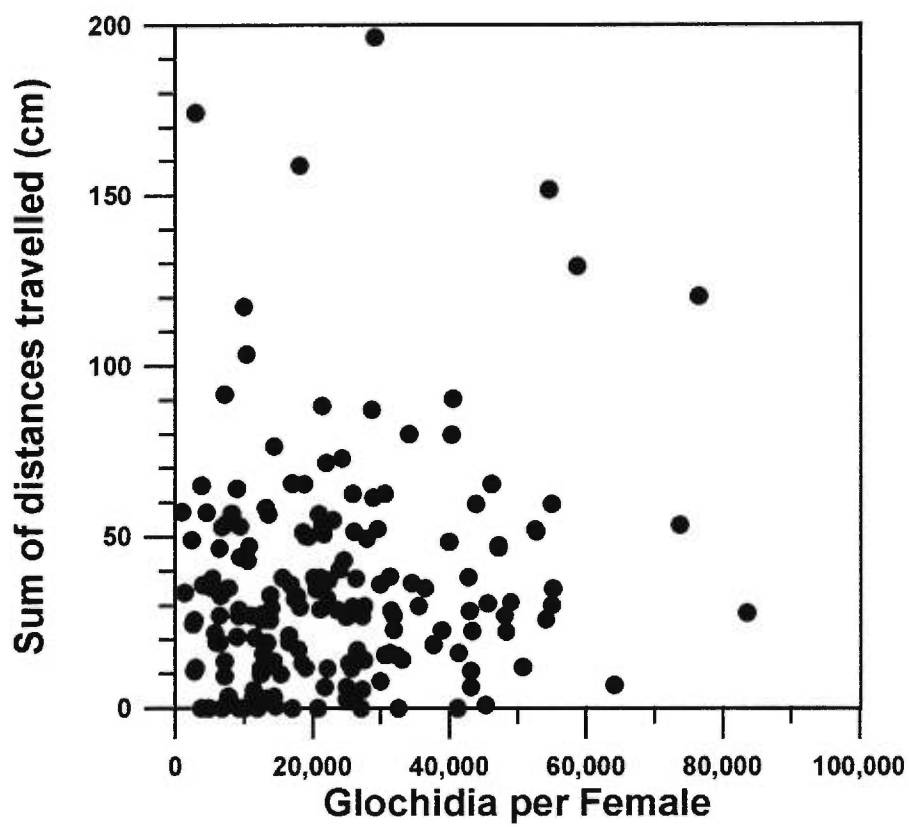
**Table 2.**

Comparison of the rate of movement of each sexual category of mussels for the mean total displacement during 1988, 1989, 1990 combined and the mean total distances travelled (cm) by epibenthic mussels.  $n = 527$ .

	Sex category (% male tissue)					Kruskal-Wallis	
	0-10	10-40	40-60	60-90	90-100	Statistic	<i>P</i>
<u>Mean displacement (fraction of population that moved in 1 week)</u>							
Spawning period	0.1028	0.1161	0.0922	0.0685	0.0997	4.785	0.310
Post-spawning	0.0652	0.0697	0.0638	0.0534	0.0645	3.663	0.453
<u>Mean distance travelled (cm)</u>							
Spawning period	1.37	1.55	1.13	0.83	1.22	6.342	0.175
Post-spawning	0.45	0.32	0.50	0.56	0.50	5.999	0.199

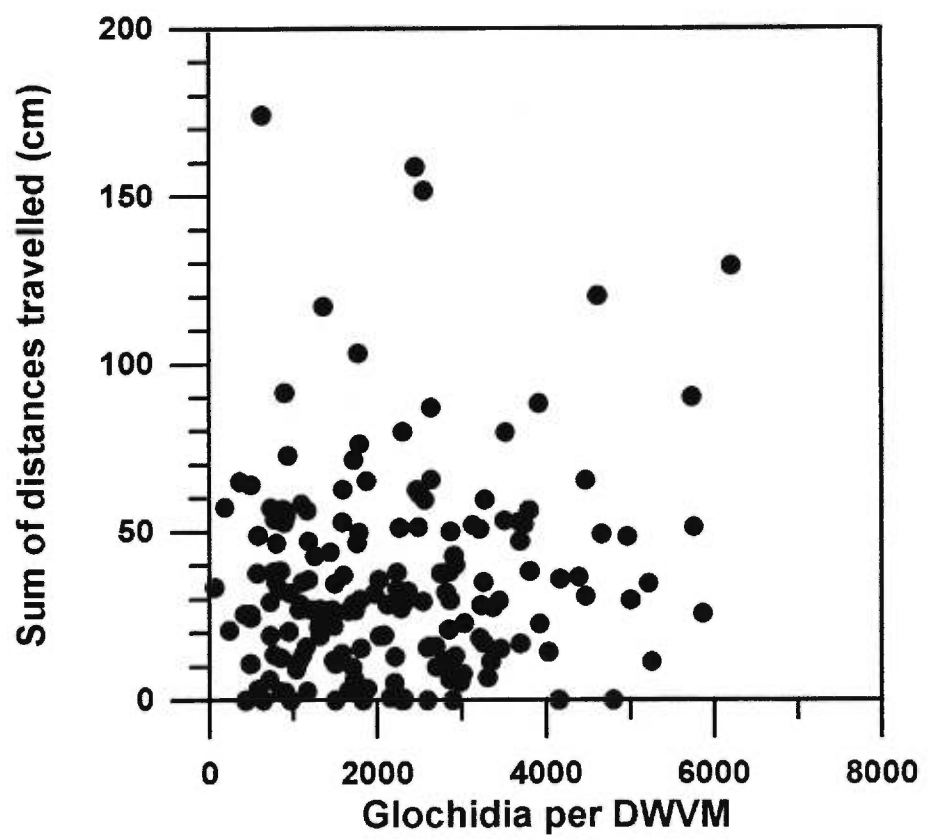
**Figure 4.**

Relationship between the number of glochidia found in the marsupia of mussels and the sum of distances travelled by each female mussel during their previous spawning time (May-June, 1990) ( $r = 0.119$  ;  $P = 0.115$  ).



**Figure 5.**

Relationship between the amount of glochidia per dry weight of female visceral mass (DWVM) and the sum of distances travelled by each female mussel during their previous spawning time (May-June, 1990) ( $r = 0.367$  ;  $P = 0.128$  ).



displacement during high flow (Hinch *et al.* 1989) and wave action during storms, or they may provide shelter during adverse conditions such as periodic pond dryness (Mackie *et al.* 1980). The utility of downward migration during mid-summer remains obscure. Although some have suggested that horizontal displacement may offset possible downstream displacement in lotic populations (Balfour and Smock 1995), or aid in locating suitable conditions after being dislodged (Trueman 1968). Until now, other possible functions of horizontal movement have been little studied.

We know of no other study that has suggested a possible reproductive role for locomotion and spatial dynamics in freshwater mussels. Although some have shown a coincidence of mussel activity with water temperature (Matteson 1948; Jørgensen *et al.* 1990), or photoperiod (Imlay 1968), our data indicate that locomotion and spatial dynamics may be behaviourally related to reproduction, bringing mussels closer together during the spawning season. Further, because epibenthic males or females, taken separately, were always less aggregated during the breeding period than the population as a whole (males and females combined), it is likely that spring locomotion brings opposite sexes closer together (Table 3). To our knowledge, this is the first evidence of a functional role for horizontal locomotion in lentic unionids.

We can only speculate about how mussels aggregate during the spawning season. According to Nelson and Allison (1940), spermatozoa of some marine bivalves carry a hormone which, when present in the inhalant water stream of a female, induces an increased rate of pumping of water by the ctenidia, after which

ovulation commences. The presence of such biochemical reproduction mediators in freshwater bivalve proximity might explain how mussels locate mates. In marine environments, photosensory structures of varying degrees of complexity have been reported in bivalves, some capable of perceiving movement (Wilbur and Yonge 1966).

According to Russell-Hunter (1979), egg production may require > 50% of the energy available per year for growth whereas production of sperm may amount to only about 1% of the bioenergetic (as turnover of carbon and nitrogen in growth and reproduction) of males. The fact that locomotion has no perceptible impact on reproduction is therefore puzzling. In theory, energy allocation to locomotion should differ between males and gravid female mussels during the spawning season. Thus, in an evolutionary perspective, gravid female mussels should spend less energy on locomotion compared to males unless reproduction or locomotion are not energetically costly.



**Table 3.**

Level of spatial aggregation represented by  $R$  (coefficient of randomness) for epibenthic mussels, male, female, and the entire epibenthic population during the spawning time.

	$R$		
	Male	Female	Population
Minimum	0.8871	0.8926	0.8811
Maximum	0.9934	1.0156	0.9584
Mean	0.9280	0.9300	0.9184

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## Chapitre 5

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### Discussion générale



## 5.1 Le déplacement vertical de la moule

Cette étude montre clairement la dynamique de déplacement vertical chez *Elliptio complanata*. Cette dynamique est saisonnière comme le montre la figure 3 (chapitre 2) et la figure 2 (chapitre 3). La population observée procède à une succession cyclique d'émergence et d'enfouissement dans les sédiments suivant un cycle annuel. La migration verticale ascendante et descendante chez cette moule est fortement corrélée avec le régime thermique du lac. Dans le lac de l'Achigan, l'émergence maximale s'observe entre les mois de juillet et août durant la période où la température de l'eau est à son maximum. En période hivernale, la population demeure enfouie localement sans se déplacer horizontalement. Des résultats similaires ont été trouvés pour des individus de cette espèce vivant en rivière (Balfour et Smock 1995). Cette "sédentarité" va à l'encontre des observations de Hanson *et al.* (1988a) qui proposait une importante migration hors de la zone littorale durant la période hivernale pour éviter l'exposition aux froids extrêmes, et des résultats de Kat (1982) qui, après avoir marqué des moules à l'intérieur de quadrats au début du mois de mai, avait retrouvé de «nouvelles» moules non-marquées au mois de juillet et suggérait, à titre d'explication, une très grande capacité de migration pour ce même organisme.

Un aspect novateur de ce travail a été de démontrer qu'une fraction significative de la population n'est pas soumise à la dynamique de déplacements verticaux. Nos données montrent que, même durant la période où l'émergence est à son maximum, une proportion variant entre 13% et 23% de la population totale (épi- et endobenthiques) demeure en position endobenthique permanente (figure 2,

chapitre 2). De plus, toutes les moules demeurant enfouies dans les sédiments à la mi-été étaient significativement plus petites en taille que les individus occupant une position épibenthique. La taille étant corrélée à l'âge chez *E. complanata* (Downing *et al.* 1989, Hanson *et al.* 1988b), nos résultats suggèrent que les moules juvéniles demeurent constamment enfouies pendant les quelques premières années de leur vie. Ceci corrobore l'observation d'émergence aux mois de juillet de moules non-marquées, toutes âgées de 5-6 ans, parmi la population marquée à l'intérieur des quadrats. Ces observations apportent une nouvelle lumière sur un aspect obscur de l'écologie des unionides: la constante absence de moules juvéniles dans l'ensemble des études où l'échantillonnage se limite à la surface des sédiments seulement.

Plusieurs fonctions peuvent être associées aux déplacements verticaux chez les moules unionides. Il est suggéré que l'enfouissement peut prévenir la prédation (Negus 1966), le déplacement par les grands courants d'eau durant les inondations (Hinch *et al.* 1989), peut aussi être un reliquat d'une adaptation évolutive aux sécheresses cycliques (McKee et Mackie 1981, Burky 1983). Quelques espèces d'unionides africaines sont particulièrement bien adaptées aux importants cycles d'assèchement, comme chez *Aspatharia petersi* qui peut survivre jusqu'à 12.5 mois à la dessiccation (Dance 1958, cité dans Wilbur et Yonge 1964). La position endobenthique peut aussi devenir un refuge contre les grands froids hivernaux. D'autre part, l'émergence des sédiments à la saison estivale est essentielle pour la respiration, l'alimentation, la croissance et la reproduction chez les unionides.

Un aspect demeure obscur relativement au cycle de migration verticale et fut observé durant toute la période étudiée, il s'agit de l'enfouissement sporadique de quelques moules durant des périodes variant de une à deux semaines. Ce phénomène a été grandement amplifié à deux reprises durant deux périodes importantes (*voir flèches*, figure 2, chapitre 3) durant lesquelles plusieurs vacanciers se sont adonnés à la promenade en *Seadoo* et *Jetski* juste au-dessus du site étudié. Quelques études ont démontré une modification de l'activité des moules en présence de vibrations (Barnes 1955), ou de dérangements mécaniques (Imlay 1968, Prior 1972). Il est possible qu'une forte activité anthropogénique puisse affecter les populations unionides lacustres.

La position endobenthique des moules juvéniles, ajoutée à la migration verticale saisonnière, peuvent biaiser de façon importante l'estimation de la biomasse ou de la production si un échantillonnage se limite aux moules épibenthiques seulement.

## 5.2 Le déplacement horizontal de la moule

Même si l'étude des mollusques bivalves remonte au début du siècle, la locomotion horizontale continue d'être peu documentée. Comme le démontrent nos analyses et celles d'autres chercheurs (Balfour et Smock 1995) la moule unionide est un animal relativement peu mobile en dépit des longues traces qu'elle peut laisser sur les sédiments (Tableau 4, chapitre 3). Les cycles d'activité et de repos

chez les mollusques en général présentent des patrons mal définis (Cloudsley-Thompson 1961). À ce sujet, Imlay (1968) concluait que les cycles affectant les mollusques étaient gouvernés par la lumière du jour, et Salánki (1961) supposait que ces cycles étaient indépendants de la température ambiante. Nos résultats montrent que la lumière, ou plus précisément la durée du jour, est le facteur abiotique ayant la plus grande influence sur le taux de locomotion horizontale chez *E. complanata* (figure 3, chapitre 3). Même si les moules d'eau douce sont sans yeux, des cellules photoréceptrices sont reconnues chez ce groupe depuis très longtemps (Sharp 1883, cité dans Wilbur et Yonge 1966). La fonction de ces cellules photosensibles n'est pas très bien comprise à ce jour mais les moules sont habilitées à réagir aux changements d'intensité lumineuse (Dubois 1889, cité dans Wilbur et Yonge 1966). Nos données suggèrent que, même si les moules peuvent percevoir les fluctuations lumineuses, ni les distances parcourues, ni la fréquence de déplacement ne diffèrent entre le jour et la nuit (Tableau 2, chapitre 3). Cependant la forte corrélation observée entre la locomotion horizontale et la durée du jour suggère que les moules unionides sont capables de percevoir et de réagir aux variations lumineuses saisonnières. Il demeure surprenant d'observer que les variations des taux d'activités de déplacements ne soient pas synchronisés avec les variations saisonnières de la température de l'eau, comme c'est le cas pour la majorité des poïkilothermes. Les hauts taux de déplacements horizontaux observés chez cette moule coïncident plutôt avec la période de reproduction chez cette espèce (Matteson 1948).

### 5.3 Locomotion, agrégation et reproduction

La reproduction chez les mollusques unionides est complexe. Le cycle vital des moules d'eau douce comprend un stade larvaire parasitaire chez les poissons. Ce stade rend ces espèces vulnérables puisqu'une faible proportion de larves sont capables de se fixer sur un poisson (Jokela *et al.* 1991) et que plusieurs de ces larves, une fois transformées en moules juvéniles ne trouveront pas de site favorable pour la poursuite de leur croissance (Negus 1966). Comme Downing *et al.* (1993) a clairement démontré, un autre facteur qui affecte la reproduction chez les unionides de façon importante est la distribution spatiale des moules épibenthiques capables de se reproduire. Une densité de population inférieure à 10 m<sup>-2</sup> représente un seuil en dessous duquel il y a diminution ou absence de fécondation.

Le rôle de la locomotion chez les moules unionides a été associé à la prévention d'être déplacé par les variations de courants chez les populations lotiques (Balfour et Smock 1995), ou à la capacité de trouver un lieu propice si elles ont été déplacées (Trueman 1968). Jusqu'à maintenant, d'autres fonctions au mouvement horizontal ont été peu étudiées.

Nos données suggèrent une fonction autre au déplacement des unionides. La locomotion et la dynamique spatiale chez *E. complanata* peuvent être reliées à un comportement de reproduction qui consiste à rapprocher les individus plus près les uns des autres durant la saison de reproduction. L'agrégation maximale s'observe au moment de la fertilisation chez *E. complanata*. De plus, puisque les

moules mâles ou femelles, pris séparément, ont toujours présenté un niveau d'agrégation inférieur durant la période de frai que le niveau d'agrégation de la population complète (mâles et femelles combinés), il devient évident que la locomotion durant le printemps rapproche les individus de sexe opposé (Tableau 3, chapitre 4). Ceci est une première évidence d'un rôle fonctionnel pour la locomotion horizontale pour les populations lenticules de moules unionides.

Comment les moules réussissent à s'agréger demeure une question ouverte. Chez quelques espèces de bivalves marins, il a été démontré que les spermatozoïdes portent une hormone qui, une fois entrée dans le courant inhalant des siphons chez la femelle, induit une accélération du "pompage" par le mouvement des cténidies, après quoi est amorcée la période d'ovulation (Nelson et Alison 1940). En eau douce, ces médiateurs chimiques n'ont pas été détectés à ce jour. S'il existe de tels produits biochimiques de reproduction chez les unionides, ceux-ci pourraient expliquer comment les moules se rapprochent d'un partenaire sexuel.

Notre étude n'a détecté aucune différence dans les taux de déplacement entre les individus mâles et femelles, ni durant la période de reproduction, ni durant les autres saisons. Selon Russell-Hunter (1979), la production de gamètes femelles devrait demander > 50% de l'énergie disponible pour la croissance, alors que la production de gamètes mâles en demande seulement  $\approx$  1%. Le fait que l'activité associée aux déplacements n'ait pas eu d'impact perceptible au niveau de la reproduction chez ces moules, i.e. aucune relation significative entre le taux de locomotion et le nombre de larves produit, demeure intrigant. Sur le plan théorique, l'allocation d'énergie pour la locomotion devrait être différent entre les mâles et fe-

nelles, à tout le moins durant la période de reproduction. Dans une perspective évolutive, les moules femelles gravides devraient dépenser moins d'énergie à la locomotion au printemps comparée à celle allouée aux mâles, à moins que ni le déplacement, ni la reproduction ne soit coûteux sur le plan énergétique.

#### 5.4 Perspective et recherches futures

Plusieurs questions adressées à l'écologie des moules d'eau douces restent sans réponse. Des travaux supplémentaires seront requis pour élucider la signification de l'enfouissement sporadique et temporaire de certaines moules adultes durant la saison estivale. À la lumière des connaissances actuelles, les avantages ou les inconvénients associés à ce comportement ne peuvent être liés aux processus écologiques classiques. Dans ce même ordre d'idée, nos résultats ont indiqué que les quelques 4-5 premières années de vie et de croissance d'*Elliptio complanata* se sont déroulées sous la surface des sédiments, atteignant parfois des profondeurs > 20 cm. À ces profondeurs, les conditions d'alimentation et d'oxygénation des moules sont-elles similaires aux conditions présentes à l'interface eau-sédiment? Si tel n'est pas le cas, ceci indiquerait que ces moules possèdent des adaptations particulières à ces conditions qui nous sont encore inconnues.

La présente étude a démontré, pour les densités de population observées au lac de l'Achigan, une corrélation positive très forte entre le déplacement des moules mâles et femelles et le degré d'agrégation de la population durant la pé-

riode où s'effectue la reproduction, conférant à la locomotion une fonction favorisant la reproduction de l'espèce. Le déplacement des individus de cette même espèce, observé chez des populations de très faible densité, i.e. lorsque la distance entre individus est grande (> 5m, par exemple), conserve-t-il la même fonction ou importance? Ceci demanderait à être exploré. Enfin, il serait essentiel de vérifier si l'ensemble des résultats obtenus dans ce travail sont spécifique à *E. complanata* ou au contraire peuvent se généraliser à plusieurs espèces de moule unionide.

Dans un contexte où la majorité des populations de moules unionides nord-américaines présentent des signes évidents de déclin, il devient crucial de comprendre les mécanismes associés à la diminution des populations si nous voulons prévenir la disparition de certaines espèces. Dans ce contexte, la compréhension des facteurs physiques et biologiques qui affectent les populations de moules des lacs et des rivières devient critiques. À ce jour nous connaissons peu les seuils et les limites de tolérance physiologique des moules unionides. Ces connaissances sont essentielles pour l'application d'une gestion adéquate de conservation. Depuis quelques années, plusieurs chercheurs effectuent des opérations de relocalisation dans le but de préserver, par mesure de prudence, certaines espèces menacées.

Beaucoup d'efforts sont actuellement déployés pour déterminer les caractéristiques biologiques et environnementales reliées aux populations d'unionides rivaines. Il a été démontré que la distribution et l'abondance des populations vivant en rivière sont liées à des variations de la qualité du milieu qui est fonction de l'activité anthropogénique locale, à la vitesse des courants, aux types de substrats



et à la distribution des poissons hôtes. Ces facteurs sont, pour l'ensemble, issus du sectionnement des cours d'eau, de la mise en place de barrages ou de digues, etc. En milieu lacustre cependant, relativement peu de travaux ont été réalisés pour comprendre le déclin des populations de bivalves. Les populations de moules d'eau douce vivant en lac présentent des signes de déclin similaires aux populations des rivières. Les effets des facteurs associés à la distribution spatiale des moules unionides et les conséquences sur leur survie demandent à être étudiés.

## 5.5 Conclusion

Pour la population d'*E. complanata* du lac de l'Achigan, ne pas considérer les individus endobenthiques dans une campagne d'échantillonnage, même lorsque la température de l'eau atteint son niveau le plus élevé, aurait sous-estimé sérieusement la contribution des moules juvéniles à la biomasse et à la production de cette population. Les moules sont majoritairement endobenthiques durant l'hiver, émergent graduellement des sédiments au printemps, atteignent une abondance maximale épibenthique au mois de juillet et s'enfouissent graduellement par la suite pour la période hivernale. La locomotion verticale est corrélée avec la température du milieu. Indépendamment du jour ou de la nuit, la locomotion horizontale des moules est corrélée avec la durée du jour et atteint un maximum qui coïncide avec la période de frai de cette espèce. Nos données montrent une relation entre le taux de locomotion horizontale et le niveau d'agrégation maximal chez la population étudiée qui coïncide avec la période de frai. Il s'agit ici d'une première évi-

dence d'un rôle fonctionnel au déplacement des moules unionides dans les lacs.

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## **Annexe 1**

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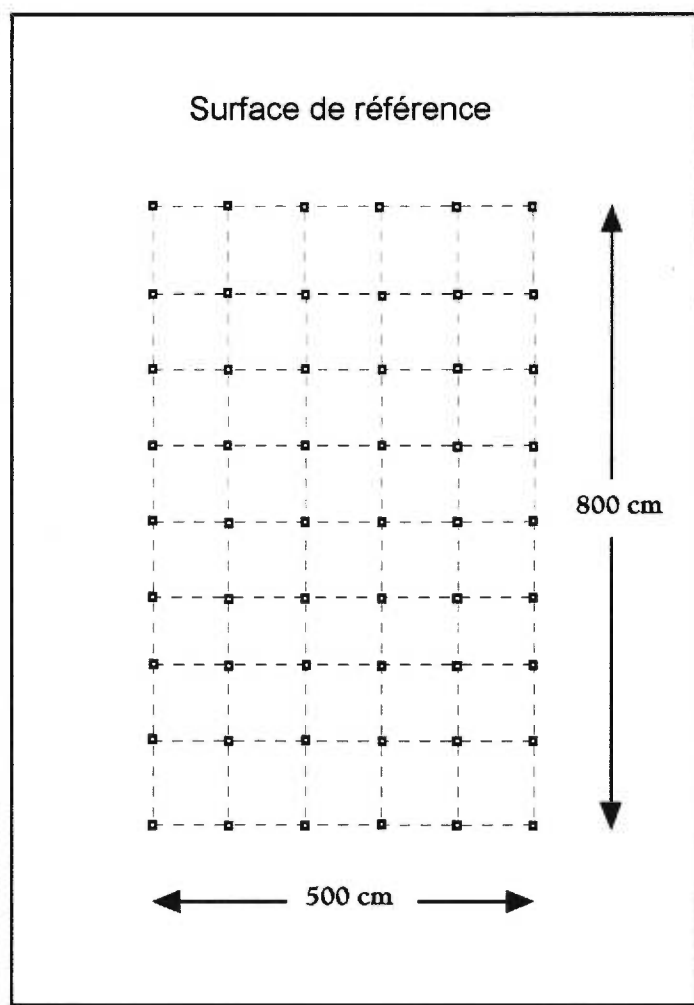
### **Méthode d'évaluation de l'imprécision associée à la mesure de la position de la moule et de son déplacement**

## Annexe 1

### **Le site**

Le site d'échantillonnage, disposé sur une surface de référence de 5m X 8m, consistait en une série de quarante quadrats de 1 m<sup>2</sup>. Ces quadrats furent délimités uniquement par des piquets enfoncés dans les sédiments (Fig. 1).

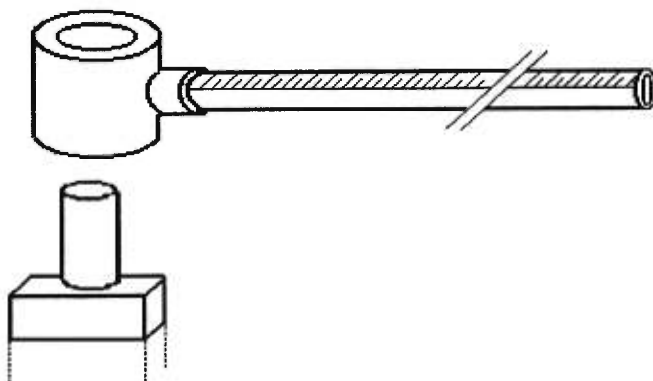
Figure 1.



## ***Le système de règles de mesure***

Les piquets délimitant les quadrats furent fabriqués de pièces de bois sur lesquelles pouvait pivoter une règle. Cette règle, d'une longueur de 150 cm, consistait en un tuyau *PVC* sur lequel était fixé un ruban à mesurer. Le point de départ de la règle (i.e. la mesure zéro) coïncidait avec le centre du piquet (Fig 2).

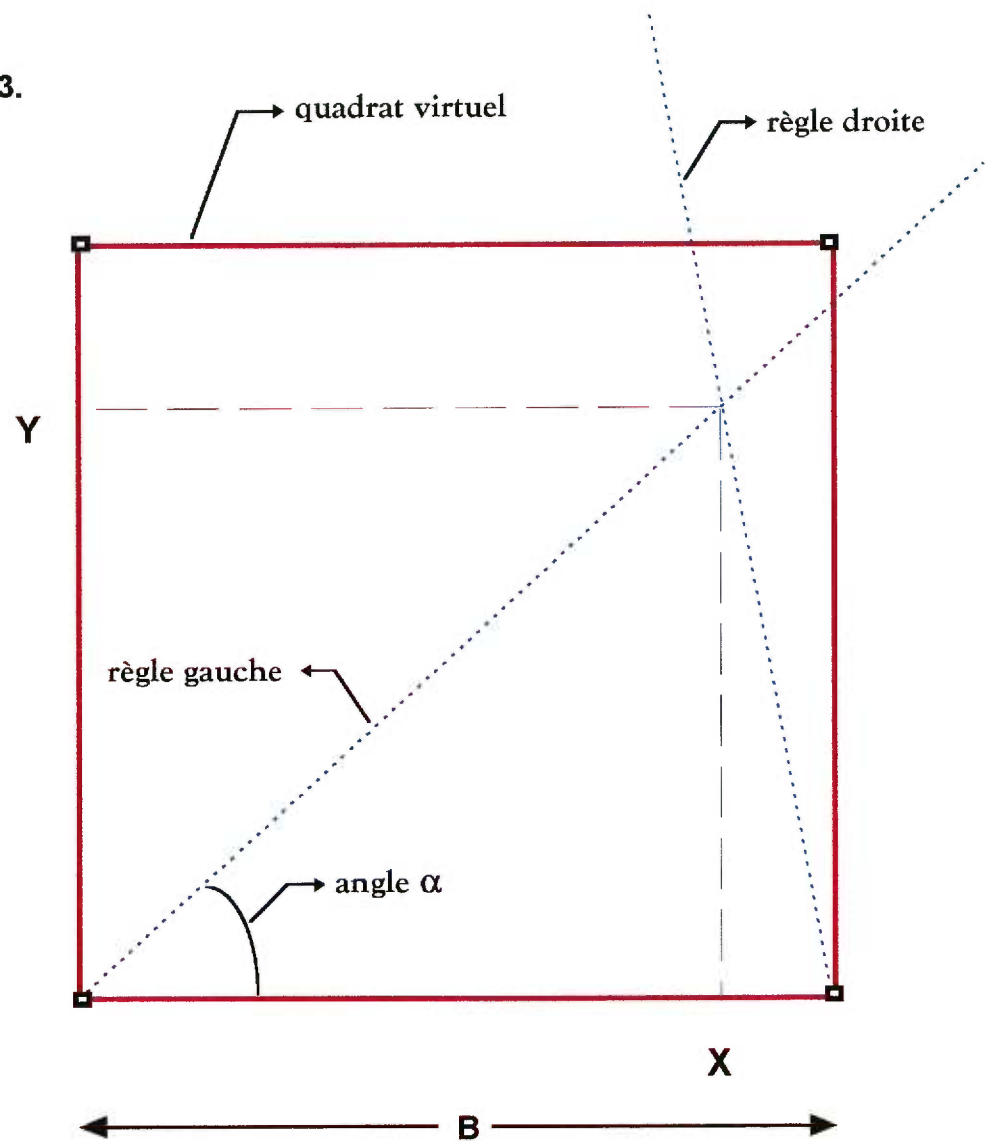
**Figure 2.**



## ***Obtention des coordonnées « X » et « Y »***

La position relative de chaque moule à l'intérieur du quadrat a été obtenue en mesurant la distance « gauche » et « droite » séparant la moule des piquets inférieurs gauche et droit correspondants. On a mesuré ces distances à l'aide d'un système de deux règles (Fig.3).

Figure 3.



À l'aide du triangle formé par la base du quadrat (B), la mesure de la règle gauche (G) et de la règle droite (D), on obtient l'angle  $\alpha$  à l'aide de l'équation 1.

$$\alpha = \arccos \left[ \frac{(D^2 - G^2 - B^2)}{(-2 G \times B)} \right] \quad (1)$$

Ayant obtenu l'angle  $\alpha$ , la coordonnée X de la position s'obtient à l'aide de l'équation 2, et la coordonnée Y à l'aide de l'équation 3.

$$X = [\cos (\alpha)] \times G \quad (2)$$

$$Y = [\sin (\alpha)] \times G \quad (3)$$

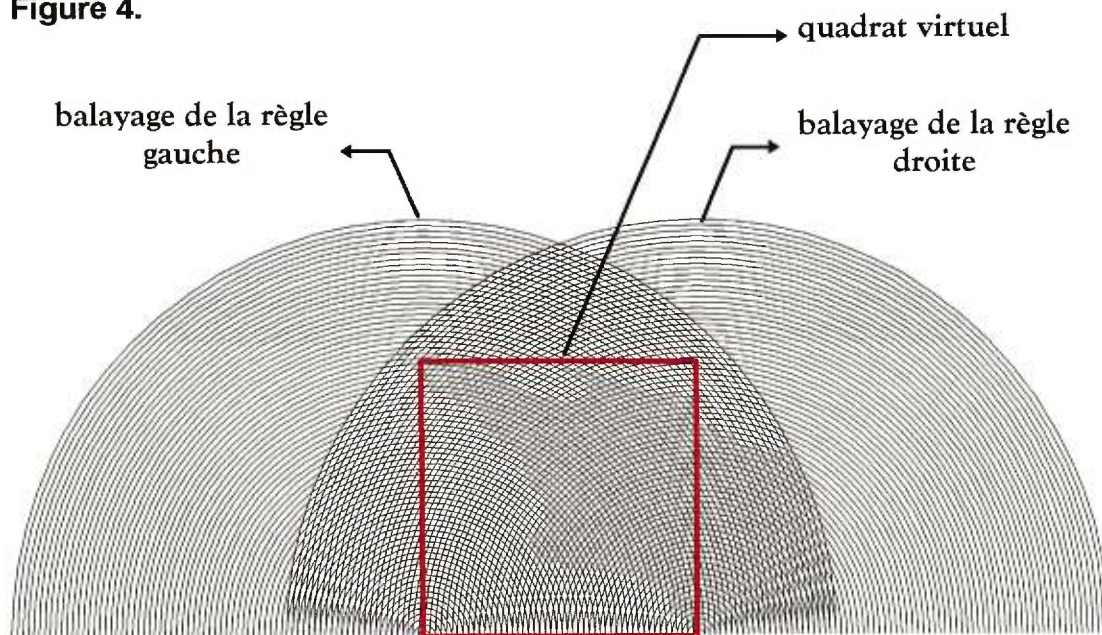
### ***Imprécision associée à la position***

L'erreur systématique ou l'écart entre la valeur exacte de la position de la moule et la valeur mesurée par le système de règles, due à l'effet de parallaxe résultant de la distance observateur-règle-moule, a été estimée par simulation en laboratoire et correspondait à un maximum de 2 cm sur chacune des règles. En traçant le trajet de chaque mesure des règles gauche et droite à l'intérieur et à l'extérieur du quadrat de 1 m<sup>2</sup> selon le pas de l'erreur systématique (un premier



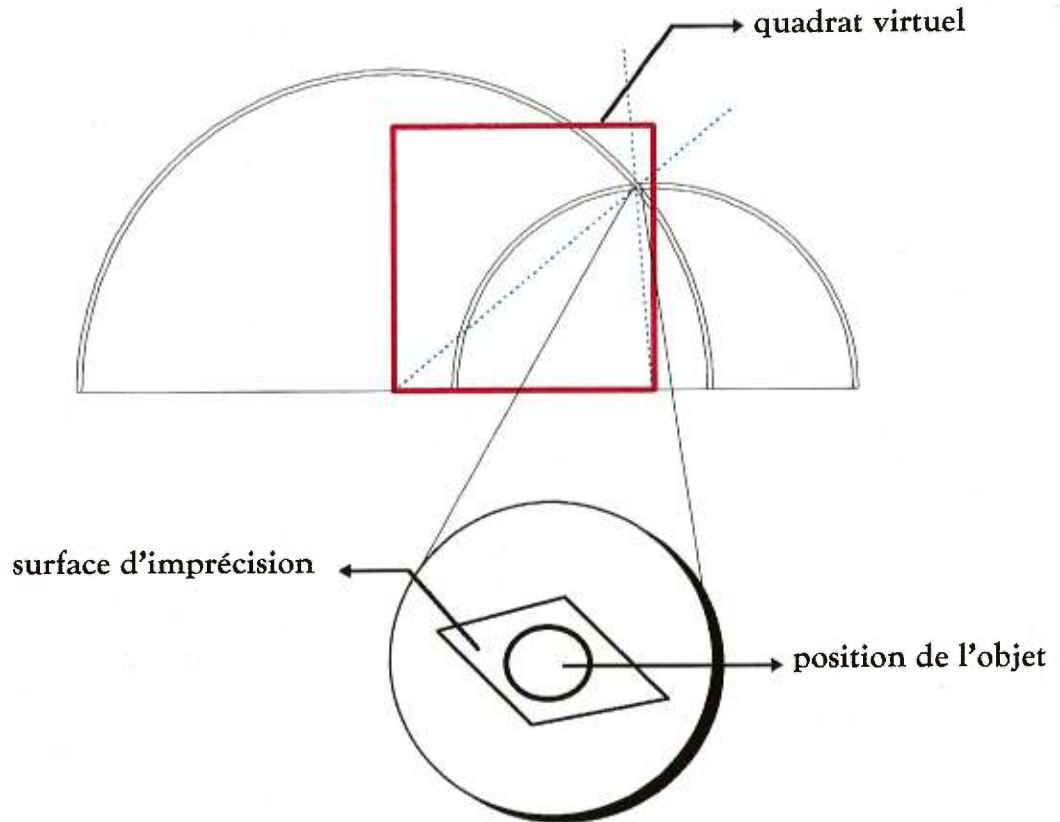
tracé à 2 cm, un à 4 cm, un à 6 cm...un à 150 cm), on obtient, au croisement de ces tracés, l'ensemble des surfaces virtuelles représentant l'imprécision réelle associée à chacune des positions possibles à l'intérieur du quadrat (Fig. 4). La surface d'imprécision est variable selon l'emplacement de l'objet à l'intérieur du quadrat.

**Figure 4.**



Le système de mesure de position d'objet par règles donne une surface d'imprécision typique ayant la forme d'un losange dans lequel l'objet mesuré occupe la position centrale (Fig. 5).

Figure 5.



### ***Imprécision associée au déplacement***

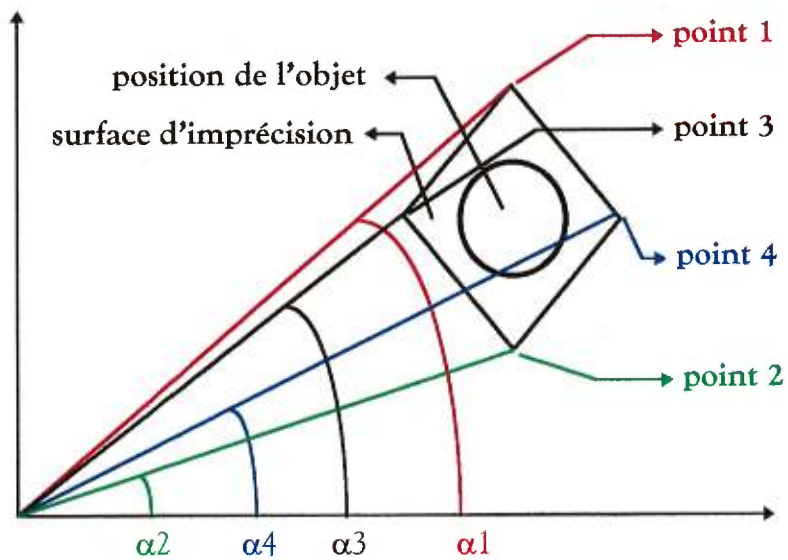
La mesure du déplacement ( $L$ ) considère la distance parcourue entre une position de départ (coordonnées  $X$  et  $Y$  de départ) et une position d'arrivée (coordonnées  $X$  et  $Y$  d'arrivée) et s'obtient à l'aide de l'équation 4.

$$L = \sqrt{(X_a - X_d)^2 + (Y_a - Y_d)^2} \quad (4)$$

où  $X_a$  et  $X_d$  représentent la coordonnée X de départ et d'arrivée respective  
et  $Y_a$  et  $Y_d$  représentent la coordonnée Y de départ et d'arrivée respective.

La détermination de l'imprécision associée au déplacement de la moule, qui tient compte de l'imprécision associée à la position de départ et celle d'arrivée, nécessite la connaissance des coordonnées X et Y de chacun des points formant les extrémités du losange d'imprécision de la position départ et arrivée (fig. 6). Connaissant les distances gauche et droite séparant l'objet positionné des piquets inférieurs gauche et droit du quadrat, on obtient la position des quatre points du losange en ajoutant et retranchant la moitié de l'erreur systématique aux mesures gauche et droite originales. A chacun de ces points extrêmes correspond un angle et des coordonnées X et Y qui sont calculés à partir des équations 1, 2 et 3.

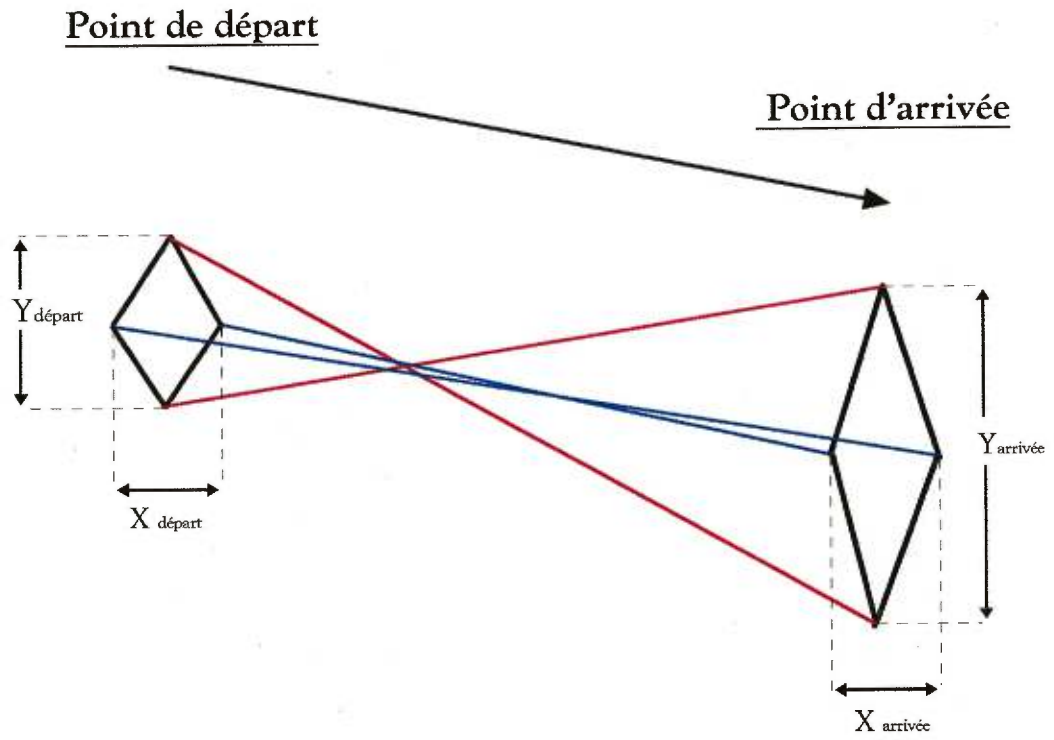
Figure 6.



Le calcul de l'imprécision du déplacement ( $I_d$ ) se fait en déterminant  $\Delta X$ , représentant la différence entre la distance maximale et minimale selon l'axe des X et  $\Delta Y$ , représentant la différence entre la distance maximale et minimale selon l'axe des Y (fig. 7). L'imprécision s'obtient à l'aide de l'équation 5.

$$I_d = \sqrt{(\Delta X)^2 + (\Delta Y)^2} \quad (5)$$

Figure 7.



## Annexe 2

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**Algorithme utilisé pour le calcul de la distance  
du plus proche voisin**

## Annexe 2

L'analyse du plus proche voisin requiert le calcul de la distance entre chaque objet et l'ensemble des objets voisins sur une surface donnée. Considérant la population de moules utilisée dans cette étude, le nombre de distances entre voisins requis pour appliquer ce type d'analyse s'élève à près de  $26 \times 10^6$ .

Afin d'accélérer ce travail j'ai rédigé un programme nommé *APPV* (analyse du plus proche voisin) pour automatiser les calculs. Ce programme a été compilé en langage *Turbo Pascal*.

### ***Utilisation du programme APPV***

Le programme *APPV* lit deux fichiers, un fichier *référence* et un fichier *voisin* écrits dans un format ASCII. Chaque fichier comprend deux colonnes, la première correspond à la coordonnée X et la deuxième à la coordonnée Y de la position des moules dans le quadrat de référence. Chaque ligne du fichier *voisin* représente la position d'une moule présente à la surface des sédiments à une date donnée. Le programme lit la première ligne du fichier *référence* (coordonnées X et Y de la position de la moule 1) et calcule la distance avec l'ensemble des lignes du fichier *voisin*, effectue un tri en ordre croissant de distance et conserve la plus petite

distance. Le programme crée un fichier *distance* dans lequel sont affichées les coordonnées X et Y originales ainsi que la distance au premier voisin.

### ***Condition d'utilisation***

L'analyse du plus proche voisin, pour être non-biaisée, doit tenir compte de l'effet de bordure (Pielou 1977). La première étape consiste à déterminer la largeur de la bordure que l'on doit retrancher à l'intérieur de la périphérie du quadrat. Cette bordure varie selon la densité de population et correspond à la distance moyenne au premier voisin de l'ensemble de la population. Il faut exécuter le programme *APPV* une première fois avec les fichiers *référence* et *voisin*, ceux-ci contenant exactement les mêmes positions de moules puis déterminer la distance moyenne au premier voisin pour l'ensemble de la population. La deuxième étape consiste à retrancher une bordure correspondant à cette distance dans le fichier *référence* et ne retenir que la position des moules incluses dans cette surface réduite. La surface réduite permet d'éliminer la surestimation de la distance moyenne au premier voisin en retranchant de l'analyse les individus ne pouvant avoir leur plus proche voisin qu'à l'intérieur du quadrat. La troisième étape sert à recalculer la distance "non-biaisée" au premier voisin.



## Algorithme

---

### PROGRAM APPV (input,output);

*{Définition des variables}*

```
VAR  reference,voisin,distance  :text;
      ref,voi,dis                :string[45];
      x1,y1,x2,y2               :real;
      d,d1,d2,d3,d4,d5,d6      :real;
```

*{indiquer où sont les fichiers à traiter}*

### PROCEDURE OuSontLesFichiers;

```
BEGIN
  writeln;
  write (' Fichier REFERENCE --> ');
  readln (ref);
  write (' Fichier VOISIN --> ');
  readln (voi);
  write (' Fichier DISTANCE --> ');
  readln (dis);

  assign (reference,ref);   reset (reference);
  assign (voisin,voi);     reset (voisin);
  assign (distance,dis);   rewrite (distance);
END;
```

*{Lecture des fichiers et calcul des distances des voisins}*

### PROCEDURE CalculDesVoisins;

```
BEGIN
  while not eof (reference) do

    BEGIN
      while not eoln (reference) do

        BEGIN
          REPEAT
            read (reference,x1,y1);
```

*{Initialisation des variables bidons}*

```
d1 := 9980;
d2 := 9990;
d3 := 10000;
```

```
REPEAT
  readln (voisin,x2,y2);
```

```
  IF (x2 < x1 + 100) and (x2 > x1 - 100)           {voir note à la fin}
     and (y2 < y1 + 100) and (y2 > y1 - 100) then
```

```
    d :=(sqrt((sqrt(x2-x1))+sqrt(y2-y1))));
```

```
{Rejet des distances nulles}
```

```
  IF d > 0.01 THEN
```

```
    BEGIN
```

```
{Mise en ordre croissant et rétention des trois plus petites distances}
```

```
  IF d < d3 THEN }
```

```
    begin
```

```
      d4 := d1;
```

```
      d5 := d2;
```

```
      d6 := d3;
```

```
      d3 := d;
```

```
    end;
```

```
  IF d2 > d3 THEN
```

```
    begin
```

```
      d2 := d3;
```

```
      d3 := d4;
```

```
      d4 := d5;
```

```
      d5 := d6
```

```
    end;
```

```
  IF d1 > d2 THEN
```

```
    begin
```

```
      d1 := d2;
```

```
      d2 := d3;
```

```
      d3 := d4;
```

```
    end;
```

```
  END
```

```
UNTIL eof (voisin);
```

```
{Affichage des résultats}
```

```
writeln (distance,x1:8:1,y1:8:1,d1:10:3);
```

```
        RESET (voisin);
    UNTIL eof (reference);

    END;

    END;

    close(reference);
    close(voisin);
    close(distance);
    END;

    {Exécution des procédures}

    BEGIN
        OuSontLesFichiers;
        CalculDesVoisins;
    END.
```

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Note: On délimite une plus petite surface autour de la moule de référence pour alléger les calculs. Dans cette analyse, la taille de la surface à considérer a été déterminée de façon à calculer un minimum de 12 et un maximum de 20 plus proches voisins, en moyenne, autour de la moule de référence. Dans l'exemple présenté, la population de référence s'élève à quelques 600 moules, soit une densité de 15 moules m<sup>-2</sup>. Si on considère ici une surface de 100cm X 100cm autour de la moule de référence, ceci limitera les calculs aux quelques 15 plus proches voisins.

## **Annexe 3**



**Tableau de données brutes des coordonnées X et Y  
de chaque moule durant l'étude**

### Annexe 3

Ensemble des données brutes de la position de chaque moule dans le quadrat de référence (5m X 8m) durant l'étude. À chaque moule (colonne gauche), correspond sa position épibenthique selon les coordonnées X et Y, pour chacune des dates échantillonnées. Le symbole « \* » est utilisé pour indiquer l'absence de la moule à la surface des sédiments du quadrat de référence résultant d'une position endobenthique, d'une migration à l'extérieur du quadrat ou du décès de la moule. Les coordonnées sont en cm.

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
10	330.0	600.0	334.6	660.0	305.2	660.0	334.0	700.0	335.2	700.0	314.3	703.0	309.3	701.2
100	58.5	679.9	61.2	677.8	48.2	677.2	50.0	678.4	45.5	675.3	43.6	676.4	43.6	676.4
101	89.4	764.1	95.0	764.8	102.0	800.0	105.8	800.8	103.4	799.9	96.8	798.9	97.9	799.0
102	27.5	649.9	38.3	635.2	27.9	645.0	29.6	644.0	32.7	630.9	31.2	632.4	32.4	632.3
1021	30.0	622.0	32.0	620.5	34.2	629.2	36.3	631.4	36.3	631.4	36.3	631.4	35.4	632.8
104	103.4	725.8	104.1	724.7	100.9	724.0	102.1	724.9	95.9	724.7	95.4	726.6	96.1	728.9
105	107.4	732.2	108.4	728.8	103.5	729.8	103.8	730.8	104.8	730.6	103.8	730.8	105.6	730.0
106	11.0	645.7	9.7	642.9	17.8	639.1	17.0	637.3	22.9	627.8	21.7	627.5	22.1	631.0
109	63.3	709.7	48.9	694.0	47.9	690.0	47.9	690.0	50.0	691.2	42.0	686.3	39.7	688.0
11	4.6	117.4	4.6	117.4	4.6	117.4	4.6	117.4	3.2	120.8	6.1	124.2	6.1	124.2
110	200.1	768.0	101.8	769.0	98.6	766.0	102.3	768.0	94.3	756.7	93.6	757.6	95.8	758.3
111	27.7	719.8	26.7	715.8	24.1	717.9	13.1	727.0	19.8	721.2	16.1	719.1	16.6	722.5
1118	24.0	726.0	24.5	726.4	82.2	739.1	82.2	739.1	82.2	739.1	71.9	750.7	71.9	750.7
113	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1138	419.0	551.6	419.0	551.6	419.0	551.6	419.0	551.6	419.0	551.6	419.5	550.4	419.0	552.5
114	26.2	746.1	29.9	742.5	17.8	739.1	17.8	739.1	16.0	739.9	16.0	739.9	11.3	731.0
115	108.8	712.1	110.0	713.7	105.6	710.6	105.0	714.1	107.6	710.5	103.7	711.4	103.0	712.3
1164	139.0	50.0	140.0	50.0	139.4	49.1	137.0	51.0	144.2	53.0	144.2	53.0	142.5	53.8
1169	383.0	565.0	383.0	565.0	383.0	565.0	382.7	564.7	382.7	564.7	382.7	564.7	381.6	564.7
1172	150.0	550.0	150.0	550.0	158.3	565.9	161.0	567.5	161.8	566.8	162.5	572.9	157.0	576.3
118	465.0	557.0	465.4	557.4	464.7	558.1	465.2	556.1	464.5	556.8	465.2	556.1	464.4	555.6
1184	163.0	569.0	163.0	569.0	162.8	568.6	168.0	585.2	166.2	586.6	166.2	586.6	166.2	586.6
119	473.3	580.7	472.6	577.3	461.0	553.3	455.8	551.6	455.1	552.4	456.5	552.3	455.5	552.2
12	393.1	348.5	390.0	354.1	389.0	353.9	389.5	353.0	387.4	352.5	388.0	351.6	386.7	353.0
120	465.7	564.4	461.6	573.6	475.8	574.1	475.8	574.1	475.8	574.1	464.6	575.1	463.7	574.2
1214	453.0	548.0	453.0	548.0	453.0	548.0	453.0	548.0	453.5	548.2	450.7	551.1	450.0	550.6
122	27.2	765.6	30.5	754.0	33.6	749.7	33.1	752.4	29.7	740.2	30.5	739.6	30.5	739.6
123	54.6	703.5	54.5	700.0	62.0	700.0	62.6	706.9	55.7	701.8	54.5	701.3	62.9	708.7
1246	317.7	433.7	317.7	433.7	317.7	433.7	317.7	433.7	317.7	433.7	317.7	433.7	317.7	433.7
1254	119.0	111.0	119.0	111.0	118.8	111.4	118.7	116.6	120.3	114.6	119.5	115.6	118.4	119.3

Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
126	401.8	569.0	401.8	569.0	390.9	433.8	340.8	435.4	342.0	435.5	314.0	426.5	312.1	425.2
1269	90.0	462.0	89.6	462.1	89.6	462.1	89.6	462.1	89.6	462.1	89.6	462.1	89.6	462.1
127	470.6	567.9	482.0	549.9	482.5	536.0	482.9	535.0	483.3	534.1	483.3	528.4	483.6	530.1
1270	300.1	746.0	228.4	764.0	228.4	764.0	220.5	770.1	220.1	771.2	214.7	761.3	205.3	756.9
1273	16.6	367.0	16.6	367.0	16.6	367.0	16.6	367.0	16.6	367.0	16.6	367.0	21.1	367.9
129	62.8	793.9	64.0	794.4	62.6	791.7	64.0	794.4	61.6	792.3	63.0	795.0	60.8	793.7
1297	323.8	361.6	311.6	395.3	309.0	395.6	309.0	395.6	320.6	388.6	324.4	386.6	329.4	386.6
13	319.5	430.3	320.0	428.7	332.6	435.2	333.9	431.1	333.9	431.1	334.9	433.0	332.6	435.6
130	111.4	739.4	111.1	736.3	116.7	725.0	114.9	729.4	116.7	728.4	110.8	718.0	111.4	722.7
131	66.8	691.1	70.6	688.2	63.3	688.7	67.3	687.0	68.7	689.7	68.9	690.8	69.7	689.0
132	33.6	774.8	36.9	771.0	34.5	768.8	41.9	763.4	34.3	770.0	34.3	770.0	35.2	773.3
135	37.0	725.6	30.6	719.0	28.8	716.1	28.2	713.0	28.8	716.1	29.9	716.3	29.7	717.2
136	110.3	760.1	105.8	758.7	100.7	760.0	101.8	758.0	100.1	757.0	100.1	757.0	100.3	761.0
1365	323.0	279.0	323.1	278.7	357.2	290.4	359.1	288.0	360.5	291.9	326.4	333.9	323.1	333.4
137	5.9	786.8	5.1	785.9	5.1	785.9	25.8	795.6	29.2	795.6	30.2	796.4	30.4	797.0
138	12.8	774.9	22.6	785.0	20.4	777.4	18.8	775.7	19.9	775.4	31.0	779.1	33.1	779.8
139	33.4	682.5	32.5	681.8	31.9	700.0	33.0	711.6	26.8	711.0	23.7	710.6	22.9	707.6
14	28.0	111.0	28.0	111.0	27.9	111.1	27.9	111.1	22.5	119.8	21.7	120.7	21.6	121.5
140	400.0	10.0	400.0	10.0	400.0	10.0	398.5	9.9	325.8	95.6	321.5	89.4	321.5	89.4
1407	447.0	189.0	447.0	189.0	446.9	189.4	446.9	189.4	452.0	184.3	450.0	183.1	450.0	184.0
141	320.2	326.1	320.2	326.1	312.2	330.7	306.1	324.2	310.1	319.5	305.2	315.1	308.2	312.9
142	242.3	332.0	229.1	327.4	226.8	326.9	227.6	329.0	225.7	323.8	220.0	318.1	221.0	334.8
143	161.1	557.0	161.2	554.6	175.5	539.0	174.6	540.7	174.6	540.7	179.0	538.7	181.3	538.9
1438	213.0	185.0	212.6	185.1	198.9	204.9	198.9	204.9	198.9	204.9	209.4	234.7	208.5	234.5
144	328.7	254.9	328.4	256.2	330.8	265.1	327.2	257.9	318.5	261.3	311.1	263.0	311.9	262.4
145	459.1	587.9	459.1	588.0	464.6	599.9	466.1	594.1	453.8	579.5	465.5	598.1	456.7	591.9
1451	435.0	757.0	435.0	757.0	435.5	756.8	435.3	758.1	435.3	758.1	435.3	758.1	436.2	758.2
1459	477.0	138.0	477.0	138.0	477.0	138.0	477.3	137.7	477.7	139.1	484.9	132.7	487.4	134.6
146	374.0	588.0	374.0	588.0	373.8	588.2	372.7	587.8	361.0	568.0	376.3	584.7	374.8	570.6
147	15.6	564.1	15.1	560.1	16.9	565.9	11.5	567.0	14.7	569.5	8.1	587.6	7.3	588.6

Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
1472	487.0	138.0	487.0	138.0	487.0	138.0	487.1	137.9	484.8	138.1	483.1	139.5	485.4	139.3
148	145.1	583.6	154.7	578.9	157.1	573.4	159.1	575.7	173.1	566.8	170.2	565.5	170.7	567.6
149	362.0	669.3	361.9	668.1	361.0	667.5	360.1	667.0	361.0	667.5	359.0	664.0	361.6	665.8
150	304.8	512.1	294.3	552.7	283.5	570.1	274.2	575.7	263.0	577.6	248.3	571.2	242.3	570.9
152	151.6	463.7	150.9	469.4	147.4	470.6	146.6	468.7	147.5	468.1	149.2	465.6	147.9	465.7
153	154.5	440.6	116.7	453.5	143.3	433.9	138.9	429.8	136.1	423.3	135.4	424.4	135.8	424.1
155	106.2	206.5	106.2	206.5	106.2	206.5	103.3	203.9	104.0	201.9	103.3	203.9	108.8	207.2
157	228.4	322.2	280.4	310.0	289.8	299.5	211.2	300.4	196.6	292.9	188.3	291.3	186.1	291.7
158	417.3	644.8	388.5	688.3	456.5	720.2	455.8	740.6	455.8	740.6	452.6	743.0	452.6	746.0
159	295.8	105.6	295.8	105.6	295.8	105.6	295.8	105.6	295.8	105.6	303.3	107.3	298.9	106.2
16	213.5	146.1	212.6	144.3	212.6	142.1	219.6	140.5	211.1	143.6	203.4	132.8	204.7	131.4
160	354.4	71.7	354.0	63.0	342.0	86.3	344.1	85.3	344.1	85.3	335.8	72.7	335.7	78.6
161	242.3	439.7	242.3	439.7	246.5	449.6	241.6	448.6	241.0	447.9	230.7	445.6	233.3	446.4
162	330.2	583.7	324.3	582.5	294.7	594.8	294.7	594.8	294.7	594.8	294.0	592.8	293.1	593.7
163	357.5	455.6	366.0	426.3	364.4	418.3	364.4	418.3	355.3	417.5	349.5	416.0	338.1	414.2
164	421.2	570.9	481.7	581.0	412.2	530.7	412.2	530.7	412.2	530.7	414.0	529.9	412.7	541.3
165	152.8	480.2	176.2	458.3	168.7	450.0	159.2	458.1	159.2	458.1	123.2	456.4	123.2	456.4
166	252.9	428.4	252.9	428.4	244.7	430.2	230.2	417.7	230.2	417.7	222.8	430.4	222.1	431.0
167	296.2	530.8	327.8	585.6	317.4	630.4	317.4	630.4	317.4	630.4	297.1	635.9	297.6	638.0
168	290.1	489.5	290.1	489.5	267.3	509.5	267.6	505.1	264.6	513.7	264.6	513.7	266.3	517.7
169	383.0	566.0	383.0	566.0	383.1	565.9	273.1	520.8	273.9	521.7	273.4	519.6	271.2	518.7
17	124.0	333.3	135.2	339.7	134.6	338.8	133.6	337.0	134.6	338.8	132.1	338.4	132.1	338.4
170	241.0	469.3	241.0	469.3	250.0	463.7	250.0	463.7	244.4	461.7	244.4	461.7	242.8	463.0
171	452.7	546.0	436.0	548.0	426.9	555.9	425.7	554.2	425.7	554.2	419.0	556.9	417.5	557.1
172	218.7	456.5	218.7	456.5	215.8	461.0	212.7	456.6	212.7	456.6	209.5	453.2	209.4	453.8
173	211.9	412.8	211.9	412.8	216.1	371.2	221.6	372.9	218.0	368.7	200.4	367.0	208.8	366.7
174	321.7	393.5	301.2	386.0	210.8	418.0	286.9	427.0	286.0	426.5	287.1	432.5	282.7	432.5
175	115.1	68.4	125.5	86.3	130.2	96.4	130.2	96.4	129.2	95.6	129.2	95.6	127.8	95.1
176	3.1	224.8	3.1	224.8	3.1	224.8	3.1	224.8	3.1	224.8	3.1	224.8	3.2	226.5
177	132.2	277.6	132.6	275.2	119.5	273.5	118.4	273.7	119.5	273.5	121.0	275.1	121.0	275.1



Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
178	283.5	599.6	282.2	560.4	252.7	573.0	219.0	568.4	220.5	570.1	211.7	556.8	206.0	555.6
179	370.5	637.8	370.5	637.8	350.8	664.4	350.0	663.7	348.4	665.0	349.2	664.4	344.9	663.1
18	299.9	557.0	288.3	535.1	281.6	523.7	269.5	554.0	266.6	564.9	266.0	601.4	266.1	602.5
180	38.0	212.0	38.0	212.0	38.0	212.0	38.2	212.0	38.2	212.0	37.1	211.9	36.3	211.6
181	4.8	118.4	19.2	123.0	13.1	123.6	19.3	126.8	19.8	121.2	20.2	132.2	19.8	138.4
182	68.0	111.6	68.0	111.6	67.3	109.5	67.0	111.6	67.3	109.5	71.8	113.0	62.2	139.4
183	36.2	93.2	39.6	90.7	44.1	68.0	41.7	65.9	41.7	65.9	40.4	62.0	39.5	65.2
184	164.0	561.0	164.4	561.4	164.4	561.4	164.4	561.4	164.4	561.4	164.4	561.4	164.4	561.4
186	138.8	170.0	140.8	166.5	145.9	188.8	146.9	189.4	144.8	191.6	144.8	191.6	143.2	194.8
187	115.0	248.7	114.5	245.8	116.7	263.9	107.5	266.6	100.1	255.0	127.0	262.4	123.6	259.0
188	82.6	115.1	79.1	111.8	78.0	100.0	79.6	108.2	79.8	105.7	68.9	136.6	79.4	109.9
19	379.6	667.0	351.0	690.6	393.0	639.4	389.0	633.2	390.0	633.5	385.6	636.3	384.5	634.8
191	76.8	106.0	76.8	106.0	67.7	106.6	67.7	106.6	67.7	106.6	67.7	106.6	68.1	108.4
192	63.0	125.6	62.3	124.6	62.1	122.4	61.7	123.6	61.7	123.6	61.7	123.6	61.6	127.1
193	112.0	242.0	111.7	242.4	100.3	244.0	100.7	245.0	100.3	244.0	99.9	248.0	98.6	247.0
194	95.0	117.0	95.4	117.4	98.3	121.9	95.8	119.6	95.8	119.6	95.6	118.5	97.7	125.3
195	64.1	86.9	73.8	88.2	68.5	82.2	68.0	85.2	67.4	75.2	65.6	75.5	66.3	75.3
197	82.6	56.4	82.9	52.3	78.1	55.9	78.1	55.9	76.9	57.5	77.1	55.5	79.9	49.4
198	310.2	799.5	311.2	800.4	307.2	800.7	309.9	800.5	309.9	800.5	309.9	800.5	306.3	800.1
199	*	*	*	*	*	*	*	*	*	*	*	*	*	*
2	376.9	363.9	374.6	362.0	368.7	367.1	364.4	367.1	361.1	360.6	368.0	363.4	366.8	364.3
20	83.6	595.6	83.3	594.5	82.0	594.3	82.0	594.3	83.0	593.5	87.4	592.1	83.3	592.5
200	54.4	539.0	82.4	427.9	112.5	448.4	92.5	429.1	92.5	429.1	90.3	432.6	90.7	433.0
201	48.0	443.0	27.8	452.0	43.0	438.9	42.2	441.2	47.6	433.1	39.9	437.8	46.3	431.4
202	383.4	658.7	382.6	656.4	391.1	654.3	389.5	653.0	387.4	652.5	387.4	652.5	387.4	652.5
203	419.2	453.7	419.2	453.7	500.8	336.0	479.9	322.3	458.8	312.2	457.9	315.8	459.3	314.3
204	412.4	182.1	412.8	181.0	411.2	182.2	411.6	181.2	411.6	181.2	409.6	180.4	411.8	180.4
205	60.0	380.0	60.4	379.7	63.0	377.6	63.2	378.8	62.2	378.3	63.0	377.6	60.7	378.3
206	53.0	425.0	53.4	425.2	54.3	420.3	54.3	420.3	54.3	420.3	53.7	419.0	54.2	421.9
207	455.7	450.2	455.7	450.2	457.6	480.5	452.7	476.6	450.9	475.4	452.7	474.2	452.7	474.2

suite...

Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
208	26.9	252.5	25.2	250.0	25.9	247.4	23.7	249.6	26.4	248.2	23.7	249.6	23.8	250.6
209	323.8	164.8	322.8	161.9	311.8	158.8	312.6	161.7	312.6	161.7	312.3	157.7	311.5	157.3
21	351.1	717.6	351.1	717.6	348.8	734.9	349.4	732.3	348.2	734.0	346.9	735.8	349.2	736.0
210	417.1	113.8	415.9	112.2	391.0	95.6	391.0	95.6	390.9	91.5	390.0	92.5	390.9	92.3
211	380.8	158.9	379.4	157.4	412.6	161.7	398.2	169.0	394.2	167.7	394.7	182.8	396.2	182.9
212	239.4	649.1	241.2	622.6	230.1	590.1	204.4	570.9	200.1	568.0	163.0	577.6	162.7	575.1
213	310.0	506.0	310.2	506.3	307.5	509.4	225.0	493.7	326.0	500.0	325.0	493.7	344.8	488.3
214	18.0	423.0	18.1	422.7	18.1	422.7	24.1	417.9	24.1	417.9	24.1	417.9	24.6	417.9
215	417.3	174.0	411.2	176.2	415.8	169.2	415.6	164.1	415.6	164.1	417.8	160.4	415.7	158.9
216	130.7	249.2	128.5	245.9	131.9	250.8	139.4	256.7	137.3	254.4	137.3	254.4	136.7	254.9
217	76.1	467.9	73.4	468.0	83.6	461.9	83.3	463.9	85.3	461.3	86.3	461.5	86.3	461.5
218	88.6	408.2	5.3	507.3	5.3	507.3	1.1	504.9	1.1	504.9	5.3	494.8	5.3	494.8
219	386.5	650.2	385.5	649.9	412.2	641.2	411.0	638.5	404.1	634.8	403.8	630.8	403.9	628.9
22	39.9	544.8	37.9	543.9	40.1	529.9	42.3	532.0	40.9	533.7	32.5	525.0	31.1	526.1
220	169.0	127.0	169.0	126.8	135.4	152.1	130.4	158.6	130.4	158.6	130.4	158.6	130.0	158.8
221	21.5	332.6	20.2	334.6	19.8	333.6	20.4	329.7	23.3	326.1	23.3	326.1	23.3	326.1
222	145.0	585.9	143.0	587.0	157.2	589.3	156.5	595.6	153.6	612.3	153.6	612.3	154.7	616.6
223	347.1	482.5	344.5	497.3	342.3	522.7	341.4	520.1	340.9	518.8	335.6	518.3	329.3	515.3
224	106.2	442.6	101.0	438.0	100.4	439.0	101.0	438.0	100.7	434.0	100.7	434.0	99.9	433.0
225	33.7	495.2	31.9	492.7	29.3	477.6	27.4	477.3	28.5	476.9	25.6	476.9	24.4	478.9
226	12.6	221.6	35.2	192.5	37.4	191.7	39.4	193.0	39.6	190.7	39.6	190.7	36.5	193.5
227	117.5	180.1	117.0	178.2	125.0	179.1	126.5	181.8	125.6	181.0	129.7	180.7	129.9	183.7
228	206.1	203.5	202.1	204.5	199.5	196.0	198.2	199.0	199.0	197.0	196.2	196.9	198.3	194.0
23	64.6	590.3	63.2	587.6	66.3	609.5	68.4	609.4	69.8	613.2	69.8	613.2	56.0	616.6
230	86.7	182.9	86.8	179.9	82.2	179.0	82.8	181.2	80.2	179.6	82.2	179.0	81.9	177.9
231	146.4	212.3	141.0	199.9	132.7	187.0	139.9	187.3	137.1	185.3	137.1	185.3	136.4	182.5
232	66.0	317.0	65.9	316.8	66.0	311.7	65.9	316.8	66.0	311.7	65.3	309.6	65.9	313.8
233	125.3	692.6	135.7	680.4	139.4	682.0	137.3	683.0	139.4	682.0	139.4	682.0	138.9	682.8
234	106.0	444.6	108.7	443.1	103.9	444.8	103.1	442.9	104.4	445.8	105.0	444.7	106.2	445.3
235	27.4	477.3	26.9	475.4	29.4	472.2	29.4	472.2	26.6	468.0	26.6	468.0	26.8	468.6

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
236	56.4	476.4	54.5	475.3	64.0	478.1	66.6	476.0	67.4	475.2	66.6	476.0	66.5	476.8
237	21.0	275.1	24.5	252.6	25.4	252.1	20.8	248.7	15.4	245.4	15.4	245.4	5.3	256.9
238	8.8	376.5	10.4	378.3	8.1	375.6	8.1	375.6	6.4	376.7	7.2	377.7	4.0	381.2
239	26.9	459.2	23.4	459.6	27.2	457.9	24.4	459.2	22.9	455.5	24.1	457.1	24.8	458.5
24	84.4	631.3	81.4	630.8	80.9	629.3	80.9	629.3	81.7	629.8	80.9	629.3	81.0	630.0
240	336.8	127.6	337.9	122.4	346.3	119.0	347.2	124.1	351.2	129.4	351.2	129.4	351.5	130.2
241	314.4	136.3	314.4	136.3	314.4	136.3	314.0	135.3	314.4	136.3	315.3	135.9	313.1	135.8
242	125.5	119.4	125.5	119.4	125.5	119.4	125.5	119.4	125.5	119.4	121.4	119.6	124.0	120.7
244	318.6	620.9	320.1	622.3	322.5	619.8	321.6	616.1	323.2	613.8	323.8	616.6	323.3	617.7
245	76.2	24.3	76.2	24.3	65.3	9.6	89.8	41.8	90.4	45.0	90.6	51.1	91.3	50.1
246	184.6	562.1	186.9	553.4	193.5	545.5	192.6	547.4	193.8	537.5	193.8	537.5	198.5	533.0
247	26.0	226.0	26.4	225.9	26.4	225.9	26.4	225.9	32.3	206.6	28.6	209.1	28.6	209.1
248	208.6	289.6	203.1	294.0	142.3	281.7	145.1	284.8	141.5	293.2	142.6	292.7	140.6	293.1
249	165.7	99.2	165.7	99.2	165.7	99.2	187.1	95.1	187.1	95.1	193.1	90.7	193.2	89.9
250	229.0	417.0	229.0	417.0	228.6	471.5	229.9	469.9	229.6	471.1	230.6	470.6	222.9	470.0
252	39.3	425.8	39.3	425.8	39.3	425.8	25.8	395.6	23.1	392.1	25.3	392.6	19.4	388.1
253	28.8	216.1	27.3	206.3	27.9	211.1	28.8	216.1	28.8	216.1	32.7	215.1	32.4	217.5
254	212.0	576.0	212.0	576.0	212.4	576.0	202.0	576.0	208.6	571.5	208.6	571.5	202.9	567.2
256	178.2	465.5	176.2	464.8	177.9	464.3	177.2	465.1	179.2	462.6	177.6	463.1	179.0	463.9
257	52.4	60.5	50.7	55.2	53.0	55.9	53.0	57.2	53.0	54.5	53.0	54.5	52.8	54.9
258	282.2	221.6	282.2	221.6	252.6	216.0	262.5	221.1	264.0	219.7	264.6	224.4	283.7	225.8
259	171.3	326.4	171.3	326.4	167.2	322.9	168.6	324.8	167.9	323.9	166.8	324.1	167.0	323.8
260	130.0	756.5	128.1	754.1	129.7	740.2	131.2	742.8	130.5	733.1	128.1	735.1	124.2	729.4
262	138.0	114.0	138.0	114.0	137.5	113.9	132.0	120.5	135.2	116.9	130.9	116.4	132.9	119.3
264	200.5	742.0	201.7	737.0	195.8	743.8	189.1	705.1	200.7	745.0	197.9	740.9	198.3	743.1
265	191.6	749.3	191.0	746.1	171.0	746.7	171.0	746.7	185.0	750.8	185.0	750.8	184.8	751.1
267	138.7	755.9	135.9	771.5	101.6	767.0	116.3	765.0	122.1	764.3	122.1	764.3	124.1	765.6
268	91.8	162.5	90.0	163.2	90.2	161.2	91.4	159.4	90.7	162.3	92.1	165.5	93.3	168.2
269	299.3	739.0	335.6	736.5	344.9	739.8	334.1	716.8	327.2	722.0	323.0	725.1	323.9	724.6
27	43.7	674.0	43.0	671.0	41.4	669.6	39.6	670.7	41.4	669.6	41.8	664.7	40.6	664.5

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988		
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	
270	94.0	483.0	94.0	483.0	94.0	483.0	93.7	482.8	89.9	485.4	92.0	484.6	91.7	486.0	
272	189.5	784.4	197.5	780.0	191.8	775.6	191.8	775.6	191.8	775.6	181.7	781.0	183.1	782.1	
273	231.4	735.0	268.0	731.6	222.0	700.0	228.1	735.1	230.9	734.0	235.1	735.6	233.2	736.7	
274	20.2	726.1	16.1	722.9	47.2	724.1	48.3	726.3	47.2	726.3	34.7	730.2	33.3	731.3	
275	200.5	747.0	200.5	747.0	196.5	747.9	196.5	747.9	213.5	748.1	213.0	751.4	213.3	753.0	
276	231.0	523.0	230.6	522.6	222.7	537.7	220.5	537.8	227.9	511.1	257.0	571.0	251.3	590.6	
277	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
278	299.0	733.0	299.0	733.0	299.3	733.0	299.3	733.0	286.9	730.3	287.8	730.7	286.4	730.1	
279	209.4	472.4	209.4	472.4	198.3	471.0	195.6	470.9	198.2	469.0	195.6	470.9	196.0	471.0	
280	327.0	476.0	327.0	476.0	326.6	476.5	326.6	476.5	326.6	476.5	328.9	466.0	330.5	467.0	
282	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
283	335.4	575.1	333.8	573.6	325.0	579.1	324.2	578.3	318.7	569.5	315.8	569.2	316.6	570.5	
284	45.6	554.5	44.9	552.4	50.8	565.6	48.4	565.0	51.7	567.5	50.0	566.2	50.0	567.3	
285	44.0	469.2	44.0	469.2	69.0	473.8	68.2	474.5	73.6	469.1	72.1	470.7	76.7	468.5	
288	245.6	97.9	246.5	107.1	246.5	107.1	229.3	101.9	245.6	99.0	242.9	110.0	244.1	112.0	
290	155.9	118.9	157.4	117.4	154.8	119.0	154.3	120.3	154.2	117.5	154.2	117.5	154.1	118.5	
292	140.8	58.1	119.1	62.1	115.4	76.5	116.2	84.5	115.3	83.6	113.6	81.9	113.4	84.0	
293	276.2	64.8	257.3	64.1	240.3	54.8	256.3	38.1	235.7	55.5	240.4	62.0	234.5	56.3	
294	171.6	128.2	172.6	114.5	187.4	109.9	185.5	108.9	188.7	92.3	189.2	90.4	189.3	92.1	
295	353.0	64.0	353.2	63.7	354.3	69.3	354.3	69.3	350.9	69.4	350.0	70.0	351.1	69.6	
297	61.4	613.9	64.2	615.4	51.1	592.9	51.1	592.9	50.0	588.9	50.0	591.2	47.6	579.5	
298	166.0	117.0	166.0	117.0	165.9	116.8	159.7	120.1	158.6	120.1	152.2	122.9	152.1	123.5	
299	178.2	124.8	174.8	118.1	174.1	117.0	174.1	117.0	176.0	112.4	177.8	118.7	178.8	120.1	
300	370.6	394.5	357.6	396.1	353.4	400.7	350.0	399.1	353.3	399.6	350.0	399.1	350.0	398.5	
302	70.0	376.0	70.5	376.5	87.6	308.4	100.4	317.0	100.8	319.0	97.4	316.8	99.2	320.3	
303	409.4	21.0	406.8	23.0	411.0	19.0	410.1	19.5	409.2	20.0	414.7	21.5	414.4	24.0	
304	440.5	80.4	442.3	81.7	440.4	81.5	437.7	79.5	434.3	83.2	436.1	84.6	434.9	84.5	
305	442.1	115.8	442.1	115.8	441.2	112.2	440.0	115.7	442.3	112.2	440.0	115.7	442.6	116.5	
307	424.6	315.4	425.0	312.5	434.1	316.8	430.9	316.4	426.9	320.8	426.9	320.8	426.8	321.3	
	476.2	55.1	479.0	56.2	486.1	58.4	480.2	59.8	479.5	60.6	480.2	59.8	480.2	60.3	

Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
308	420.1	41.4	421.4	41.8	420.5	37.8	422.3	36.8	417.5	36.0	418.7	38.7	418.7	38.9
309	433.2	71.7	429.9	69.9	434.3	70.0	438.2	66.8	431.4	71.4	440.2	64.5	443.9	62.3
31	153.2	617.5	152.7	619.0	150.5	619.0	150.5	619.0	150.0	617.6	151.5	612.3	153.3	612.0
310	386.5	44.0	384.5	43.3	382.2	39.1	386.8	40.9	385.9	40.6	385.2	37.2	387.6	37.4
311	469.0	200.0	469.0	200.0	471.2	205.1	471.8	201.1	473.0	201.5	471.8	201.1	471.9	201.6
312	439.8	88.5	436.4	91.0	452.6	143.0	441.7	114.1	444.7	117.5	441.4	120.1	443.8	120.2
313	478.7	49.6	480.5	50.4	475.6	31.7	473.6	33.9	473.6	33.9	477.2	42.2	480.1	46.7
314	441.5	42.0	440.9	41.1	442.2	41.2	442.2	41.2	443.7	38.1	443.7	38.1	443.7	38.1
317	470.6	35.4	469.8	34.7	471.9	50.7	471.5	45.9	471.5	45.9	474.6	52.1	473.6	52.1
318	64.0	383.0	63.7	383.5	65.4	380.9	65.4	380.9	65.4	380.9	64.0	378.1	65.4	377.7
32	109.3	707.6	100.0	705.0	88.4	699.3	88.8	700.4	88.1	694.2	84.6	694.8	85.3	694.1
320	309.0	39.0	309.0	39.0	299.1	53.0	299.1	53.0	310.0	52.1	318.0	49.9	317.0	49.2
322	*	*	*	*	*	*	*	*	*	*	*	*	*	*
323	249.5	7.1	248.5	7.1	250.0	*	247.5	7.1	248.5	7.1	248.5	7.1	248.5	7.1
324	365.3	195.9	365.3	195.9	393.6	176.7	390.3	173.4	388.4	175.1	377.6	173.7	378.3	174.4
326	445.0	591.0	444.8	590.5	474.5	543.0	473.3	546.9	477.1	555.5	479.2	559.5	478.9	559.9
327	247.9	14.3	248.5	12.3	248.5	12.3	248.5	12.3	248.5	12.3	249.5	16.0	249.3	16.7
328	467.0	326.0	467.1	326.1	467.1	326.1	484.8	338.1	486.7	338.8	484.7	335.9	486.9	335.8
330	312.0	100.0	312.0	100.0	307.0	100.0	310.2	106.3	310.2	106.3	310.3	107.9	309.2	110.5
331	169.8	83.7	169.6	82.6	167.2	68.6	167.2	68.6	167.2	68.6	161.6	65.6	162.8	66.5
336	384.9	95.8	384.9	95.8	384.2	97.7	384.2	97.7	384.9	95.8	380.8	94.1	384.1	95.2
337	122.9	55.5	115.5	67.2	117.7	63.6	119.0	65.3	118.4	64.4	118.4	64.4	118.4	64.7
338	359.3	67.7	360.7	65.1	358.3	65.9	361.0	67.5	364.0	64.7	364.9	65.2	367.7	63.4
34	306.7	694.8	306.5	691.8	318.2	689.2	319.1	685.9	314.5	689.8	328.5	687.5	316.7	692.5
341	74.8	18.1	75.3	20.3	75.0	21.5	76.7	26.1	78.3	20.7	75.6	19.1	76.4	19.2
343	403.5	429.8	415.1	440.3	420.8	462.6	424.2	466.7	432.0	473.3	437.8	478.3	438.1	478.9
344	494.0	568.0	494.0	568.0	494.2	567.7	492.5	566.6	491.9	567.5	484.2	569.2	483.9	568.0
346	335.6	245.8	346.9	258.5	334.6	247.8	331.8	243.7	333.1	243.9	333.1	243.9	335.3	244.9
347	379.7	247.9	357.3	226.1	382.6	246.9	376.7	243.1	373.9	237.9	368.9	236.6	336.1	246.0
348	480.9	74.6	482.0	74.9	455.3	73.5	455.3	73.5	455.3	73.5	457.0	71.0	454.5	71.9

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
349	457.6	296.1	457.6	296.1	460.8	308.1	460.8	308.1	420.6	315.9	401.0	320.0	404.3	322.5
35	387.7	439.1	385.9	453.2	387.8	455.7	368.6	453.5	366.5	454.5	361.2	454.6	362.1	452.5
350	158.2	89.8	157.2	90.4	156.5	95.6	158.8	97.7	163.8	117.0	157.9	115.8	158.9	120.1
352	480.0	113.0	479.9	113.2	479.2	117.2	479.4	115.9	479.7	114.6	479.7	114.6	479.8	115.4
353	305.8	123.3	305.8	123.3	313.1	123.6	301.8	118.9	301.8	118.9	301.8	118.9	306.2	116.7
354	473.0	220.0	473.0	220.0	473.4	219.6	451.1	220.4	447.4	212.3	446.4	212.3	446.4	212.3
358	455.6	48.8	455.7	50.2	469.0	59.4	456.9	47.3	456.8	45.9	459.0	47.9	457.8	45.7
359	15.7	10.7	15.7	10.7	15.7	10.7	15.7	10.7	15.7	10.7	12.4	8.4	14.1	8.6
36	311.8	669.0	347.8	698.0	315.6	664.1	313.7	661.5	314.3	662.4	316.0	657.8	337.0	678.1
361	390.3	711.4	389.5	709.3	391.7	707.2	387.6	708.4	387.9	704.7	387.9	704.7	391.0	709.0
364	320.0	500.0	320.0	500.0	320.0	500.0	320.0	500.0	272.4	381.5	270.1	379.6	270.4	378.4
365	363.8	759.9	365.6	749.2	344.1	768.0	345.0	767.4	325.7	754.2	310.0	763.2	309.9	764.0
366	192.0	199.0	192.0	199.0	192.0	199.0	192.0	199.0	192.0	199.0	195.3	198.9	198.7	199.0
367	109.7	226.3	109.5	225.3	109.5	225.3	109.5	225.3	97.3	221.8	85.6	220.4	85.5	219.3
368	403.1	403.9	404.9	413.1	410.8	418.0	403.4	425.8	404.4	425.6	404.1	424.7	409.1	423.7
369	445.8	632.2	447.0	632.2	447.0	632.2	440.8	642.7	452.5	607.1	452.5	607.1	450.0	609.0
37	38.8	636.1	38.8	636.1	38.3	635.2	38.3	635.2	38.8	636.1	38.8	636.1	38.9	636.5
370	397.6	452.9	388.5	452.8	384.8	465.3	380.3	469.2	385.3	475.6	380.3	483.7	379.5	483.9
371	376.8	731.4	370.9	717.5	370.9	717.5	370.9	717.5	372.6	714.5	372.9	712.8	374.8	714.7
372	454.1	488.8	457.2	489.3	452.1	492.3	455.2	490.5	454.1	490.0	454.1	490.0	453.9	489.1
373	436.7	598.4	445.2	582.4	476.9	597.3	476.9	597.3	453.6	612.3	445.1	623.4	445.1	623.4
374	338.2	753.8	336.7	753.7	335.3	758.1	331.8	755.6	333.1	757.1	333.9	756.6	336.7	754.9
375	397.7	707.7	398.8	706.9	394.3	711.7	390.3	711.4	390.3	711.4	398.4	710.9	397.2	711.1
378	391.0	624.0	390.8	624.3	390.8	624.3	377.5	626.8	372.4	623.1	372.4	623.1	372.7	622.8
379	100.0	230.0	101.5	230.0	112.9	232.5	120.6	233.1	98.6	240.0	119.3	235.0	115.5	234.8
380	367.6	771.0	366.8	771.7	368.2	769.0	365.7	770.0	365.5	768.8	366.2	768.1	365.1	767.8
381	402.0	688.0	402.0	688.0	401.6	688.0	403.8	685.9	403.8	685.9	405.9	686.8	405.6	688.7
382	511.4	665.0	511.4	665.0	511.4	665.0	511.4	665.0	508.0	670.5	508.0	670.5	508.0	670.5
383	244.3	627.2	243.8	626.2	246.0	626.2	244.3	627.2	246.0	626.2	243.3	625.0	256.9	621.8
384	440.4	653.4	437.2	649.6	438.7	655.9	441.0	655.5	441.1	654.2	440.3	654.8	435.8	653.9

Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
385	298.6	616.9	297.0	613.7	298.8	606.9	295.8	605.6	313.2	633.5	259.8	664.5	256.1	662.3
386	340.8	658.1	342.4	656.9	326.7	660.4	332.0	663.4	330.1	664.3	334.3	664.4	333.2	664.3
387	395.4	622.5	392.9	619.8	395.9	624.7	395.9	624.7	398.8	621.0	395.2	612.1	395.4	614.5
388	483.3	634.1	482.1	628.9	460.4	641.0	461.5	639.3	458.4	640.4	460.1	637.8	461.5	640.5
389	414.6	739.4	414.6	739.4	419.3	746.1	416.9	746.0	416.9	746.0	415.9	746.3	415.7	747.0
39	305.7	665.8	305.7	665.8	307.0	672.7	307.0	672.7	305.8	667.7	308.1	667.5	306.7	668.2
390	438.8	687.8	438.2	683.7	442.6	677.0	440.9	675.7	440.9	675.7	441.8	676.3	441.8	677.0
391	421.6	772.9	422.1	774.8	420.4	777.4	422.4	773.7	420.2	774.3	418.8	775.7	420.0	776.2
392	433.0	672.9	434.0	672.4	433.0	672.9	433.8	673.6	437.4	660.4	435.3	658.1	436.5	656.6
393	478.5	732.6	477.3	732.9	477.0	725.1	476.7	726.1	476.7	726.1	477.0	725.1	476.7	726.9
394	469.5	754.0	464.8	753.5	467.1	753.7	466.5	754.5	465.2	756.1	465.6	754.0	466.8	752.7
396	476.4	553.0	476.1	551.7	466.1	556.6	464.6	552.1	462.3	551.7	460.4	547.7	457.0	546.7
397	164.6	699.9	163.1	696.2	167.0	700.7	167.0	700.7	167.0	700.7	169.5	701.5	167.0	698.8
398	418.2	605.5	417.2	605.4	418.4	607.9	419.2	605.6	419.2	605.6	423.2	587.0	422.6	592.5
399	399.9	505.0	372.3	519.8	374.4	515.6	372.6	514.5	356.7	512.2	357.7	512.2	356.6	514.4
4	316.1	292.6	311.8	287.2	310.8	290.4	310.6	287.4	308.9	285.5	306.3	285.8	308.8	284.6
40	174.4	268.3	174.2	264.0	182.2	299.4	186.1	300.0	175.1	306.1	179.9	313.2	181.5	313.4
400	476.8	628.8	476.8	628.8	479.0	625.5	483.9	626.5	481.5	627.4	474.6	622.6	469.0	617.4
401	486.3	728.9	486.3	728.9	486.3	728.9	486.3	728.9	499.6	722.0	499.1	724.0	499.1	724.0
402	495.6	525.6	495.6	525.6	502.7	529.9	491.9	544.3	493.5	545.5	492.7	553.5	493.4	554.2
403	482.2	731.3	480.6	732.7	481.5	733.2	481.5	733.2	481.5	733.2	481.5	733.2	480.5	731.2
404	467.0	548.9	464.8	548.6	464.8	548.6	446.0	561.7	462.4	546.8	454.9	548.2	448.3	545.0
406	290.3	617.5	292.0	613.8	216.7	621.2	283.9	619.1	285.6	620.4	283.9	619.1	283.9	619.1
407	480.0	740.0	480.4	740.5	476.3	727.1	473.2	726.9	474.8	728.4	475.5	726.4	475.2	727.3
408	440.2	595.9	439.1	596.4	437.3	583.0	429.7	580.7	416.7	579.3	412.0	580.1	403.4	582.5
409	471.0	713.0	470.8	713.1	479.2	717.2	476.2	716.6	480.7	714.3	481.6	715.4	481.6	715.4
41	291.1	299.6	288.1	294.2	279.6	298.9	274.6	297.8	269.6	295.3	266.1	294.1	267.9	295.1
410	481.5	750.7	480.5	750.4	485.9	753.2	485.9	753.2	477.2	750.0	466.6	746.2	466.7	746.4
411	416.4	520.2	418.9	517.8	386.4	510.2	370.2	523.5	369.8	524.6	359.1	533.7	359.1	533.7
412	488.0	745.4	488.5	746.6	488.5	746.6	488.5	746.6	499.9	746.0	500.4	745.0	*	*

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
414	443.3	712.2	442.3	712.2	444.7	717.5	444.7	717.5	444.7	717.5	435.6	718.3	438.1	722.9
416	440.6	214.0	441.1	215.8	443.2	215.9	444.1	218.9	445.3	215.9	433.0	211.6	425.2	201.0
417	330.0	474.2	330.2	473.0	307.2	486.7	310.1	485.4	310.1	485.4	301.2	483.0	301.2	483.8
418	494.8	615.1	492.1	612.8	477.3	589.2	484.6	590.7	490.3	586.5	490.3	586.5	490.3	586.5
419	458.8	730.0	455.8	729.2	453.8	738.3	448.7	741.5	453.2	740.7	452.6	741.5	456.6	741.0
42	240.9	565.2	242.8	562.8	211.2	579.2	209.6	577.4	209.6	577.4	215.4	570.3	215.6	569.4
420	444.0	286.4	440.2	283.9	445.1	284.8	441.3	282.2	443.1	284.7	439.2	284.4	447.5	287.0
421	220.6	110.1	190.3	111.4	149.1	76.6	150.0	76.0	148.1	79.6	149.1	77.8	147.6	79.5
422	382.6	440.4	377.2	442.2	363.1	464.2	374.3	450.9	355.0	466.1	351.6	465.0	353.3	469.6
423	272.3	363.2	290.1	318.5	285.4	316.5	284.6	315.7	286.9	313.8	283.9	319.1	281.9	317.8
425	390.0	354.1	386.0	347.0	390.8	342.0	388.6	339.4	391.6	340.1	389.8	341.8	390.3	340.8
426	266.0	229.0	265.8	229.2	262.6	260.4	261.8	259.8	261.8	259.8	266.4	263.7	268.0	264.9
428	432.7	394.5	433.9	394.1	433.7	395.2	431.4	396.0	432.4	396.7	430.2	396.4	430.4	397.0
43	456.9	369.7	448.0	386.6	451.1	401.9	438.4	392.3	438.5	391.2	438.4	392.3	438.0	391.5
431	408.2	272.5	407.8	273.6	413.0	260.6	411.7	256.8	411.7	256.8	407.9	252.4	406.7	251.6
432	489.5	253.0	490.5	253.2	491.1	254.3	483.0	250.2	475.8	253.8	456.2	258.4	445.0	259.9
434	438.3	417.1	439.4	417.2	436.2	417.0	439.4	417.2	434.3	406.7	433.3	406.7	433.7	411.4
435	382.3	253.1	369.5	254.0	359.6	262.0	356.2	259.7	357.1	260.3	350.0	262.4	352.0	262.4
437	452.6	443.0	452.0	445.3	447.1	428.4	411.5	416.4	411.7	417.4	414.7	421.5	420.6	422.5
438	481.8	477.9	486.0	480.8	486.4	481.9	486.4	481.9	471.1	470.3	455.4	474.7	452.3	476.5
439	299.5	610.0	296.8	606.2	287.3	611.3	289.4	610.6	291.7	607.2	291.7	607.2	278.3	603.2
44	166.2	273.6	144.2	253.0	141.2	272.1	143.7	274.0	136.8	278.8	137.0	277.6	129.9	283.7
441	321.7	793.5	315.2	787.7	311.8	787.2	299.9	783.0	296.0	772.9	290.2	761.2	287.3	754.4
442	220.0	721.0	220.0	721.0	219.8	721.2	220.6	715.9	220.6	715.9	222.6	724.0	223.9	724.6
444	255.1	753.7	254.4	753.1	256.1	757.1	256.1	757.1	253.0	754.5	249.3	745.3	266.7	731.3
446	256.1	771.6	255.2	769.8	263.0	777.6	260.1	776.2	262.0	777.2	254.7	778.9	258.3	778.5
450	386.8	762.6	386.8	762.6	350.0	729.4	347.7	727.3	348.3	726.3	348.3	726.3	350.0	727.7
451	90.0	150.0	90.0	150.0	93.3	177.7	61.2	161.8	80.3	166.1	90.7	167.4	88.9	167.7
452	268.5	756.8	270.0	756.5	269.6	758.6	269.6	758.6	268.2	755.6	266.9	757.1	268.5	756.6
454	142.4	748.0	159.4	723.7	154.0	663.0	154.0	663.0	181.8	659.3	186.3	666.6	214.9	664.3



Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988		
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	
455	98.0	135.0	97.8	134.9	105.5	129.5	106.4	132.4	106.4	132.4	103.5	129.8	103.4	131.6	
457	251.0	684.9	279.6	677.4	284.5	679.5	282.8	681.2	285.3	678.6	284.5	679.5	287.3	677.7	
459	152.1	651.1	154.2	648.9	151.4	651.8	158.6	651.4	165.6	658.7	165.6	658.7	158.8	658.0	
46	176.9	336.3	187.1	337.9	229.5	318.9	229.5	318.9	207.9	312.8	193.8	299.8	192.5	306.8	
460	383.5	16.0	386.1	18.3	408.4	28.8	408.4	28.8	411.0	26.8	408.5	25.6	409.7	26.2	
461	387.3	34.8	389.6	34.5	388.9	36.3	389.6	34.5	387.9	36.0	385.6	36.3	386.9	35.8	
462	447.0	10.0	446.9	10.0	446.4	12.3	448.5	12.3	448.5	12.3	450.0	*	450.6	4.1	
463	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
464	413.6	434.4	413.6	434.4	411.1	436.3	410.2	436.6	410.2	436.6	411.1	436.3	410.7	436.6	
465	433.0	57.0	433.0	57.0	433.1	57.1	435.1	59.4	431.3	58.1	430.1	59.8	428.8	59.4	
466	481.2	428.3	487.7	433.8	494.8	437.6	494.8	437.6	495.2	433.7	495.9	434.8	495.9	434.8	
467	151.7	124.1	147.3	121.7	139.8	118.7	126.8	96.3	120.3	89.7	128.4	72.6	167.7	93.7	
468	471.2	458.3	458.3	465.9	450.0	487.8	453.0	487.1	453.0	487.1	447.0	484.8	441.3	484.4	
47	314.0	268.6	304.2	273.9	306.3	285.8	303.0	281.9	297.3	283.0	292.4	282.7	292.3	283.5	
470	400.1	255.0	400.2	253.0	400.7	258.0	400.1	257.0	401.2	246.0	396.9	242.9	391.9	237.2	
471	422.9	93.2	422.9	93.2	422.9	93.2	422.9	93.2	422.9	93.2	422.9	93.2	415.1	92.8	
472	436.8	347.4	438.1	342.4	437.9	343.9	437.9	343.9	437.2	339.1	436.2	341.4	436.6	342.2	
473	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
475	376.0	653.0	376.0	653.0	376.0	653.0	376.4	653.0	375.8	653.8	371.0	646.7	373.9	649.4	
476	487.6	320.6	482.8	305.4	486.1	300.0	487.1	299.2	487.1	299.2	481.9	298.4	476.8	296.3	
477	432.9	445.3	435.3	443.5	430.7	445.6	437.4	443.0	437.4	443.0	442.2	441.2	440.9	441.8	
479	150.0	72.4	169.2	52.7	180.2	54.5	192.6	57.5	190.7	67.4	194.2	72.8	195.1	72.2	
48	163.3	580.0	158.5	579.9	158.5	579.9	158.6	581.0	156.2	589.9	159.1	588.0	157.8	589.6	
480	46.6	400.7	46.6	400.7	46.6	400.7	46.6	400.7	46.6	400.7	46.6	400.7	46.6	400.7	
481	318.0	206.0	318.2	205.5	318.2	205.5	318.2	205.5	298.0	219.9	298.2	218.9	298.7	217.7	
482	277.4	169.4	358.1	187.5	393.1	185.7	393.1	185.7	391.8	185.6	390.9	184.5	390.0	182.4	
483	193.5	535.4	196.0	532.8	199.9	535.0	201.0	535.0	200.7	534.0	200.7	534.0	199.4	535.6	
484	48.9	517.6	50.0	514.3	57.9	515.8	57.4	517.4	63.4	524.5	68.6	524.8	70.8	528.2	
485	35.4	424.4	20.5	440.0	20.5	440.0	21.4	435.0	20.6	433.1	19.3	435.0	18.7	436.1	
486	227.0	201.5	232.4	176.4	232.4	176.4	246.4	173.6	248.2	173.6	247.3	173.0	247.7	173.5	

## Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
487	26.0	187.0	26.0	187.0	26.4	187.1	28.3	188.6	47.3	174.2	43.6	176.4	44.3	174.1
488	98.8	248.0	100.4	249.0	95.1	244.7	95.6	245.8	95.1	244.7	95.1	244.7	96.6	245.6
489	106.2	537.5	105.8	536.5	118.5	533.2	119.1	529.3	119.1	529.3	118.1	522.7	121.6	521.5
490	22.6	294.3	23.1	292.1	27.1	289.0	26.0	289.3	30.7	286.7	29.8	286.0	28.2	285.6
492	57.4	254.3	72.7	235.8	72.7	235.8	103.8	230.8	72.7	235.8	112.9	237.9	114.1	238.1
493	*	*	*	*	*	*	*	*	*	*	*	*	*	*
494	73.6	198.5	78.4	198.7	75.6	197.0	75.6	197.0	77.9	196.5	79.1	196.8	73.7	195.5
495	484.9	152.9	484.9	152.9	485.0	150.8	484.1	146.3	484.5	147.6	483.6	147.2	485.5	147.4
496	184.3	393.7	180.5	393.0	176.8	387.0	179.1	387.5	183.5	383.4	183.5	383.4	181.7	381.8
497	84.9	252.9	82.5	251.1	100.7	254.0	107.4	257.5	110.6	257.0	111.1	255.9	114.7	255.2
498	140.5	180.4	172.8	178.4	171.0	196.7	171.0	196.7	171.2	197.8	168.8	197.1	169.9	198.4
499	79.6	508.2	79.6	508.2	72.6	493.0	72.6	493.0	62.1	487.1	60.1	487.3	60.3	488.0
5	361.5	403.0	361.1	398.6	360.4	390.7	357.7	398.3	357.7	398.3	348.9	420.4	343.8	420.2
50	336.7	253.7	336.7	253.7	334.8	256.1	334.4	254.0	334.4	254.0	337.3	254.4	338.8	253.5
500	274.9	163.2	274.6	162.0	273.0	162.4	274.6	162.0	277.2	161.9	273.6	161.6	278.1	161.0
504	292.4	538.3	292.4	538.3	292.4	538.3	292.4	538.3	293.0	539.4	272.4	526.1	272.7	526.6
505	324.9	684.4	327.3	682.6	322.8	679.8	323.4	677.5	321.0	675.1	318.8	675.7	318.5	676.5
507	492.7	106.9	493.7	107.7	493.7	107.7	493.7	107.7	493.7	107.7	493.7	107.7	493.7	107.7
508	459.0	124.9	459.0	124.9	459.0	124.9	459.0	124.9	455.5	122.8	455.5	122.8	455.7	124.8
509	414.2	94.9	416.4	95.6	479.4	144.5	423.6	137.2	422.3	136.8	415.4	94.8	408.4	89.8
510	14.7	631.8	14.7	631.8	1.1	625.0	7.3	625.0	6.3	621.1	3.4	621.7	4.5	621.1
511	289.4	698.4	280.1	696.0	274.6	697.8	271.0	696.7	272.2	697.1	269.1	699.3	272.2	695.1
514	412.6	21.6	412.4	20.6	422.6	24.0	421.0	25.5	420.4	23.4	421.8	24.8	422.4	24.2
515	121.6	46.2	128.1	35.1	126.4	33.9	126.4	33.9	126.4	33.9	126.4	33.9	126.3	34.3
516	323.1	697.3	323.4	696.2	321.9	697.6	306.8	687.7	306.8	687.7	308.1	687.6	310.5	688.3
52	177.9	561.1	189.0	553.9	186.5	548.1	185.0	542.4	185.0	542.4	183.9	552.6	183.8	557.4
520	339.6	14.0	340.2	12.1	351.5	12.3	351.5	12.3	349.0	10.0	349.0	10.0	349.3	12.1
522	206.6	73.7	206.3	71.7	204.5	65.8	209.1	70.4	207.9	70.6	209.1	70.4	207.0	70.8
524	328.8	616.1	366.1	623.1	385.2	637.2	386.9	630.3	386.9	630.3	384.7	630.4	389.9	631.4
525	159.0	55.0	159.0	55.5	166.0	26.3	174.3	37.0	177.7	36.8	184.0	39.9	188.3	32.2

## Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
526	130.0	144.0	130.0	144.0	129.6	144.0	129.6	144.0	129.6	144.0	129.6	144.0	159.2	151.9
527	96.0	100.0	96.0	100.0	93.8	114.8	93.8	114.8	94.8	115.1	94.8	115.1	95.0	117.1
528	41.6	40.4	41.6	40.4	41.6	40.4	41.6	40.4	41.6	40.4	41.6	40.4	41.8	40.8
529	137.0	27.0	137.0	27.0	137.5	26.7	143.5	20.2	146.3	19.0	146.3	19.0	146.0	14.5
53	327.6	223.1	328.0	224.2	330.6	222.6	326.9	220.8	328.3	225.3	329.1	221.2	327.8	224.2
54	285.5	264.4	284.6	262.1	284.8	265.3	284.4	264.1	282.7	264.7	282.3	263.6	282.7	261.1
55	201.2	289.0	202.0	287.0	202.0	287.0	199.9	286.0	196.0	282.9	192.5	281.7	193.4	282.3
57	147.8	298.0	147.8	295.7	147.8	295.7	160.4	303.7	159.4	305.4	163.8	317.0	165.4	315.9
59	392.2	618.4	392.2	618.4	398.0	619.9	394.1	619.1	391.8	614.9	391.4	617.0	392.3	617.4
60	262.0	672.0	262.0	672.0	262.3	671.7	262.3	671.7	263.3	672.2	262.3	671.7	262.3	671.7
600	466.9	640.1	448.8	636.7	451.3	638.3	451.3	638.3	451.3	638.3	480.6	608.0	480.6	608.0
601	469.0	587.0	469.3	586.7	500.2	566.0	499.0	566.0	501.6	562.0	501.6	562.0	498.2	553.3
602	463.5	660.9	463.9	657.6	465.6	658.7	462.6	660.4	461.8	659.8	457.2	662.8	455.1	663.1
603	449.2	659.2	449.2	659.2	449.2	659.2	449.2	659.2	451.2	631.3	437.0	651.0	429.0	649.2
605	467.2	668.6	467.2	668.6	466.2	668.1	464.4	667.1	464.4	667.1	465.5	668.8	464.2	668.7
607	479.1	679.3	466.4	681.3	466.4	681.3	466.4	681.3	465.4	680.9	466.4	681.3	464.7	681.6
608	429.8	686.0	429.8	686.0	413.3	690.0	413.3	690.0	390.4	677.4	390.4	677.4	392.2	675.8
609	491.6	683.6	446.0	687.7	435.5	656.8	435.7	655.5	433.5	654.5	437.9	662.4	433.1	658.6
61	427.2	633.3	428.0	630.0	410.0	692.5	425.4	682.2	443.7	674.0	234.0	747.0	219.3	745.6
610	442.3	639.7	442.3	639.7	425.4	640.7	425.4	640.7	432.2	653.0	431.0	659.4	431.2	658.2
611	381.2	660.1	381.2	660.1	381.2	660.1	403.5	667.9	403.5	667.9	404.6	656.8	403.2	658.3
612	403.2	775.9	400.8	776.0	402.0	776.0	402.0	776.0	405.1	779.8	409.6	777.4	409.7	778.1
613	359.0	755.5	350.8	763.1	319.5	773.5	319.4	770.4	319.4	770.4	319.4	770.4	320.2	770.8
616	339.8	760.0	337.4	760.4	338.8	761.8	337.4	760.4	324.7	757.9	326.6	757.1	327.2	757.4
618	278.2	788.4	278.2	788.4	266.2	780.2	266.2	780.2	266.2	780.2	258.2	776.3	259.3	776.2
619	213.7	766.6	210.6	764.1	260.3	726.9	226.6	757.1	226.0	756.3	223.8	758.3	224.8	758.5
620	203.8	746.8	205.6	743.6	203.1	742.9	206.2	737.5	207.0	739.4	201.0	738.0	200.8	739.4
621	235.3	776.2	235.3	776.2	235.4	775.1	235.4	775.1	235.8	772.7	233.8	773.6	235.0	774.8
624	206.0	753.0	205.7	752.7	205.7	754.7	207.9	754.4	207.9	754.4	207.9	754.4	207.3	755.4
625	157.6	780.5	158.2	776.3	155.6	799.5	155.6	800.7	156.7	800.0	152.2	798.0	152.2	798.0

## Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
626	120.0	748.0	120.0	748.0	120.0	748.0	120.3	747.9	120.3	747.9	120.3	747.9	118.7	747.2
627	110.0	703.0	110.2	703.5	120.0	700.0	120.0	700.0	124.0	700.0	114.3	703.0	119.1	703.9
628	167.4	769.8	166.6	764.9	161.9	768.1	161.9	768.1	165.9	765.7	164.4	767.1	166.5	762.7
630	159.7	763.3	159.7	763.3	181.6	797.3	174.2	795.6	173.8	793.4	153.1	790.6	152.7	792.8
64	283.0	676.0	283.4	676.2	335.2	648.6	335.2	648.6	335.2	648.6	332.4	648.1	332.7	649.9
640	*	*	*	*	*	*	*	*	*	*	*	*	*	*
641	150.0	722.9	148.9	720.4	148.9	720.4	147.3	721.7	147.8	722.9	145.7	720.3	145.8	721.9
642	47.5	766.8	31.2	772.6	29.4	772.2	27.6	771.9	28.6	771.5	31.8	774.5	28.8	776.0
644	58.0	752.0	58.0	752.2	61.0	753.3	61.0	753.3	65.2	746.4	67.0	748.9	67.0	748.9
645	57.0	756.0	56.8	756.3	54.0	743.0	56.0	743.7	56.0	743.7	56.0	743.7	56.7	742.9
646	56.0	772.0	56.1	771.6	56.1	771.6	52.7	774.2	55.1	768.6	56.9	769.7	56.6	770.2
647	72.4	781.5	72.6	768.7	78.1	750.5	81.0	751.6	101.9	752.0	105.7	756.7	104.0	762.1
648	8.0	776.0	8.1	775.6	8.1	775.6	8.1	775.6	8.8	776.5	9.6	777.4	16.6	774.4
65	298.0	706.0	298.0	706.0	298.1	706.0	298.5	705.0	300.8	705.9	293.0	700.0	293.0	700.0
650	27.0	744.0	27.4	744.2	27.4	744.2	27.4	744.2	27.4	744.2	27.9	745.0	27.4	744.3
652	419.0	745.0	418.8	745.3	418.8	745.3	418.8	745.3	418.8	745.3	418.8	745.3	418.8	745.3
653	490.6	639.9	489.0	638.5	495.0	614.1	500.1	635.0	499.7	636.0	*	*	*	*
654	406.9	775.7	406.9	775.7	408.4	777.5	408.4	777.5	407.6	776.6	406.4	776.7	406.7	778.5
655	390.0	744.0	390.0	744.0	389.9	743.8	389.3	742.7	372.7	735.8	393.3	717.8	387.1	738.5
68	146.9	690.6	146.9	690.6	146.9	689.4	143.9	688.7	157.4	677.0	146.8	695.1	147.1	701.3
700	34.7	42.7	34.7	42.7	34.7	42.7	34.7	42.7	34.7	42.7	16.8	55.5	35.1	46.7
702	111.7	56.8	111.7	56.8	57.4	77.0	57.4	77.0	57.4	77.0	51.0	82.5	46.4	80.3
703	191.1	63.4	189.0	45.7	189.0	45.7	201.9	44.0	201.9	44.0	201.9	44.0	201.9	44.0
704	220.5	70.1	256.4	150.9	237.0	151.0	237.7	151.7	233.1	152.4	229.3	152.4	229.3	152.4
705	328.0	64.0	328.4	64.0	319.0	68.4	316.7	63.9	315.6	64.1	315.6	64.1	314.9	64.3
707	403.8	36.8	405.5	35.6	406.2	37.5	405.5	35.6	404.1	34.8	404.5	35.7	404.5	35.7
708	418.8	36.4	398.8	28.0	444.6	32.1	442.3	32.0	442.3	32.0	443.3	33.9	443.8	34.7
709	365.2	56.1	367.6	56.3	371.3	38.5	371.3	38.5	370.8	39.3	368.1	35.9	367.4	35.6
71	184.7	737.7	184.7	737.7	184.7	737.7	184.7	737.7	184.7	737.7	184.7	737.7	184.7	737.7
711	426.6	57.1	424.4	55.9	424.4	55.9	424.8	54.7	424.8	54.7	424.8	54.7	424.4	55.9

Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
712	473.0	237.3	473.0	237.3	457.6	256.9	443.2	256.3	447.0	255.9	440.8	258.1	441.2	258.0
715	194.5	563.8	194.5	563.8	251.5	558.5	250.0	557.2	250.0	557.2	257.0	557.7	258.9	559.6
717	42.4	580.5	39.8	577.3	50.9	576.6	50.9	577.8	51.8	577.2	50.0	576.0	51.2	577.3
72	197.5	519.8	197.6	521.9	186.6	508.7	177.3	510.5	185.5	508.9	177.0	512.2	177.0	512.2
721	405.9	396.8	405.9	396.8	405.9	396.8	405.9	396.8	405.9	396.8	403.2	396.9	406.0	396.3
722	373.1	471.1	358.8	472.1	358.8	472.1	347.0	448.2	347.2	449.0	347.2	449.0	348.2	448.8
723	221.6	464.5	221.6	464.5	222.8	461.9	234.5	468.8	241.0	485.7	241.0	485.7	288.9	467.7
725	120.4	455.4	130.0	456.5	130.4	458.6	130.1	459.8	132.6	459.7	132.6	459.7	132.6	459.7
726	64.3	455.5	64.3	455.5	64.3	455.5	64.3	455.5	64.3	455.5	64.3	455.5	80.2	460.3
727	450.7	353.9	453.7	353.8	450.0	353.2	453.0	354.5	452.2	355.2	450.0	353.2	450.0	350.6
729	291.9	287.6	291.9	287.6	291.9	287.6	292.8	286.7	292.8	286.7	308.1	275.6	322.9	270.0
73	101.1	104.9	101.1	104.9	101.2	105.9	96.0	103.1	97.0	100.0	97.0	100.0	98.9	105.0
730	251.7	328.4	253.9	324.0	227.2	333.3	216.2	335.5	191.6	353.3	170.9	364.8	162.2	370.5
731	116.0	368.0	116.2	368.1	116.6	367.0	115.8	369.2	115.8	369.2	89.8	358.1	89.1	358.7
732	75.9	363.6	75.9	363.6	110.0	363.6	214.0	235.3	214.0	235.3	217.8	225.4	217.8	225.4
733	445.9	247.5	445.9	247.5	482.5	224.4	485.3	221.5	485.3	221.5	490.1	218.5	490.6	219.5
734	423.6	253.0	421.5	251.7	442.4	256.9	439.6	254.0	446.1	260.4	446.0	261.7	448.0	262.4
735	383.8	235.5	383.8	235.5	383.8	235.5	366.2	219.5	366.2	219.5	367.6	221.7	368.0	220.7
736	386.5	259.5	386.5	259.5	386.5	259.5	454.7	261.1	435.4	282.8	442.2	282.9	451.3	287.7
740	359.1	256.8	359.1	256.8	359.1	256.8	448.0	186.6	448.0	186.6	453.3	142.3	449.3	120.3
741	49.2	257.9	49.2	257.9	71.8	257.5	71.8	257.5	80.8	258.9	90.0	263.2	90.1	264.0
742	54.8	281.3	93.8	242.6	93.8	242.6	97.6	242.9	100.0	238.0	100.0	238.0	100.0	238.0
744	244.8	155.1	234.6	152.7	210.1	143.8	209.1	144.1	207.0	100.0	200.6	87.0	201.6	86.3
745	183.3	186.4	183.3	186.4	174.7	192.6	174.7	192.6	176.2	194.0	173.0	195.2	176.2	193.5
76	398.7	659.0	345.5	655.8	346.7	666.2	343.5	663.5	344.4	661.7	345.2	662.3	345.2	662.3
77	332.6	228.0	332.6	228.0	321.8	224.8	322.8	221.0	319.2	219.0	316.7	221.2	316.7	221.2
78	102.7	46.9	94.6	73.8	93.2	68.7	78.9	67.8	87.0	65.7	88.1	65.9	88.4	66.3
79	386.0	150.0	386.5	150.2	395.2	149.8	395.8	149.8	389.5	146.8	380.3	144.9	380.2	144.0
8	416.1	313.5	439.7	289.6	439.6	290.7	425.0	279.1	388.0	260.8	355.0	267.4	356.5	268.6
80	83.9	192.6	81.8	189.2	81.8	189.2	69.4	222.6	71.7	225.3	69.4	222.6	70.8	220.3

## Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
801	371.5	576.9	475.6	659.2	475.6	659.2	474.6	658.8	474.6	658.8	476.2	658.3	474.4	659.5
802	388.6	559.9	421.4	541.8	421.4	541.8	477.7	534.4	477.7	534.4	477.7	534.4	477.7	534.4
804	446.9	558.5	435.6	545.8	431.2	532.4	431.7	533.3	428.0	527.2	428.0	527.2	428.2	525.6
805	452.2	555.2	452.2	555.2	435.9	571.5	435.9	571.5	435.0	572.0	430.0	574.2	427.5	576.5
807	474.2	564.0	493.2	633.3	490.4	577.4	488.4	575.1	490.0	576.3	490.7	575.4	489.2	575.4
81	97.8	363.0	98.4	362.0	98.4	362.0	102.6	362.9	105.4	361.8	108.6	359.4	115.7	358.9
810	12.2	655.7	15.6	651.7	12.5	650.5	13.0	651.4	13.0	651.4	12.0	651.6	11.3	652.1
811	266.1	656.6	280.4	642.7	287.6	676.0	288.4	675.1	289.9	673.3	285.0	671.4	318.6	685.6
812	365.2	651.3	346.8	663.7	376.4	653.0	368.1	658.9	363.9	663.4	358.3	665.9	355.4	667.9
813	322.1	664.3	322.1	664.3	386.9	630.3	382.4	627.9	383.3	628.4	383.9	626.5	384.1	628.9
815	314.1	660.4	326.7	646.9	362.6	637.6	364.9	635.6	361.2	636.1	359.1	633.7	362.0	637.4
816	277.2	665.1	269.7	663.1	270.9	664.8	270.9	664.8	273.0	662.4	273.0	662.4	265.8	652.0
817	245.3	659.8	241.7	656.2	243.8	658.4	240.8	658.1	244.6	657.8	243.0	659.0	244.1	659.0
818	203.6	658.9	205.2	655.8	205.2	657.8	203.5	654.9	204.1	653.8	203.5	654.9	206.0	653.0
819	147.3	674.2	147.3	674.2	153.5	672.4	150.9	671.8	150.9	671.8	143.9	688.7	144.8	689.8
82	72.4	498.2	71.8	494.9	59.6	471.4	60.7	473.1	63.3	472.2	58.1	475.1	58.1	475.5
820	58.6	669.6	58.6	669.6	60.5	655.4	59.8	656.1	61.3	655.9	66.2	662.4	65.1	660.5
825	462.8	539.1	474.3	537.0	476.0	538.1	473.9	537.9	475.2	535.1	477.7	534.4	484.6	508.9
83	82.0	414.0	81.8	414.1	81.8	414.1	81.8	414.1	55.4	396.2	47.8	395.7	48.6	396.4
834	172.5	753.3	166.4	749.7	137.7	771.7	136.7	772.2	153.6	751.0	115.1	760.1	112.5	761.0
835	128.6	771.5	127.6	767.6	125.6	768.3	127.6	767.6	127.6	767.6	124.6	768.7	126.8	768.6
836	44.4	737.3	35.6	732.2	42.3	732.0	42.7	734.7	44.7	730.2	40.2	728.0	41.1	729.9
837	77.8	767.5	88.2	769.0	75.8	766.7	75.1	767.6	75.8	766.7	78.9	767.8	75.0	766.6
838	67.7	740.7	56.3	738.1	53.8	738.3	54.4	737.4	53.0	734.0	46.6	727.3	44.9	728.9
839	69.8	751.9	67.9	749.5	64.0	748.0	62.8	749.6	62.8	749.6	61.2	748.4	63.4	748.8
84	87.6	208.4	83.0	193.5	79.1	196.8	79.6	198.9	79.6	198.9	74.2	195.6	69.2	194.1
840	72.7	761.2	50.0	772.4	50.0	772.4	32.0	785.2	29.3	783.0	21.4	785.3	21.3	786.3
843	444.5	677.1	444.5	677.1	447.3	676.6	445.6	672.9	445.6	672.9	445.7	669.3	443.3	671.8
844	454.7	678.9	454.7	678.9	448.2	673.6	446.4	673.6	449.1	671.8	447.6	661.8	445.5	673.4
845	449.1	677.8	440.9	665.2	445.4	658.5	445.4	658.5	446.3	653.8	447.8	652.5	449.1	653.2

Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988		
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	
846	438.5	639.3	438.5	639.3	450.0	633.2	457.0	638.9	455.7	639.0	458.4	640.4	456.5	638.9	
847	428.4	668.3	428.4	668.3	445.5	675.3	428.5	659.5	427.3	661.2	429.2	660.3	427.6	660.0	
848	459.5	638.7	457.3	634.7	461.3	637.7	460.6	637.0	462.6	637.6	462.1	638.4	462.1	638.4	
849	477.5	666.3	477.9	661.1	479.2	662.6	478.2	662.3	478.2	662.3	478.2	662.3	477.3	662.0	
85	41.0	499.9	39.8	501.5	48.9	497.4	48.9	497.4	54.3	495.7	59.6	493.7	59.7	496.0	
850	446.0	661.7	442.4	656.9	443.0	659.0	440.8	658.1	457.8	641.2	442.3	658.3	441.2	658.0	
87	322.6	676.7	322.6	676.7	322.6	676.7	322.6	676.7	322.6	676.7	322.6	676.7	322.6	676.7	
88	102.0	374.0	101.7	374.0	101.7	374.0	102.7	371.9	102.7	371.9	90.9	370.4	90.9	370.4	
89	83.6	443.0	80.8	444.0	76.4	432.3	76.4	432.3	75.6	429.1	76.7	426.1	76.7	426.9	
90	88.1	265.9	88.3	363.9	71.3	375.7	71.3	375.7	70.0	374.2	71.3	375.7	70.2	377.0	
91	308.5	321.4	326.9	334.8	324.0	338.1	330.4	343.4	337.2	349.6	335.2	348.6	342.5	353.8	
92	17.0	78.2	16.6	76.2	48.3	126.3	63.9	123.3	63.9	123.3	63.9	123.3	63.9	123.3	
93	119.3	477.6	166.9	552.4	157.3	534.7	135.2	539.7	129.7	540.2	121.4	539.6	114.1	538.1	
94	78.9	182.3	79.7	181.5	78.0	179.0	77.2	179.8	77.2	179.8	78.0	179.0	77.0	179.3	
96	59.4	691.4	59.4	691.4	59.4	691.4	60.4	690.7	61.6	692.3	61.6	692.3	61.6	692.3	
97	55.9	184.1	54.9	184.8	47.1	183.7	53.2	195.1	50.0	193.5	50.0	193.5	51.3	193.5	
98	56.9	157.7	50.7	155.2	50.0	153.2	40.3	154.8	41.1	154.2	41.0	155.5	39.6	154.4	
99	39.0	497.5	40.1	497.0	39.1	496.4	39.1	496.4	39.1	496.4	38.0	496.8	37.6	495.8	
aa	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ab	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ac	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ae	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
af	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ah	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ai	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
aj	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
al	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
am	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ao	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
aq	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
ar	*	*	*	*	*	*	*	*	*	*	*	*	*	*
as	*	*	*	*	*	*	*	*	*	*	*	*	*	*
au	*	*	*	*	*	*	*	*	*	*	*	*	*	*
av	*	*	*	*	*	*	*	*	*	*	*	*	*	*
aw	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ax	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ay	*	*	*	*	*	*	*	*	*	*	*	*	*	*
b	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ba	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bb	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bc	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
be	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bf	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bg	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bi	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bj	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bl	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bm	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bn	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bo	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bp	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bq	*	*	*	*	*	*	*	*	*	*	*	*	*	*
br	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bs	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bt	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bu	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bv	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bw	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bx	*	*	*	*	*	*	*	*	*	*	*	*	*	*



Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
by	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bz	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ca	*	*	*	*	*	*	*	*	*	*	*	*	*	*
cc	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ce	*	*	*	*	*	*	*	*	*	*	*	*	*	*
cf	*	*	*	*	*	*	*	*	*	*	*	*	*	*
cg	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ci	*	*	*	*	*	*	*	*	*	*	*	*	*	*
cm	*	*	*	*	*	*	*	*	*	*	*	*	*	*
cs	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ct	*	*	*	*	*	*	*	*	*	*	*	*	*	*
cu	*	*	*	*	*	*	*	*	*	*	*	*	*	*
d	*	*	*	*	*	*	*	*	*	*	*	*	*	*
da	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dc	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
df	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dj	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dl	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dm	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dn	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dq	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dr	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ds	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dt	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dv	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dw	*	*	*	*	*	*	*	*	*	*	*	*	*	*
e	*	*	*	*	*	*	*	*	*	*	*	*	*	*
el	*	*	*	*	*	*	*	*	*	*	*	*	*	*
em	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
eo	*	*	*	*	*	*	*	*	*	*	*	*	*	*
es	*	*	*	*	*	*	*	*	*	*	*	*	*	*
et	*	*	*	*	*	*	*	*	*	*	*	*	*	*
eu	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ex	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ey	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fa	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fb	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fc	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ff	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fn	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fi	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fj	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fq	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fr	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fv	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fw	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fx	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fy	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fz	*	*	*	*	*	*	*	*	*	*	*	*	*	*
g	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ga	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ge	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gg	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gh	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gk	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gl	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gm	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gn	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
go	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gr	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gs	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gt	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gv	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gx	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gy	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ha	*	*	*	*	*	*	*	*	*	*	*	*	*	*
hb	*	*	*	*	*	*	*	*	*	*	*	*	*	*
hc	*	*	*	*	*	*	*	*	*	*	*	*	*	*
hd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
he	*	*	*	*	*	*	*	*	*	*	*	*	*	*
hf	*	*	*	*	*	*	*	*	*	*	*	*	*	*
hg	*	*	*	*	*	*	*	*	*	*	*	*	*	*
hh	*	*	*	*	*	*	*	*	*	*	*	*	*	*
hk	*	*	*	*	*	*	*	*	*	*	*	*	*	*
hl	*	*	*	*	*	*	*	*	*	*	*	*	*	*
hm	*	*	*	*	*	*	*	*	*	*	*	*	*	*
hn	*	*	*	*	*	*	*	*	*	*	*	*	*	*
hp	*	*	*	*	*	*	*	*	*	*	*	*	*	*
hq	*	*	*	*	*	*	*	*	*	*	*	*	*	*
hr	*	*	*	*	*	*	*	*	*	*	*	*	*	*
hs	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ht	*	*	*	*	*	*	*	*	*	*	*	*	*	*
hu	*	*	*	*	*	*	*	*	*	*	*	*	*	*
hv	*	*	*	*	*	*	*	*	*	*	*	*	*	*
hw	*	*	*	*	*	*	*	*	*	*	*	*	*	*
hx	*	*	*	*	*	*	*	*	*	*	*	*	*	*
hy	*	*	*	*	*	*	*	*	*	*	*	*	*	*
i	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
ia	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ib	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ic	*	*	*	*	*	*	*	*	*	*	*	*	*	*
id	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ie	*	*	*	*	*	*	*	*	*	*	*	*	*	*
if	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ig	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ij	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ik	*	*	*	*	*	*	*	*	*	*	*	*	*	*
il	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ip	*	*	*	*	*	*	*	*	*	*	*	*	*	*
iq	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ir	*	*	*	*	*	*	*	*	*	*	*	*	*	*
it	*	*	*	*	*	*	*	*	*	*	*	*	*	*
iu	*	*	*	*	*	*	*	*	*	*	*	*	*	*
iv	*	*	*	*	*	*	*	*	*	*	*	*	*	*
iy	*	*	*	*	*	*	*	*	*	*	*	*	*	*
j	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jf	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ji	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jü	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jm	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jn	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jo	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jq	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jr	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jt	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ju	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jv	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
jx	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jy	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jz	*	*	*	*	*	*	*	*	*	*	*	*	*	*
k	*	*	*	*	*	*	*	*	*	*	*	*	*	*
kd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
kg	*	*	*	*	*	*	*	*	*	*	*	*	*	*
kh	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ki	*	*	*	*	*	*	*	*	*	*	*	*	*	*
kj	*	*	*	*	*	*	*	*	*	*	*	*	*	*
kl	*	*	*	*	*	*	*	*	*	*	*	*	*	*
km	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ko	*	*	*	*	*	*	*	*	*	*	*	*	*	*
kp	*	*	*	*	*	*	*	*	*	*	*	*	*	*
kq	*	*	*	*	*	*	*	*	*	*	*	*	*	*
kr	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ks	*	*	*	*	*	*	*	*	*	*	*	*	*	*
kt	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ku	*	*	*	*	*	*	*	*	*	*	*	*	*	*
kv	*	*	*	*	*	*	*	*	*	*	*	*	*	*
kw	*	*	*	*	*	*	*	*	*	*	*	*	*	*
kx	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ky	*	*	*	*	*	*	*	*	*	*	*	*	*	*
kz	*	*	*	*	*	*	*	*	*	*	*	*	*	*
la	*	*	*	*	*	*	*	*	*	*	*	*	*	*
lc	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ld	*	*	*	*	*	*	*	*	*	*	*	*	*	*
lf	*	*	*	*	*	*	*	*	*	*	*	*	*	*
lg	*	*	*	*	*	*	*	*	*	*	*	*	*	*
lh	*	*	*	*	*	*	*	*	*	*	*	*	*	*
li	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
lj	*	*	*	*	*	*	*	*	*	*	*	*	*	*
lk	*	*	*	*	*	*	*	*	*	*	*	*	*	*
m	*	*	*	*	*	*	*	*	*	*	*	*	*	*
n	*	*	*	*	*	*	*	*	*	*	*	*	*	*
o	*	*	*	*	*	*	*	*	*	*	*	*	*	*
p	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pb	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pc	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pe	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pi	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pj	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pk	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pl	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pm	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pn	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pq	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pr	*	*	*	*	*	*	*	*	*	*	*	*	*	*
q	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qc	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qe	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qf	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qj	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qk	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ql	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qm	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qn	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qo	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qq	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Annexe 3, suite...

Moule	29 juin 1988		5 juillet 1988		13 juillet 1988		21 juillet 1988		26 juillet 1988		1 août 1988		8 août 1988	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
qr	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qs	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qt	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qx	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qz	*	*	*	*	*	*	*	*	*	*	*	*	*	*
r	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rb	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rf	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rg	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rh	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ri	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rk	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rl	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rm	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ro	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rp	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rq	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rs	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rt	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rx	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ry	*	*	*	*	*	*	*	*	*	*	*	*	*	*
s	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t	*	*	*	*	*	*	*	*	*	*	*	*	*	*
u	*	*	*	*	*	*	*	*	*	*	*	*	*	*
v	*	*	*	*	*	*	*	*	*	*	*	*	*	*
w	*	*	*	*	*	*	*	*	*	*	*	*	*	*
x	*	*	*	*	*	*	*	*	*	*	*	*	*	*
y	*	*	*	*	*	*	*	*	*	*	*	*	*	*
z	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
10	308.0	700.0	309.7	699.9	309.7	699.9	309.7	699.9	309.7	699.9	309.7	699.9	309.7	699.9
100	42.9	677.8	45.3	678.0	40.7	676.2	40.7	676.2	40.7	676.2	40.7	676.2	30.9	677.9
101	97.2	796.5	97.4	800.3	97.9	799.0	96.1	799.0	96.1	799.0	96.1	799.0	95.4	796.4
102	32.2	628.8	30.3	630.8	33.3	631.3	30.3	630.8	30.3	630.8	30.3	630.8	29.2	628.2
1021	33.9	632.5	36.4	631.7	31.9	639.5	31.9	639.5	31.9	639.5	31.9	639.5	31.9	639.5
104	95.5	726.3	96.3	725.1	96.3	725.1	96.3	725.1	96.3	725.1	93.6	724.6	94.3	727.3
105	103.0	730.3	105.6	730.0	105.6	730.0	105.6	730.0	105.6	730.0	99.7	727.9	102.3	727.8
106	22.1	631.0	22.1	631.0	21.2	628.6	20.1	629.3	20.1	629.3	20.1	629.3	26.4	619.8
109	39.8	686.5	39.8	686.5	12.3	679.1	12.3	679.1	12.3	679.1	12.3	679.1	7.8	675.8
11	10.5	128.6	-4.2	132.8	-4.2	132.8	-4.2	132.8	-4.2	132.8	-4.2	132.8	20.2	115.4
110	96.8	755.8	95.9	755.7	95.9	755.7	97.4	755.8	97.4	755.8	97.4	755.8	97.4	755.8
111	15.9	719.8	15.2	721.9	16.6	722.5	16.6	722.5	16.6	722.5	16.6	722.5	2.0	748.2
1118	71.9	750.7	65.5	756.3	65.5	756.3	66.3	755.3	66.3	755.3	66.3	755.3	60.1	785.1
113	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1138	419.0	552.5	419.0	552.5	419.0	552.5	419.0	552.5	419.0	552.5	419.0	552.5	423.8	528.1
114	13.6	737.0	12.9	738.5	12.9	738.5	22.0	737.1	22.0	737.1	22.0	737.1	23.2	739.4
115	102.8	711.1	101.6	711.3	98.7	707.5	98.7	707.5	98.7	707.5	92.7	700.2	89.8	703.6
1164	141.7	52.9	140.8	51.9	140.8	51.9	140.8	51.9	140.8	51.9	140.8	51.9	146.3	54.0
1169	381.6	564.7	381.2	567.3	381.2	567.3	381.2	567.3	381.2	567.3	381.2	567.3	381.2	567.3
1172	161.5	574.4	161.5	574.4	161.5	574.4	161.5	574.4	161.5	574.4	161.5	574.4	161.1	571.4
118	464.4	555.6	464.4	555.6	464.4	555.6	461.2	553.5	459.2	551.9	459.2	551.9	475.8	535.8
1184	166.2	586.6	163.8	658.2	163.8	658.2	163.8	658.2	163.8	658.2	163.8	658.2	163.8	658.2
119	454.6	553.1	455.5	552.2	453.6	550.5	453.6	550.5	453.6	550.5	451.8	548.8	453.6	550.5
12	387.4	351.8	387.4	351.8	387.4	351.8	383.7	345.4	383.7	345.4	383.7	345.4	368.8	343.3
120	445.1	582.5	446.3	581.8	437.6	583.4	425.5	579.9	425.5	579.9	425.5	579.9	428.2	578.9
1214	449.1	554.9	450.0	554.1	448.1	554.1	448.1	554.1	448.1	554.1	448.1	554.1	448.1	555.8
122	21.1	746.2	23.6	747.8	22.4	748.4	22.4	748.4	22.4	748.4	22.4	748.4	24.7	747.3
123	55.7	701.2	55.8	702.7	55.7	699.8	57.2	701.9	58.6	701.1	55.7	699.8	55.7	699.8
1246	315.1	443.2	311.4	444.3	311.4	444.3	311.4	444.3	311.4	444.3	311.4	444.3	311.4	444.3
1254	121.2	114.0	120.5	117.0	120.5	117.0	120.5	117.0	120.5	117.0	120.5	117.0	146.3	154.0



Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
126	312.1	425.2	313.3	424.6	313.3	424.6	313.3	424.6	313.3	424.6	313.3	424.6	309.7	426.2
1269	89.6	462.1	89.6	462.1	89.6	462.1	89.6	462.1	89.6	462.1	89.6	462.1	89.6	462.1
127	482.5	529.5	482.9	528.3	481.2	520.7	481.2	520.7	481.2	520.7	481.2	520.7	457.7	508.9
1270	202.5	754.6	203.9	754.5	203.9	754.5	203.9	754.5	203.9	754.5	203.9	754.5	203.9	754.5
1273	25.0	366.6	23.7	367.1	23.7	367.1	21.5	366.5	21.5	366.5	21.5	366.5	71.7	348.2
129	62.3	794.3	62.4	795.8	63.7	794.9	63.7	794.9	63.7	794.9	63.7	794.9	60.8	793.7
1297	329.4	386.6	328.5	384.2	328.5	384.2	352.5	387.0	355.2	388.3	355.2	388.3	353.8	387.7
13	335.1	434.9	334.5	433.7	336.7	435.1	336.4	431.7	336.4	431.7	336.4	431.7	336.4	431.7
130	111.4	722.7	112.9	723.3	115.5	723.2	115.5	723.2	115.5	723.2	116.6	722.5	108.2	721.6
131	69.7	689.0	65.9	690.3	63.1	689.2	68.3	688.5	65.5	687.4	65.9	690.3	63.4	692.0
132	35.4	771.7	35.4	771.7	36.5	772.6	36.5	772.6	36.5	772.6	35.2	773.3	36.1	775.7
135	29.3	715.3	29.7	717.2	29.7	717.2	29.7	717.2	29.7	717.2	29.7	717.2	23.0	704.2
136	100.3	761.0	100.3	761.0	100.3	761.0	100.3	761.0	100.3	761.0	100.3	761.0	100.3	761.0
1365	322.1	334.1	321.5	332.9	321.5	332.9	321.5	332.9	321.5	332.9	321.5	332.9	300.3	361.0
137	31.9	796.5	33.0	798.8	33.0	798.8	33.0	798.8	33.0	798.8	33.0	798.8	33.0	798.8
138	33.1	779.8	33.1	779.8	33.1	779.8	33.1	779.8	33.1	779.8	33.1	779.8	23.4	777.8
139	19.7	698.4	22.0	701.8	22.0	701.8	22.0	701.8	22.0	701.8	22.0	701.8	17.0	702.7
14	21.2	120.1	21.6	121.5	22.6	120.4	22.6	120.4	22.6	120.4	22.6	120.4	22.9	116.0
140	327.0	99.3	336.0	97.7	327.3	97.9	327.3	97.9	328.6	98.8	328.6	98.8	334.5	98.3
1407	448.7	186.2	456.0	180.2	456.0	180.2	456.0	180.2	456.0	180.2	456.0	180.2	461.1	182.8
141	301.7	312.6	303.0	312.3	299.2	312.7	308.9	260.3	310.3	260.1	311.7	259.8	310.2	257.5
142	219.0	330.0	219.0	330.0	219.0	330.0	219.0	330.0	219.0	330.0	219.0	330.0	253.3	420.8
143	187.7	514.5	180.2	538.4	185.6	528.3	185.6	528.3	185.6	528.3	185.6	528.3	169.9	523.3
1438	207.6	232.1	208.1	233.3	208.1	233.3	206.8	229.7	205.6	230.0	205.6	230.0	205.6	230.0
144	304.6	258.2	303.2	253.2	288.9	261.2	288.9	261.2	288.9	261.2	288.9	261.2	270.0	270.1
145	456.7	591.9	447.4	589.9	450.0	591.4	450.0	591.4	450.0	591.4	450.0	591.4	441.2	603.9
1451	436.2	758.2	436.2	758.2	436.2	758.2	436.2	758.2	436.2	758.2	436.2	758.2	436.2	758.2
1459	490.7	133.0	491.9	133.3	491.9	133.3	491.9	133.3	491.9	133.3	491.9	133.3	491.9	133.3
146	372.6	571.1	373.5	570.1	371.0	569.1	371.0	569.1	370.0	570.1	370.0	570.1	376.3	567.1
147	7.9	591.1	7.9	591.1	3.4	590.1	4.0	588.8	-1.1	588.9	1.7	586.3	1.7	586.3

Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
1472	486.4	137.0	486.4	137.0	487.1	138.5	487.1	138.5	487.1	138.5	487.1	138.5	487.1	138.5
148	170.7	567.6	170.7	567.6	170.7	567.6	170.7	567.6	179.4	561.4	179.4	561.4	176.4	559.0
149	361.8	667.4	361.8	667.4	361.8	667.4	361.8	667.4	361.8	667.4	361.8	667.4	361.8	667.4
150	229.4	562.0	229.9	564.5	227.6	560.0	226.4	560.5	226.4	560.5	226.4	560.5	216.5	553.4
152	148.9	468.1	151.1	466.5	150.0	467.3	152.2	468.8	149.0	464.9	147.9	465.7	145.9	464.0
153	135.3	422.6	135.3	422.6	135.3	422.6	135.3	422.6	133.9	422.5	132.0	420.7	131.1	426.1
155	97.4	200.3	96.8	201.5	92.0	200.0	92.0	200.0	92.0	200.0	92.0	200.0	92.0	200.0
157	183.8	292.6	185.3	294.1	188.8	315.4	188.8	315.4	188.8	315.4	188.8	315.4	204.2	325.1
158	450.9	747.9	451.8	748.8	451.8	748.8	451.8	748.8	451.8	748.8	451.8	748.8	451.8	748.8
159	302.3	91.4	301.1	92.7	298.9	88.9	301.7	86.3	307.7	83.5	308.9	88.5	308.9	88.5
16	196.4	130.3	200.4	130.5	200.4	130.5	200.4	130.5	200.4	130.5	200.4	130.5	200.4	130.5
160	335.7	78.6	334.4	79.2	334.6	77.7	347.9	67.3	346.8	66.4	347.9	65.7	347.9	65.7
161	232.6	445.4	231.5	446.1	243.8	420.2	228.2	440.7	228.2	440.7	228.2	440.7	228.2	440.7
162	293.1	593.7	291.9	594.9	294.4	588.7	295.4	591.3	296.5	593.9	291.1	588.5	291.1	588.5
163	342.5	406.1	342.5	406.1	343.9	408.3	337.7	404.9	336.7	409.7	336.7	409.7	336.7	409.7
164	407.3	550.3	416.4	550.8	416.4	550.8	416.4	550.8	416.4	550.8	416.4	550.8	420.2	570.8
165	123.2	456.4	124.0	457.4	126.8	454.8	119.5	457.8	138.0	460.1	138.0	460.1	145.1	482.5
166	221.7	429.8	220.6	430.5	223.8	428.1	224.2	429.4	219.5	423.4	222.0	422.9	231.0	417.4
167	297.6	638.0	297.6	638.0	297.6	638.0	297.6	638.0	297.6	638.0	297.6	638.0	269.9	623.3
168	264.1	516.1	264.1	516.1	262.2	518.1	262.2	518.1	262.2	518.1	262.2	518.1	262.2	518.1
169	269.9	518.9	270.3	517.2	268.0	520.7	268.0	520.7	268.0	520.7	268.0	520.7	268.0	520.7
17	132.1	338.4	131.9	339.5	131.3	338.4	131.9	339.5	131.9	339.5	131.3	338.4	129.9	341.1
170	240.2	458.7	239.1	459.4	240.9	461.2	240.9	461.2	239.8	462.0	239.8	462.0	246.0	460.7
171	415.5	556.3	416.7	556.0	410.7	553.6	388.6	554.7	388.6	554.7	388.6	554.7	378.9	559.9
172	205.4	449.2	161.5	574.4	163.4	571.1	162.2	570.5	162.2	570.5	162.2	570.5	185.2	479.9
173	208.2	368.1	208.2	368.1	212.2	364.9	212.2	364.9	212.2	364.9	210.5	362.6	219.8	391.9
174	282.3	433.7	275.8	432.7	275.8	432.7	275.8	432.7	275.8	432.7	275.8	432.7	282.5	439.5
175	128.3	92.3	128.1	93.7	128.3	92.3	128.3	92.3	128.3	92.3	128.3	92.3	128.3	92.3
176	7.7	208.5	7.7	208.5	7.7	208.5	7.7	208.5	7.7	208.5	7.7	208.5	31.9	208.4
177	121.2	271.9	119.8	281.4	119.8	281.4	119.8	281.4	119.8	281.4	119.8	281.4	119.8	281.4

Annexe 3, suite...

Moule	17 aout 1988		23 aout 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
178	206.0	555.6	207.3	555.4	206.2	545.3	206.2	545.3	206.2	545.3	206.2	545.3	194.4	530.0
179	334.4	663.7	335.3	664.6	335.3	664.6	335.3	664.6	335.3	664.6	335.3	664.6	335.3	664.6
180	262.9	608.7	262.9	608.7	260.4	605.9	265.0	611.5	262.9	608.7	262.9	608.7	261.6	602.3
181	37.1	208.7	37.1	208.7	37.1	208.7	37.1	208.7	37.1	208.7	37.1	208.7	51.3	214.5
182	25.3	135.0	20.0	132.4	21.5	138.9	20.9	137.8	19.3	137.2	19.3	137.2	20.0	132.4
183	73.4	114.9	72.5	113.1	72.5	113.1	72.5	113.1	72.5	113.1	72.5	113.1	70.6	108.2
184	40.5	55.4	40.5	55.4	40.5	55.4	40.5	55.4	40.5	55.4	40.5	55.4	40.5	55.4
185	164.4	561.4	164.4	561.4	164.4	561.4	164.4	561.4	164.4	561.4	164.4	561.4	161.8	677.4
186	143.3	193.3	144.6	194.1	144.6	194.1	144.6	194.1	144.6	194.1	144.6	194.1	144.6	194.1
187	122.3	259.4	122.3	259.4	122.3	259.4	122.3	259.4	122.3	259.4	122.3	259.4	118.5	260.7
188	79.4	109.9	79.7	107.3	79.7	107.3	79.7	107.3	79.7	107.3	79.7	107.3	76.4	101.4
189	387.4	634.6	387.4	634.6	387.4	634.6	387.4	634.6	387.4	634.6	391.9	629.4	387.2	627.6
190	68.1	108.4	68.1	108.4	68.5	103.8	69.0	100.0	67.8	104.4	67.8	104.4	64.4	100.5
191	61.6	127.1	61.6	127.1	60.8	125.9	60.8	125.9	60.8	125.9	60.8	125.9	61.4	124.4
192	101.4	247.0	100.8	245.7	100.8	245.7	97.4	244.4	97.4	244.4	97.4	244.4	70.2	250.3
193	98.7	124.1	96.3	125.1	96.3	125.1	96.3	125.1	93.0	121.8	93.0	121.8	96.2	132.8
194	66.3	75.3	68.8	76.4	68.8	76.4	68.8	76.4	68.8	76.4	68.8	76.4	84.5	56.3
195	81.8	48.8	79.4	47.8	79.4	47.8	79.4	47.8	79.4	47.8	79.4	47.8	90.0	47.2
196	307.5	801.3	306.7	798.8	314.4	800.6	314.4	800.6	314.4	800.6	314.4	800.6	321.0	799.4
197	*	*	*	*	*	*	*	*	*	*	*	*	*	*
198	368.0	364.9	337.8	361.7	336.7	362.4	335.8	361.5	336.9	360.8	338.0	360.1	339.8	362.0
199	83.3	592.5	83.7	593.8	83.3	592.5	81.7	592.2	81.7	592.2	81.7	592.2	83.3	592.5
200	79.5	445.1	80.2	444.0	80.2	444.0	80.2	444.0	80.2	444.0	80.2	444.0	80.2	444.0
201	38.9	436.5	40.3	438.7	47.9	423.5	47.9	423.5	47.9	423.5	47.9	423.5	47.2	424.9
202	389.3	653.6	389.3	653.6	389.3	653.6	387.4	651.8	387.4	651.8	387.4	651.8	387.4	651.8
203	444.0	316.6	444.0	316.6	444.0	316.6	444.1	312.0	436.5	318.0	436.5	318.0	440.4	315.0
204	411.8	180.4	412.8	181.5	414.8	179.9	414.8	179.9	412.7	177.7	414.8	179.9	414.8	179.9
205	60.7	378.3	64.3	378.6	61.8	377.4	61.8	377.4	61.8	377.4	61.8	377.4	61.8	377.4
206	54.8	420.2	54.2	421.9	54.8	420.2	54.8	420.2	54.8	420.2	54.8	420.2	54.8	420.2
207	444.7	491.2	446.1	489.1	447.4	489.9	447.4	489.9	444.6	494.1	444.6	494.1	444.6	494.1

Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
208	25.4	248.3	23.8	250.6	23.8	250.6	25.0	250.0	26.1	249.4	27.5	251.5	10.3	241.9
209	305.4	159.4	305.4	159.4	305.4	159.4	305.4	159.4	305.4	159.4	305.4	159.4	288.9	161.2
21	344.9	728.9	344.2	727.5	345.5	732.5	345.5	732.5	345.5	732.5	345.5	732.5	345.5	732.5
210	390.9	92.3	390.9	92.3	390.9	92.3	390.9	92.3	390.9	92.3	390.9	92.3	390.2	82.0
211	444.5	171.0	410.2	198.5	410.2	198.5	438.0	191.5	438.0	191.5	438.0	191.5	485.6	159.2
212	157.1	577.8	158.1	575.5	157.1	577.8	157.1	577.8	157.1	577.8	157.1	577.8	164.5	549.5
213	357.4	504.7	355.8	502.7	355.8	502.7	358.8	503.9	357.4	504.7	357.4	504.7	359.4	512.3
214	25.2	414.7	25.6	416.5	27.5	413.1	27.5	413.1	27.5	413.1	27.5	413.1	31.9	408.4
215	410.2	157.5	415.7	147.0	415.1	145.8	415.1	145.8	415.1	145.8	415.1	145.8	410.5	162.6
216	137.5	255.9	137.5	255.9	137.5	255.9	137.5	255.9	137.5	255.9	137.5	255.9	137.5	255.9
217	86.6	468.6	86.1	467.2	89.2	479.3	105.6	481.1	105.6	481.1	105.6	481.1	124.8	472.0
218	4.6	491.3	4.6	491.3	4.6	491.3	4.6	491.3	4.6	491.3	4.1	492.6	10.8	483.1
219	389.9	627.4	389.9	627.4	389.9	627.4	389.9	627.4	389.9	627.4	389.9	627.4	389.9	627.4
22	31.1	526.1	32.1	525.0	32.1	525.0	35.8	524.1	35.8	524.1	37.5	521.4	37.5	521.4
220	131.2	158.2	131.2	158.2	131.2	158.2	131.2	158.2	131.2	158.2	131.2	158.2	135.3	164.6
221	23.3	326.1	23.3	326.1	23.3	326.1	30.0	300.0	30.0	300.0	30.0	300.0	30.0	300.0
222	154.0	614.5	154.0	614.5	166.8	608.0	166.8	608.0	166.8	608.0	166.8	608.0	185.7	610.6
223	328.1	510.8	320.2	505.7	319.0	507.5	319.0	507.5	319.0	507.5	304.4	509.0	317.5	514.7
224	99.9	433.0	99.9	433.0	99.9	433.0	99.9	433.0	99.9	433.0	99.9	433.0	99.9	433.0
225	24.4	478.9	23.4	477.8	23.4	477.8	22.7	480.7	22.7	480.7	22.7	480.7	17.5	489.8
226	39.4	190.9	39.4	190.9	28.5	184.2	31.9	187.0	32.2	185.6	31.9	187.0	55.5	197.0
227	129.9	183.7	128.5	184.2	128.8	182.8	128.8	182.8	128.8	182.8	127.6	181.8	118.4	197.3
228	198.3	194.0	198.3	194.0	200.1	194.0	198.9	188.9	198.9	188.9	198.9	188.9	198.9	188.9
23	54.0	614.5	54.0	614.5	57.6	608.9	57.4	616.5	57.4	616.5	59.3	614.3	60.8	618.2
230	80.0	176.2	79.0	177.2	79.8	180.0	80.4	177.6	82.3	179.3	79.8	180.0	79.4	178.6
231	137.7	181.9	137.6	183.4	137.6	183.4	137.6	183.4	137.6	183.4	137.6	183.4	133.7	193.1
232	65.9	313.8	65.9	313.8	69.4	315.5	69.4	315.5	69.4	315.5	69.4	315.5	68.1	308.4
233	137.9	680.4	139.2	679.8	139.2	679.8	134.7	686.0	134.5	687.4	136.9	689.2	131.7	688.5
234	106.8	446.5	103.8	443.0	102.7	440.6	106.2	445.3	102.4	443.1	102.4	443.1	106.2	445.3
235	25.5	469.1	26.5	470.1	26.5	470.1	26.5	470.1	26.5	470.1	26.5	470.1	26.2	466.1

Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
236	66.3	475.3	67.5	475.9	67.3	474.4	67.3	474.4	67.3	474.4	67.3	474.4	67.3	474.4
237	3.2	255.8	11.7	259.8	9.5	258.9	8.9	260.3	8.2	259.1	6.1	260.7	9.4	265.4
238	5.0	382.4	8.7	380.8	7.2	377.1	8.2	378.3	6.7	378.5	7.8	375.8	4.7	376.1
239	23.6	459.0	26.4	460.5	25.2	456.9	24.4	455.9	25.2	456.9	26.0	457.9	24.4	455.9
24	81.0	630.0	81.0	630.0	80.5	631.2	80.5	631.2	80.5	631.2	79.9	629.3	81.8	627.6
240	334.8	148.5	352.2	128.9	352.2	128.9	352.2	128.9	352.2	126.3	352.9	127.6	348.5	127.7
241	314.1	138.1	313.1	135.8	312.6	134.6	314.5	132.5	314.5	132.5	314.5	132.5	314.5	132.5
242	123.6	119.2	123.6	119.2	121.6	121.5	123.8	128.1	122.0	122.9	122.0	122.9	122.0	122.9
244	320.2	605.7	319.6	610.0	319.6	610.0	326.4	619.8	321.3	612.3	324.5	608.7	325.6	616.5
245	91.3	50.1	91.3	50.1	91.3	50.1	91.3	50.1	99.7	64.8	100.5	66.0	100.5	66.0
246	195.8	532.8	198.1	535.5	198.5	533.0	198.5	533.0	198.5	533.0	198.5	533.0	198.5	533.0
247	28.6	209.1	28.6	209.1	17.4	201.4	17.4	201.4	17.4	201.4	17.4	201.4	103.5	245.6
248	140.6	293.1	140.6	293.1	103.2	255.8	134.1	301.1	135.6	300.5	135.6	300.5	168.9	326.1
249	191.1	88.5	195.4	91.3	203.2	82.5	203.2	82.5	203.2	82.5	203.2	82.5	205.6	81.1
250	222.0	469.0	222.0	469.0	224.2	469.6	220.6	465.4	220.6	465.4	218.9	463.3	218.9	463.3
252	22.9	391.1	22.6	392.5	22.9	391.1	22.6	392.5	21.4	391.5	22.3	393.9	22.9	391.1
253	30.2	213.4	30.2	213.4	30.2	213.4	30.2	213.4	30.2	213.4	30.2	213.4	30.3	230.8
254	202.1	566.0	202.3	568.5	191.6	589.8	191.6	589.8	191.6	589.8	191.6	589.8	191.6	589.8
256	179.8	462.9	179.0	463.9	179.8	462.9	179.8	462.9	179.8	462.9	179.8	462.9	177.3	462.0
257	52.8	54.9	53.8	55.7	52.8	54.9	52.9	56.6	54.7	54.8	54.7	54.8	54.4	70.3
258	282.2	226.3	282.2	226.3	292.1	218.7	291.5	221.2	291.8	212.9	291.8	212.9	291.8	212.9
259	167.0	323.8	166.5	325.2	166.5	325.2	167.0	323.8	167.0	323.8	167.0	323.8	174.7	325.0
260	122.1	731.0	125.2	731.9	125.2	731.9	125.2	731.9	125.2	731.9	125.2	731.9	120.0	732.4
262	133.7	117.7	132.9	119.3	132.9	119.3	132.9	119.3	132.9	119.3	132.9	119.3	133.7	117.7
264	196.9	743.1	196.9	743.1	196.9	743.1	195.8	740.4	195.8	740.4	195.8	740.4	199.7	743.2
265	184.2	752.3	184.2	752.3	183.0	749.2	183.0	749.2	183.0	749.2	183.6	750.8	183.6	750.8
267	126.2	766.1	125.7	763.6	132.6	761.8	132.6	761.8	132.6	761.8	135.3	764.6	128.1	768.1
268	92.7	166.9	92.7	166.9	92.7	166.9	92.7	166.9	93.0	167.6	94.5	168.4	96.5	165.9
269	317.5	714.7	308.4	714.2	315.9	719.8	314.8	720.6	314.8	720.6	314.8	720.6	314.8	720.6
27	38.0	660.1	38.9	661.0	40.0	660.3	40.0	660.3	40.8	651.9	40.8	651.9	44.5	652.2

Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989		
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	
270	91.7	486.0	87.9	488.1	87.9	488.1	87.9	488.1	87.9	488.1	87.9	488.1	87.9	488.1	
272	183.5	783.5	186.1	782.7	183.3	787.3	183.3	787.3	183.3	787.3	183.3	787.3	189.7	793.4	
273	233.6	734.7	232.6	735.6	232.6	735.6	232.6	735.6	232.6	735.6	233.6	734.7	233.9	737.9	
274	33.3	731.3	32.4	732.3	32.4	732.3	32.4	732.3	32.4	732.3	32.4	732.3	33.0	723.8	
275	210.7	748.4	211.9	750.7	211.3	749.5	211.3	749.5	211.3	749.5	211.3	749.5	213.8	748.9	
276	252.6	589.9	250.0	591.4	238.9	571.4	238.9	571.4	254.2	521.9	254.2	521.9	258.5	524.7	
277	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
278	286.4	730.1	299.0	750.8	301.7	758.4	301.7	758.4	301.7	758.4	301.7	758.4	297.4	755.8	
279	195.4	469.7	193.8	469.6	190.0	470.4	190.0	470.4	190.0	470.4	190.0	470.4	193.0	470.8	
280	329.3	467.6	330.5	467.0	343.7	465.5	343.7	465.5	343.7	465.5	343.7	465.5	376.4	419.2	
282	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
283	315.2	570.8	318.4	572.6	316.1	571.9	316.1	571.9	317.5	571.6	314.7	572.2	311.8	572.7	
284	48.9	568.1	50.0	570.4	48.9	569.6	48.9	569.6	48.9	569.6	55.7	574.1	56.7	571.8	
285	78.1	465.0	78.1	465.0	76.4	459.0	78.1	461.0	78.1	461.0	78.1	461.0	78.9	459.9	
288	237.6	111.7	240.0	116.4	240.0	116.4	238.9	111.8	242.9	100.5	242.9	100.5	242.9	100.5	100.5
290	154.8	120.2	156.8	118.4	152.7	118.6	154.1	118.5	152.1	120.3	150.7	120.3	150.0	118.6	118.6
292	113.4	84.0	113.4	84.0	114.3	81.3	114.3	81.3	114.3	81.3	114.3	81.3	108.7	80.8	80.8
293	234.5	56.3	235.1	58.9	233.4	57.0	230.3	57.2	230.3	57.2	230.3	57.2	230.6	55.6	55.6
294	188.6	85.6	188.6	85.6	188.6	85.6	188.6	85.6	183.7	88.7	183.7	88.7	184.8	87.6	87.6
295	348.9	69.6	350.0	68.8	350.0	68.8	350.0	70.4	350.0	70.4	350.0	70.4	350.0	70.4	70.4
297	45.3	578.0	47.5	584.0	45.1	582.5	45.1	582.5	45.1	582.5	47.5	584.0	45.1	582.5	582.5
298	151.4	122.0	153.5	123.4	150.7	123.5	150.7	123.5	150.7	123.5	150.7	123.5	151.4	122.0	122.0
299	177.4	120.4	179.1	118.6	179.1	118.6	167.4	82.7	167.4	82.7	167.4	82.7	195.8	112.0	112.0
3	351.4	399.2	350.0	400.0	348.6	397.8	350.0	397.1	350.0	397.1	344.5	397.0	344.5	397.0	397.0
300	99.2	320.3	99.2	320.3	99.2	320.3	99.2	320.3	99.2	320.3	99.2	320.3	99.2	320.3	320.3
302	414.8	25.2	414.8	25.2	412.1	25.2	412.1	25.2	412.1	25.2	412.1	25.2	411.4	22.7	22.7
303	434.9	84.5	432.4	84.2	430.8	86.1	430.8	86.1	430.8	86.1	430.8	86.1	424.1	75.0	75.0
304	439.2	118.2	438.4	102.3	438.4	102.3	438.4	102.3	438.4	102.3	438.4	102.3	457.1	77.8	77.8
305	426.8	321.3	425.9	322.5	424.6	317.9	424.6	317.9	424.6	317.9	424.6	317.9	401.2	283.8	283.8
307	482.2	59.6	481.5	60.7	484.1	61.5	484.1	61.5	484.1	61.5	484.1	61.5	496.7	60.9	60.9

Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
308	417.0	38.3	416.5	37.2	415.3	37.7	415.3	37.7	416.5	37.2	416.5	37.2	413.6	37.0
309	443.9	62.3	443.9	62.3	441.7	63.7	441.7	63.7	441.7	63.7	441.7	63.7	454.4	70.3
31	147.2	598.5	148.6	600.7	144.3	599.8	147.2	599.9	144.3	599.8	147.1	601.3	147.3	595.6
310	387.6	37.4	388.8	37.8	388.8	37.8	386.9	35.8	386.9	35.8	388.1	36.2	386.4	37.0
311	473.7	203.4	473.7	203.4	472.4	204.4	477.0	204.2	474.3	206.1	476.3	206.1	474.3	206.1
312	443.8	120.2	454.8	120.2	454.8	120.2	472.7	130.1	475.3	130.6	472.7	130.1	473.7	121.7
313	482.4	50.3	481.8	48.8	481.8	48.8	481.8	48.8	481.8	48.8	481.8	48.8	482.5	45.0
314	445.3	36.9	444.5	35.8	445.3	36.9	445.3	36.9	445.3	36.9	445.3	36.9	445.3	36.9
317	471.7	52.6	473.2	50.5	471.7	52.6	472.1	54.2	472.8	48.8	473.9	49.4	496.5	65.9
318	65.6	379.2	65.6	379.2	66.9	379.8	66.9	379.8	66.9	379.8	66.9	379.8	66.9	379.8
32	85.3	694.1	84.1	695.2	86.1	696.8	86.1	696.8	86.1	696.8	86.1	696.8	80.9	694.6
320	317.6	50.3	317.6	50.3	317.6	50.3	317.6	50.3	317.6	50.3	317.6	50.3	317.6	50.3
322	*	*	*	*	*	*	*	*	*	*	*	*	248.7	14.5
323	247.4	9.0	245.4	12.0	244.8	8.9	241.0	8.8	*	*	*	*	*	*
324	367.3	174.4	367.3	174.4	367.3	174.4	334.0	182.2	334.0	182.2	335.3	181.6	335.3	181.6
326	485.9	563.2	485.9	563.2	485.9	563.2	485.9	563.2	485.9	563.2	485.9	563.2	485.9	563.2
327	249.3	16.7	249.3	16.7	249.3	16.7	249.3	16.7	253.3	12.0	255.2	8.9	252.6	9.0
328	485.9	338.1	486.4	337.0	486.4	337.0	486.4	337.0	485.9	338.1	485.9	338.1	480.2	344.0
330	309.0	109.0	308.8	107.2	308.8	107.2	308.8	107.2	308.8	107.2	308.8	107.2	305.8	101.4
331	161.4	64.2	161.8	67.4	162.8	66.5	162.8	66.5	162.8	66.5	160.5	65.2	163.5	72.6
336	384.1	95.2	384.1	95.2	386.5	93.0	386.5	93.0	386.5	93.0	386.5	93.0	388.1	93.2
337	117.6	63.7	116.6	66.5	116.6	66.5	119.3	65.8	119.3	65.8	119.3	65.8	114.9	64.3
338	368.0	64.9	368.0	64.9	375.0	66.6	373.8	66.1	374.7	65.1	374.7	65.1	372.7	61.5
34	314.4	690.3	314.4	690.3	327.4	671.1	327.4	671.1	329.4	673.1	327.4	671.1	327.4	671.1
341	77.1	16.0	77.1	16.0	77.1	16.0	77.1	16.0	77.1	16.0	77.1	16.0	77.1	16.0
343	441.0	487.4	439.2	493.7	440.8	509.5	444.8	508.9	444.8	508.9	444.8	508.9	451.5	527.7
344	485.2	568.3	483.9	568.0	482.5	567.6	485.1	564.3	485.1	564.3	485.1	564.3	485.1	564.3
346	335.3	244.9	335.3	244.9	335.3	244.9	331.2	243.3	332.2	242.5	329.9	241.1	329.9	241.1
347	368.4	236.4	366.8	236.7	366.7	231.3	367.8	228.8	367.8	228.8	367.8	228.8	364.5	214.0
348	454.5	71.9	453.3	71.1	452.2	71.9	452.2	71.9	452.2	71.9	452.2	71.9	474.1	90.3

Annexe 3, suite...

Moule	17 aout 1988		23 aout 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
349	399.2	320.3	400.0	317.8	400.0	317.8	399.2	315.2	399.2	315.2	399.2	315.2	387.9	308.6
35	356.6	470.2	356.5	468.6	357.5	467.8	356.9	474.8	354.9	482.5	354.9	482.5	354.8	481.0
350	159.5	118.3	153.3	116.6	147.4	89.9	150.0	88.4	150.0	88.4	150.0	88.4	147.5	84.0
352	477.1	116.0	478.5	115.7	478.5	115.7	475.6	105.2	477.9	104.2	474.0	100.0	481.0	107.5
353	309.6	113.5	309.6	113.5	309.6	113.5	309.6	113.5	309.6	113.5	309.6	113.5	315.5	134.8
354	448.7	214.5	447.1	204.2	447.1	204.2	447.1	201.3	447.1	201.3	447.1	201.3	447.2	198.5
358	457.0	46.7	456.0	45.8	457.0	46.7	456.0	45.8	457.6	43.8	456.7	42.9	462.9	59.2
359	9.4	12.0	9.4	12.0	9.4	12.0	9.4	12.0	9.4	12.0	9.4	12.0	9.4	12.0
36	317.0	658.6	315.7	658.9	315.7	658.9	315.7	658.9	315.7	658.9	315.7	658.9	322.4	648.4
361	383.7	707.6	383.7	707.6	383.7	706.5	384.4	708.1	384.4	708.1	384.4	708.1	382.3	700.0
364	270.4	378.4	271.5	377.5	268.6	375.0	269.6	374.0	269.6	374.0	269.6	374.0	332.2	428.8
365	308.5	764.2	309.9	764.0	316.6	766.5	316.6	766.5	316.6	766.5	316.6	766.5	316.6	766.5
366	195.0	198.9	195.0	198.9	195.0	198.9	195.0	198.9	195.0	198.9	195.0	198.9	195.0	198.9
367	70.2	211.1	70.2	211.1	60.6	214.2	60.6	214.2	59.8	211.8	61.9	214.2	55.4	218.5
368	407.7	428.2	413.3	433.0	418.7	444.5	418.7	444.5	416.3	448.1	416.3	448.1	438.8	453.5
369	436.7	609.7	471.9	668.1	439.2	604.0	439.2	604.0	437.3	612.9	439.4	606.9	450.0	625.0
37	37.4	636.3	35.8	636.1	39.8	627.2	34.5	633.7	39.8	627.2	41.5	624.7	42.7	627.5
370	374.6	474.5	375.9	475.0	375.9	475.0	375.9	475.0	375.9	475.0	375.9	475.0	370.0	470.1
371	374.8	714.7	372.3	716.0	368.0	714.2	372.9	712.8	372.9	712.8	372.9	712.8	366.9	722.6
372	446.6	472.7	446.7	469.6	445.6	470.3	445.6	470.3	445.6	470.3	445.6	470.3	445.6	470.3
373	467.1	638.7	467.7	637.6	462.4	648.0	462.4	648.0	462.4	648.0	462.4	648.0	455.7	655.6
374	336.7	754.9	335.8	753.9	335.0	753.0	335.0	753.0	335.0	753.0	335.0	753.0	337.1	751.5
375	397.2	711.1	400.2	710.2	400.2	710.2	400.2	710.2	400.2	710.2	400.2	710.2	392.4	711.5
378	372.2	624.2	372.2	624.2	372.2	624.2	362.5	621.4	362.5	621.4	362.5	621.4	362.5	621.4
379	115.5	234.8	114.3	235.3	114.3	235.3	114.5	232.5	114.5	232.5	114.5	232.5	111.3	231.0
380	363.2	769.6	364.2	768.7	363.2	769.6	362.8	766.5	362.8	766.5	362.8	766.5	362.8	766.5
381	404.0	688.8	404.0	688.8	404.0	688.8	404.0	688.8	404.0	688.8	404.0	688.8	405.6	688.7
382	508.0	670.5	508.0	670.5	508.0	670.5	508.0	670.5	508.0	670.5	508.0	670.5	508.0	670.5
383	252.8	621.9	254.2	621.9	254.9	623.4	254.9	623.4	254.2	621.9	255.0	626.2	255.7	624.8
384	435.0	653.0	437.1	651.5	435.6	655.6	436.7	654.9	438.8	653.5	436.7	654.9	436.7	654.9



Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
385	255.1	663.1	255.1	663.1	255.1	663.1	255.2	664.8	256.3	665.5	252.2	668.8	252.2	668.8
386	335.8	661.5	335.5	663.1	335.3	664.6	335.3	664.6	335.3	664.6	345.9	664.0	345.9	664.0
387	395.6	613.3	393.8	605.2	395.6	613.3	386.9	618.7	386.9	618.7	386.9	618.7	381.9	617.8
388	456.9	633.5	457.6	632.3	455.9	630.1	455.9	630.1	456.2	634.7	456.2	634.7	456.2	634.7
389	415.1	745.8	415.1	745.8	413.8	746.2	415.1	745.8	415.1	745.8	416.3	748.1	410.0	747.2
39	296.1	659.6	296.1	659.6	296.1	659.6	296.1	659.6	294.3	660.7	296.4	659.9	296.4	659.9
390	441.8	677.0	431.2	676.4	430.9	677.9	430.9	677.9	430.9	677.9	430.9	677.9	430.5	667.0
391	417.6	775.5	419.0	775.1	417.1	776.9	418.5	776.5	418.5	776.5	421.4	775.8	416.6	774.4
392	436.5	656.6	435.6	655.6	436.5	656.6	436.2	658.2	436.2	658.2	436.2	658.2	434.0	659.6
393	477.7	727.7	477.7	727.7	477.7	727.7	477.7	727.7	477.7	727.7	477.7	727.7	476.7	726.9
394	467.6	751.6	468.4	750.6	466.5	751.0	466.5	751.0	466.5	751.0	468.7	752.3	474.8	731.9
396	453.4	545.0	453.4	545.0	453.4	545.0	453.4	545.0	453.4	545.0	453.4	545.0	467.4	535.6
397	167.0	698.8	167.0	698.8	165.9	701.1	165.9	701.1	164.4	700.5	164.4	700.5	150.0	705.6
398	423.8	593.5	423.8	593.5	422.3	593.9	422.3	593.9	422.9	591.1	422.9	591.1	422.9	591.1
399	361.0	511.0	356.6	514.4	357.2	511.9	362.1	507.8	359.2	509.5	359.4	508.5	366.0	514.4
4	316.9	282.1	309.3	283.3	309.8	282.0	309.8	282.0	310.8	283.1	310.3	280.6	310.8	283.1
40	176.8	310.3	167.4	301.6	167.4	301.6	167.4	301.6	167.4	301.6	170.5	302.5	164.3	378.6
400	477.7	618.9	477.7	618.9	479.8	615.4	482.5	614.7	481.2	620.7	478.1	617.4	478.1	617.4
401	499.1	724.0	499.1	724.0	499.1	724.0	499.1	724.0	499.1	724.0	499.1	724.0	499.1	724.0
402	491.9	556.6	492.6	557.9	491.3	555.2	491.3	555.2	491.3	555.2	491.3	555.2	483.7	605.4
403	480.5	731.2	482.1	730.7	479.9	729.3	480.0	732.4	480.0	732.4	480.0	732.4	472.7	722.8
404	448.3	543.1	449.2	544.1	436.6	542.2	436.6	542.2	436.6	542.2	438.0	544.3	429.1	553.6
406	283.7	621.1	268.0	620.7	267.0	623.8	267.0	623.8	265.3	621.1	263.6	631.7	265.3	621.1
407	474.7	728.5	473.2	728.9	465.7	730.3	465.7	730.3	465.7	730.3	465.7	730.3	461.6	702.3
408	403.4	582.5	404.0	581.2	404.6	579.9	404.6	579.9	408.7	580.8	408.7	580.8	436.6	592.0
409	462.5	714.7	483.6	715.9	482.5	714.7	482.5	714.7	482.5	714.7	482.5	714.7	486.4	730.1
41	265.0	294.0	266.5	294.6	267.0	298.8	267.0	298.8	268.3	297.9	268.3	297.9	268.3	297.9
410	465.7	745.7	465.7	745.7	465.7	745.7	465.7	745.7	465.7	745.7	465.7	745.7	465.7	745.7
411	362.4	534.1	362.4	534.1	362.4	534.1	362.4	534.1	363.6	531.7	363.6	531.7	363.6	531.7
412	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Moule	17 aout 1988		23 aout 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
414	437.0	719.7	437.8	718.1	433.9	722.5	436.5	718.0	436.5	718.0	436.5	718.0	436.5	718.0
416	428.4	211.0	428.4	211.0	428.4	211.0	426.3	195.5	426.3	195.5	430.4	197.0	430.4	197.0
417	296.6	490.1	298.8	487.6	300.5	487.6	292.6	487.3	297.7	488.9	277.9	431.0	297.7	488.9
418	490.3	586.5	490.3	586.5	490.3	586.5	490.3	586.5	490.3	586.5	490.3	586.5	490.3	586.5
419	451.6	741.2	451.6	741.2	451.6	741.2	451.6	741.2	451.6	741.2	451.6	741.2	451.6	741.2
42	214.8	568.3	214.3	569.7	219.5	557.8	219.5	557.8	219.5	557.8	219.5	557.8	215.2	587.6
420	445.0	285.4	445.0	285.4	447.5	287.0	447.5	287.0	447.5	287.0	447.5	287.0	500.6	335.6
421	147.6	78.0	148.8	80.3	141.6	80.0	146.2	87.7	146.2	87.7	146.2	87.7	183.1	111.2
422	353.3	469.6	353.3	469.6	350.0	470.4	352.2	468.8	352.2	471.9	354.5	473.4	352.2	468.8
423	278.5	315.7	282.2	316.3	282.2	316.3	277.4	314.2	277.8	312.3	278.1	317.4	278.8	314.0
425	390.3	340.8	390.1	338.1	391.8	337.2	391.8	337.2	391.8	337.2	391.8	337.2	400.8	345.7
426	279.8	266.9	279.8	266.9	284.3	277.2	284.3	277.2	284.3	277.2	284.3	277.2	285.3	272.2
428	430.6	395.6	430.6	395.6	430.8	394.1	430.8	394.1	432.3	393.7	433.7	393.1	426.5	387.5
43	432.2	385.6	428.2	378.9	427.6	381.8	427.6	381.8	427.6	381.8	427.6	381.8	421.1	367.9
431	406.7	251.6	399.4	245.7	399.4	245.7	400.0	247.0	399.2	248.3	402.0	248.2	402.0	248.2
432	445.0	259.9	446.1	259.1	432.3	263.4	426.4	256.4	425.6	255.3	426.8	254.8	442.8	250.3
434	418.8	403.2	420.1	403.3	420.1	403.3	415.2	405.1	415.2	405.1	415.2	405.1	442.4	386.7
435	351.0	261.6	351.0	261.6	350.0	260.8	348.0	259.2	348.0	262.4	348.0	262.4	346.8	266.4
437	419.1	422.1	420.2	421.1	419.8	419.7	418.8	420.7	418.8	420.7	418.8	420.7	423.6	419.2
438	428.3	492.3	428.3	492.3	431.3	491.3	430.3	489.0	430.3	489.0	430.3	489.0	429.5	435.0
439	304.4	605.3	304.4	605.3	304.4	605.3	302.2	606.6	303.1	604.1	302.1	606.7	302.1	606.7
44	129.9	283.7	124.5	284.1	115.9	312.7	116.1	314.4	117.5	314.7	117.5	314.7	112.1	313.1
441	277.9	742.9	277.9	742.9	270.1	741.1	270.1	741.1	270.1	741.1	270.1	741.1	271.4	738.9
442	229.8	750.3	229.0	749.2	227.9	749.9	230.2	753.0	230.2	753.0	230.2	753.0	240.2	758.7
444	268.0	734.4	270.5	735.0	275.2	736.9	274.7	738.1	274.7	738.1	274.7	738.1	313.9	767.2
446	258.3	778.5	255.1	786.9	255.1	786.9	255.1	786.9	255.1	786.9	255.1	786.9	255.1	786.9
450	341.5	724.7	335.8	724.1	335.8	724.1	335.8	724.1	335.8	724.1	324.2	729.4	327.3	730.1
451	93.9	160.7	95.2	163.3	88.7	152.1	87.4	151.8	87.4	151.8	87.4	151.8	97.9	183.8
452	267.4	756.0	268.2	755.0	267.1	754.3	267.1	754.3	267.1	754.3	267.1	754.3	267.7	757.6
454	206.2	606.3	206.2	606.3	206.2	606.3	198.7	607.5	198.7	607.5	198.7	607.5	201.3	607.5

Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
455	102.7	129.1	102.3	127.8	102.3	127.8	102.3	127.8	96.3	125.1	96.3	125.1	99.0	122.8
457	287.3	677.7	283.3	678.3	284.3	677.2	281.5	676.5	280.6	673.7	283.4	674.4	281.5	673.9
459	156.5	653.0	166.5	651.0	166.0	659.6	162.9	659.2	162.0	660.1	162.0	660.1	162.0	660.1
46	186.0	301.9	191.0	309.0	185.7	310.6	185.7	310.6	185.7	310.6	185.7	310.6	183.1	311.2
460	408.6	15.6	407.0	13.5	404.6	14.5	404.6	14.5	404.6	13.3	404.4	13.3	404.6	14.5
461	384.5	34.8	385.0	33.6	387.5	30.6	388.7	31.0	388.7	31.0	391.1	31.8	391.1	31.8
462	450.6	4.1	450.6	4.1	430.2	13.4	430.2	13.4	430.2	13.4	430.2	13.4	430.2	13.4
463	*	*	*	*	*	*	*	*	*	*	*	*	*	*
464	410.7	436.6	410.7	436.6	412.4	437.4	414.1	438.1	414.1	438.1	414.1	438.1	465.0	453.0
465	428.5	61.0	428.5	61.0	422.7	62.0	422.7	62.0	422.7	62.0	422.7	62.0	432.5	68.9
466	496.2	432.8	496.2	432.8	496.2	432.8	496.2	432.8	496.2	432.8	496.2	432.8	496.2	432.8
467	174.8	114.7	174.8	114.7	192.6	116.2	192.6	116.2	192.6	116.2	189.7	117.5	189.7	117.5
468	432.4	484.2	432.6	482.7	427.6	481.8	429.0	481.3	429.0	481.3	429.0	481.3	424.5	464.1
47	287.0	285.4	287.0	285.4	281.0	284.2	282.5	284.6	282.5	284.6	282.5	284.6	284.8	287.6
470	391.9	237.2	391.9	237.2	391.9	237.2	391.9	237.2	391.9	237.2	396.7	235.4	396.7	235.4
471	408.9	97.4	407.2	97.5	407.2	97.5	404.3	96.4	404.3	96.4	406.0	96.3	400.4	78.7
472	435.9	341.2	435.2	340.1	435.2	340.1	424.6	317.9	425.6	316.5	425.6	316.5	427.2	316.2
473	*	*	*	*	*	*	*	*	*	*	*	*	394.2	20.8
475	364.7	644.9	364.7	644.9	364.7	644.9	364.7	644.9	364.7	644.9	364.7	644.9	360.1	642.6
476	463.7	294.9	460.8	304.0	455.4	294.1	456.7	291.9	456.7	293.3	458.0	292.5	450.0	279.6
477	444.5	452.2	445.4	451.4	444.5	452.2	444.5	452.2	444.5	452.2	444.5	452.2	444.5	452.2
479	200.3	73.7	210.8	75.4	210.8	75.4	210.8	75.4	210.8	75.4	210.8	75.4	241.5	66.9
48	155.2	588.3	157.8	589.6	143.5	589.0	146.1	589.1	146.1	589.1	143.1	574.8	147.7	575.0
480	46.6	400.7	46.6	400.7	46.6	400.7	46.6	400.7	41.2	403.9	41.2	403.9	41.2	403.9
481	300.0	217.8	300.0	217.8	300.0	217.8	297.7	216.3	297.7	216.3	297.0	220.1	297.0	220.1
482	389.3	183.1	391.2	182.5	391.2	182.5	391.2	182.5	391.2	182.5	391.2	182.5	389.3	183.1
483	199.0	534.3	199.4	535.6	197.0	527.8	197.0	527.8	197.0	527.8	197.0	527.8	196.5	522.6
484	76.8	530.2	75.8	529.4	82.5	539.5	82.5	539.5	82.5	539.5	82.5	539.5	81.6	568.7
485	18.7	436.1	18.7	436.1	20.0	432.4	20.6	430.5	21.2	428.6	20.6	430.5	16.8	431.3
486	266.3	168.4	266.3	168.4	266.3	168.4	273.9	162.1	273.9	162.1	273.9	162.1	274.8	161.0

Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
487	45.5	173.4	45.4	176.5	43.1	174.8	41.9	175.5	44.2	175.6	38.5	174.4	40.7	176.2
488	96.6	245.6	96.6	245.6	96.6	245.6	96.6	245.6	96.6	245.6	90.5	243.4	91.2	244.9
489	119.5	523.4	119.5	523.4	119.5	523.4	119.5	523.4	117.4	525.1	117.4	525.1	119.5	523.4
490	26.3	282.3	27.6	281.8	23.8	281.7	24.1	280.3	24.1	280.3	24.1	280.3	38.9	296.6
492	114.1	238.1	114.1	238.1	114.3	235.3	114.3	235.3	114.3	235.3	114.3	235.3	114.3	235.3
493	*	*	*	*	*	*	*	*	*	*	*	*	*	*
494	78.1	195.3	76.5	194.9	76.5	194.9	75.3	195.9	75.3	195.9	75.3	195.9	75.3	195.9
495	481.7	151.4	481.7	151.4	482.9	151.9	482.9	151.9	482.4	150.3	482.4	150.3	485.5	150.0
496	184.0	384.9	186.1	382.7	186.1	382.7	186.1	382.7	186.1	382.7	186.1	382.7	180.9	394.6
497	114.7	255.2	112.1	255.9	97.4	255.8	94.4	255.6	94.4	255.6	94.4	255.6	94.4	255.6
498	169.9	198.4	169.9	198.4	169.9	198.4	169.9	198.4	183.2	197.6	184.8	197.9	184.8	197.9
499	60.3	488.0	59.1	488.8	59.0	487.4	59.0	487.4	59.0	487.4	59.0	487.4	57.6	486.7
5	346.4	412.3	343.8	420.2	344.3	412.3	344.3	412.3	344.6	418.5	345.9	410.0	352.9	404.2
50	338.8	253.5	326.0	257.9	327.8	264.1	328.7	265.1	328.7	265.1	328.7	265.1	310.3	241.9
500	277.3	162.0	278.9	159.9	280.5	157.8	278.8	155.8	278.0	156.9	278.0	156.9	279.2	157.3
504	272.7	526.6	271.8	525.6	267.0	523.8	267.0	523.8	267.0	523.8	267.0	523.8	267.0	523.8
505	319.6	677.6	317.1	676.9	316.6	674.4	316.6	674.4	316.6	674.4	319.4	673.7	319.4	673.7
507	493.7	107.7	493.7	107.7	493.7	107.7	493.7	107.7	493.7	107.7	493.7	107.7	493.7	107.7
508	455.7	124.8	464.3	88.3	462.9	87.7	464.3	88.3	464.3	88.3	464.3	88.3	464.7	103.4
509	409.5	90.9	409.5	90.9	408.4	89.8	407.3	88.6	407.3	88.6	407.3	88.6	408.9	88.5
510	5.8	620.8	4.8	622.4	6.0	622.0	6.3	623.3	6.3	623.3	6.3	623.3	6.6	624.5
511	271.9	693.7	272.5	696.5	265.8	680.7	265.8	680.7	265.8	680.7	268.3	680.3	268.3	680.3
514	422.0	22.9	419.9	24.7	419.9	24.7	419.9	24.7	419.9	24.7	419.9	24.7	416.6	22.5
515	126.3	34.3	126.3	34.3	126.3	34.3	129.5	35.0	129.5	35.0	129.5	35.0	198.6	40.6
516	316.3	693.8	319.8	691.9	317.1	691.1	319.1	694.6	321.6	696.7	321.6	696.7	321.6	696.7
52	178.1	561.0	178.9	559.9	177.3	562.0	177.3	562.0	177.3	562.0	177.3	562.0	177.3	562.0
520	348.0	12.1	348.7	9.0	349.3	12.1	350.0	14.5	346.0	14.5	346.0	14.5	346.0	14.5
522	199.3	68.6	197.7	68.5	190.2	74.3	190.2	74.3	190.2	74.3	190.2	74.3	189.2	75.4
524	380.0	632.4	379.5	633.6	379.5	633.6	369.4	637.3	369.4	637.3	369.4	637.3	369.4	637.3
525	193.2	46.5	192.5	45.1	192.5	45.1	192.5	45.1	188.5	57.3	187.9	55.9	188.6	54.7

Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
526	157.9	147.5	157.1	148.5	156.4	151.3	158.8	170.0	158.8	170.0	158.8	170.0	158.5	166.9
527	92.1	118.7	92.1	118.7	90.9	118.2	90.9	118.2	90.9	118.2	90.2	114.9	90.2	114.9
528	41.8	40.8	41.8	40.8	41.8	40.8	41.8	40.8	41.8	40.8	41.8	40.8	38.9	36.5
529	140.7	14.3	140.7	14.3	125.8	36.2	140.7	14.3	131.9	39.5	147.4	14.5	146.0	14.5
53	332.8	230.1	332.8	230.1	325.3	238.1	327.4	236.6	327.4	236.6	327.4	236.6	323.1	233.4
54	284.1	261.5	283.5	260.0	283.5	260.0	277.2	257.9	275.6	255.9	275.6	255.9	284.4	269.4
55	189.3	283.1	189.3	283.1	191.3	280.8	193.4	282.3	193.4	282.3	192.3	283.5	192.3	283.5
57	165.4	315.9	164.5	314.0	163.5	318.0	163.5	318.0	163.5	318.0	163.5	318.0	159.7	321.6
59	392.6	616.2	391.4	615.6	391.4	615.6	391.4	615.6	391.4	615.6	391.4	615.6	391.4	615.6
60	262.2	670.5	262.2	670.5	264.4	670.2	264.4	670.2	264.4	670.2	264.4	670.2	265.1	667.8
600	480.6	608.0	480.6	608.0	480.6	608.0	480.6	608.0	480.6	608.0	480.6	608.0	480.6	608.0
601	498.2	553.3	499.5	550.8	492.6	547.7	492.6	547.7	492.6	547.7	492.6	547.7	494.0	550.4
602	454.1	664.0	454.1	664.0	448.1	655.8	448.1	655.8	448.1	655.8	448.1	655.8	441.1	648.4
603	427.2	648.8	427.2	648.8	416.5	653.4	416.5	653.4	416.5	653.4	416.5	653.4	416.5	653.4
605	464.2	668.7	464.2	668.7	464.2	668.7	464.2	668.7	464.2	668.7	464.2	668.7	465.1	667.8
607	462.4	683.4	463.6	682.5	463.4	681.0	463.4	681.0	463.4	681.0	463.4	681.0	417.5	689.8
608	393.2	674.6	392.4	676.6	391.9	675.6	382.3	679.3	382.3	679.3	382.3	679.3	384.3	677.2
609	436.7	662.4	436.7	662.4	432.5	668.9	434.9	667.8	434.9	667.8	434.9	667.8	434.9	667.8
61	216.3	745.4	218.1	746.1	224.1	765.6	224.1	765.6	224.1	765.6	224.1	765.6	230.0	758.8
610	430.0	658.8	430.0	658.8	430.0	658.8	430.0	658.8	430.0	658.8	430.0	658.8	430.0	658.8
611	403.2	658.3	403.2	658.3	403.2	658.3	401.7	658.4	401.7	658.4	401.7	658.4	401.7	658.4
612	408.2	778.3	409.7	778.1	414.2	777.4	414.2	777.4	414.2	777.4	414.2	777.4	424.1	775.0
613	312.8	770.0	313.4	768.6	310.5	762.6	310.5	762.6	310.5	762.6	310.5	762.6	310.5	762.6
616	326.0	757.9	327.2	757.4	327.2	757.4	328.4	756.8	328.4	756.8	328.4	756.8	325.3	725.0
618	260.5	776.8	260.5	776.8	259.3	776.2	259.3	776.2	259.3	776.2	261.1	771.4	263.5	772.6
619	224.8	758.5	222.8	757.9	222.8	757.9	222.8	757.9	222.8	757.9	222.8	757.9	222.8	757.9
620	200.4	738.1	200.4	738.1	199.5	739.4	200.4	738.1	200.4	738.1	200.4	738.1	204.0	740.4
621	235.0	774.8	235.2	773.3	234.4	770.8	234.4	770.8	234.4	770.8	234.4	770.8	232.5	768.9
624	207.3	755.4	207.3	755.4	200.5	750.8	200.5	750.8	200.5	750.8	200.5	750.8	200.5	750.8
625	161.4	799.4	161.4	799.4	161.4	799.4	152.7	792.8	152.7	792.8	152.7	792.8	155.4	794.1

Annexe 3, suite...

Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
626	118.1	746.1	119.4	748.3	108.8	744.9	108.8	744.9	108.8	744.9	108.8	744.9	129.1	753.6
627	112.3	702.1	113.6	703.2	113.6	703.2	113.6	703.2	113.6	703.2	113.6	703.2	108.4	703.8
628	165.4	762.1	168.3	760.8	167.4	761.8	166.3	761.2	166.3	761.2	165.4	762.1	168.9	763.9
630	151.3	790.6	154.0	792.0	146.1	790.6	144.8	789.8	144.8	789.8	111.2	790.8	110.3	793.4
64	329.4	647.5	330.5	646.8	320.9	640.6	320.9	640.6	320.9	640.6	320.9	640.6	323.2	639.4
640	*	*	*	*	*	*	*	*	*	*	*	*	*	*
641	145.8	721.9	145.8	721.9	146.5	723.4	145.7	724.9	145.7	724.9	145.8	721.9	136.1	727.1
642	19.6	777.6	15.7	777.2	16.7	778.3	15.7	777.2	15.7	777.2	17.7	779.3	17.7	779.3
644	67.0	748.9	67.0	748.9	67.0	748.9	67.0	748.9	67.0	748.9	67.0	748.9	67.0	748.9
645	51.7	745.0	53.5	746.9	53.5	746.9	53.5	746.9	53.5	746.9	53.5	746.9	44.7	748.6
646	56.6	770.2	56.6	770.2	56.6	770.2	56.6	770.2	56.6	770.2	56.6	770.2	38.0	760.1
647	105.5	762.0	118.5	760.7	117.8	759.6	118.5	760.7	118.5	760.7	118.5	760.7	120.2	762.9
648	16.6	774.4	8.2	778.3	8.2	778.3	8.2	778.3	8.2	778.3	8.2	778.3	10.8	775.4
65	296.5	703.6	296.5	703.6	291.3	706.7	294.3	706.3	294.3	706.3	294.3	706.3	294.3	706.3
650	26.7	743.2	27.4	744.3	27.4	744.3	34.8	737.0	34.8	737.0	35.2	740.1	60.6	732.1
652	418.8	745.3	418.8	745.3	418.8	745.3	418.8	745.3	418.8	745.3	418.8	745.3	424.2	585.5
653	*	*	*	*	*	*	*	*	*	*	*	*	*	*
654	407.8	775.8	409.3	775.6	406.3	775.9	406.3	775.9	406.3	775.9	406.7	778.5	403.5	778.7
655	387.1	738.5	388.3	738.9	392.8	730.9	399.5	720.3	399.5	720.3	399.5	720.3	394.3	706.5
68	144.4	698.4	144.3	699.8	144.4	698.4	150.0	694.2	150.0	694.2	150.0	694.2	150.0	697.1
700	35.3	44.9	35.3	44.9	38.0	44.3	38.0	44.3	38.0	44.3	38.0	44.3	38.0	44.3
702	51.2	83.3	50.0	85.5	50.0	85.5	50.0	85.5	50.0	85.5	50.0	85.5	50.0	85.5
703	201.9	44.0	196.9	43.1	196.9	43.1	196.9	43.1	196.9	43.1	196.9	43.1	196.9	43.1
704	225.7	151.1	225.7	151.1	223.8	150.6	223.8	150.6	223.8	150.6	222.4	148.4	224.7	147.3
705	313.5	64.6	307.9	65.6	302.1	66.0	299.7	64.8	299.7	64.8	298.9	63.5	276.6	77.8
707	400.8	35.6	400.8	35.6	400.8	35.6	402.1	35.5	402.1	35.5	402.1	35.5	402.1	35.5
708	443.0	35.7	443.1	33.5	442.4	32.3	442.4	32.3	443.3	31.2	444.1	30.1	444.1	30.1
709	366.4	34.7	364.9	34.9	364.2	36.1	363.3	35.1	363.3	35.1	365.5	33.7	362.4	34.1
71	184.7	737.7	184.7	737.7	184.7	737.7	184.7	737.7	184.7	737.7	184.7	737.7	184.7	737.7
711	424.4	55.9	424.4	55.9	424.8	54.3	424.8	54.3	424.8	54.3	424.8	54.3	454.1	64.0

Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
712	439.4	256.1	441.4	256.3	440.5	255.4	440.5	255.4	440.5	255.4	440.5	255.4	440.5	255.4
715	259.8	558.7	258.8	558.0	258.8	558.0	258.8	558.0	258.8	558.0	258.8	558.0	258.8	558.0
717	50.0	576.6	50.0	576.6	56.1	581.7	56.1	581.7	56.1	581.7	56.1	581.7	56.1	581.7
72	177.4	514.2	176.1	514.5	177.0	504.2	170.7	515.3	169.8	513.4	169.8	513.4	171.7	517.0
721	406.0	396.3	406.0	396.3	406.0	396.3	406.0	396.3	406.0	396.3	406.0	396.3	406.0	396.3
722	346.4	450.5	347.3	449.6	347.3	449.6	347.3	449.6	338.4	456.8	336.7	454.9	336.7	454.9
723	305.9	473.4	305.9	473.4	305.9	473.4	302.3	468.5	302.3	468.5	302.3	468.5	331.9	548.9
725	131.4	462.4	132.3	463.4	132.3	463.4	132.3	463.4	132.3	463.4	132.3	463.4	137.6	463.3
726	80.2	460.3	80.2	460.3	80.2	460.3	80.2	460.3	80.2	460.3	80.2	460.3	80.2	460.3
727	449.1	353.2	452.7	351.4	453.6	350.5	453.6	350.5	458.5	344.7	451.8	348.8	453.5	346.9
729	320.2	270.8	321.6	270.4	321.6	270.4	334.0	253.7	334.0	253.7	334.0	253.7	333.5	251.0
73	98.9	105.0	96.1	106.5	98.9	105.0	88.2	98.4	85.6	100.6	85.6	100.6	85.6	100.6
730	163.5	372.6	162.3	372.0	161.6	375.9	161.6	375.9	161.6	375.9	161.6	375.9	184.3	377.2
731	101.7	355.9	102.5	357.1	101.0	357.1	101.7	355.9	100.3	355.9	100.3	355.9	97.4	355.8
732	225.4	221.0	225.4	221.0	225.4	221.0	225.4	221.0	232.0	220.7	232.0	220.7	232.0	220.7
733	490.4	220.7	489.2	220.1	489.2	220.1	499.0	216.5	499.0	216.5	499.0	216.5	497.9	215.1
734	446.9	263.2	448.0	262.4	455.1	263.1	455.1	263.1	455.1	263.1	455.1	263.1	456.3	265.5
735	368.0	220.7	368.0	220.7	368.0	220.7	365.3	221.1	365.3	221.1	366.3	217.7	375.1	212.7
736	451.3	287.7	451.3	287.7	451.3	287.7	451.3	287.7	451.3	287.7	451.3	287.7	421.6	321.5
740	449.3	120.3	444.2	102.7	445.8	99.2	448.6	100.7	447.1	101.3	445.8	99.2	461.6	102.3
741	90.1	264.0	92.7	266.9	100.3	261.0	100.3	253.3	100.3	253.3	100.3	253.3	100.3	253.3
742	100.0	238.0	100.0	238.0	140.0	238.0	140.0	238.0	140.0	238.0	140.0	238.0	140.0	238.0
744	202.5	86.0	203.3	86.3	196.6	86.3	197.7	85.1	194.4	88.7	197.1	83.8	198.8	107.5
745	174.7	193.1	177.7	193.9	177.7	193.9	177.7	193.9	177.7	193.9	177.7	193.9	172.2	195.1
76	342.8	663.0	342.8	663.0	342.8	663.0	342.8	663.0	342.8	663.0	342.8	663.0	342.8	663.0
77	310.9	214.0	312.1	213.1	313.4	213.5	314.5	212.3	314.5	212.3	314.5	212.3	302.5	196.5
78	87.8	64.9	87.8	64.9	87.8	64.9	86.1	67.2	87.8	64.9	87.8	64.9	89.5	62.6
79	380.2	144.0	380.2	144.0	371.4	138.9	371.4	138.9	371.4	138.9	371.4	138.9	341.7	163.7
8	357.1	277.8	357.1	277.8	364.5	302.0	341.6	298.2	342.4	332.3	342.4	332.3	342.6	330.0
80	79.9	249.4	103.5	265.9	104.2	264.6	105.0	265.8	103.4	263.4	101.9	263.5	103.5	265.9

Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
801	472.4	660.0	473.2	659.0	473.2	659.0	473.2	659.0	473.2	659.0	473.2	659.0	473.2	659.0
802	477.7	534.4	497.9	515.1	497.9	515.1	497.9	515.1	497.9	515.1	497.9	515.1	497.9	515.1
804	426.3	523.9	426.3	523.9	425.3	525.0	425.3	525.0	426.3	527.6	428.2	525.6	430.1	523.3
805	425.5	579.9	425.5	579.9	425.5	579.9	407.4	573.3	407.4	573.3	407.4	573.3	410.0	570.4
807	489.2	575.4	489.2	575.4	487.3	577.7	487.3	577.7	492.2	575.8	492.2	575.8	491.1	573.1
81	120.3	358.8	122.5	355.3	125.3	352.7	125.3	352.7	125.3	352.7	125.3	352.7	125.3	352.7
810	11.3	652.1	10.0	652.4	10.0	652.4	10.0	652.4	8.7	650.1	8.7	650.1	8.7	650.1
811	318.3	687.0	324.1	692.1	322.9	691.1	313.5	693.0	315.9	695.2	315.9	695.2	315.9	695.2
812	349.0	664.9	348.9	666.5	348.9	666.5	332.5	668.9	334.9	667.8	336.1	667.1	336.1	667.1
813	384.1	628.9	391.1	631.8	406.9	637.5	415.5	634.8	415.5	634.8	415.5	634.8	415.2	640.4
815	361.7	635.3	361.7	635.3	361.7	635.3	361.1	636.5	361.1	636.5	361.1	636.5	362.9	638.3
816	261.2	653.5	260.0	651.0	268.5	656.6	267.7	657.6	272.4	660.0	272.4	660.0	272.4	660.0
817	243.2	658.1	244.1	659.0	244.1	659.0	244.1	659.0	238.4	656.8	240.5	655.4	240.5	655.4
818	204.6	653.1	204.6	653.1	203.2	653.2	204.6	653.1	198.9	653.3	198.9	653.3	196.0	653.2
819	144.8	689.8	144.8	689.8	141.0	687.4	141.0	687.4	139.7	688.0	139.7	688.0	139.7	688.0
82	58.1	475.5	58.1	475.5	51.2	478.8	51.2	478.8	51.2	478.8	50.0	476.6	31.3	452.3
820	64.2	661.5	63.3	662.4	64.6	657.3	61.6	656.8	61.6	656.8	61.6	656.8	94.3	660.7
825	475.8	535.8	475.8	535.8	475.8	535.8	475.8	535.8	475.8	535.8	475.8	535.8	452.7	518.6
83	37.7	394.3	38.9	396.6	38.9	396.6	38.9	396.6	38.9	396.6	38.9	396.6	38.9	396.6
834	113.3	762.1	112.7	763.5	113.3	762.1	114.9	764.3	114.9	764.3	114.9	764.3	170.2	750.3
835	125.2	770.6	126.2	766.1	126.5	770.1	125.2	770.6	125.2	770.6	122.1	772.9	123.7	767.1
836	39.0	728.4	38.1	729.6	38.1	729.6	38.1	729.6	38.1	729.6	36.4	731.7	37.6	734.1
837	72.9	767.1	75.0	766.6	74.1	767.6	74.1	767.6	74.1	767.6	76.3	767.1	75.5	764.1
838	42.7	727.5	44.1	730.1	42.3	723.3	42.3	723.3	42.3	723.3	42.3	723.3	41.5	724.7
839	63.4	748.8	62.4	748.0	62.4	748.0	61.6	749.0	61.6	749.0	61.6	749.0	62.4	763.3
84	76.1	187.0	74.4	191.7	70.9	188.0	70.9	188.0	72.3	188.5	71.2	189.4	72.9	184.7
840	21.3	786.3	21.3	786.3	-3.8	783.7	-3.8	783.7	-3.8	783.7	-3.8	783.7	-0.9	781.3
843	443.3	671.8	443.3	671.8	438.9	671.4	438.9	671.4	438.9	671.4	438.9	671.4	443.5	668.6
844	445.5	673.4	441.8	677.0	439.5	676.8	440.7	676.2	438.2	677.4	438.2	677.4	442.9	677.8
845	449.1	653.2	449.1	653.2	449.1	653.2	449.1	653.2	449.1	653.2	449.1	653.2	449.1	653.2



Annexe 3, suite...

Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
846	456.5	638.9	457.2	637.9	456.2	634.7	456.2	634.7	456.2	634.7	456.2	634.7	455.9	630.1
847	426.4	660.5	427.6	660.0	425.2	661.0	426.0	657.9	426.0	657.9	426.0	657.9	426.0	657.9
848	462.9	638.3	463.6	637.2	463.6	637.2	463.6	637.2	463.6	637.2	463.6	637.2	463.6	637.2
849	477.3	662.0	477.3	662.0	471.3	665.1	471.3	665.1	471.3	665.1	471.3	665.1	471.3	665.1
85	66.5	494.6	66.6	496.0	66.6	496.0	66.6	496.0	67.9	495.1	66.5	494.6	66.6	496.0
850	441.1	659.6	441.2	658.0	441.1	659.6	441.4	656.3	441.4	656.3	441.4	656.3	440.2	658.7
87	322.6	676.7	321.4	675.8	326.1	677.0	326.1	677.0	326.1	677.0	326.1	677.0	326.1	677.0
88	100.7	368.6	102.1	366.0	102.1	366.0	102.1	366.0	102.1	366.0	102.1	366.0	93.0	370.8
89	75.2	427.3	76.7	426.9	76.2	428.1	75.8	429.4	77.3	429.0	76.8	430.2	75.8	429.4
90	70.2	377.0	68.6	375.0	68.3	373.5	69.3	372.5	68.1	372.0	68.6	375.0	68.6	375.0
91	324.6	317.9	358.6	356.3	379.5	354.7	379.5	354.7	379.5	354.7	379.5	354.7	377.1	353.7
92	63.9	123.3	63.9	123.3	34.7	121.1	34.7	121.1	34.7	121.1	34.7	121.1	41.9	118.4
93	113.6	525.8	114.4	524.0	98.9	510.1	98.9	510.1	98.9	510.1	98.9	510.1	130.6	555.6
94	77.3	180.7	77.3	180.7	76.9	184.5	75.2	182.7	75.2	182.7	77.3	180.7	77.3	180.7
96	60.6	690.9	60.7	692.3	57.8	689.6	57.8	689.6	57.8	689.6	57.8	689.6	62.4	683.4
97	52.7	192.8	52.7	194.2	52.7	194.2	52.7	194.2	52.7	194.2	52.7	194.2	50.0	191.4
98	39.8	152.7	39.4	156.1	42.5	153.8	42.5	153.8	42.5	153.8	39.4	156.1	40.5	155.4
99	30.8	494.1	30.8	494.1	30.8	494.1	30.8	494.1	30.8	494.1	30.8	494.1	30.8	494.1
aa	*	*	*	*	474.0	257.9	474.0	257.9	474.0	257.9	474.0	257.9	474.0	257.9
ab	*	*	*	*	413.0	289.0	413.0	289.2	413.2	289.2	413.2	289.2	403.4	286.3
ac	*	*	*	*	401.2	236.8	401.2	238.1	400.4	238.1	400.8	235.6	403.0	238.0
ae	*	*	*	*	438.1	329.6	438.1	329.6	435.2	329.2	435.2	329.2	438.1	329.6
af	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ah	*	*	*	*	446.8	639.1	446.8	639.1	446.8	639.1	446.8	639.1	450.0	639.1
ai	*	*	*	*	404.6	658.2	404.6	658.2	404.6	658.2	404.6	658.2	406.0	655.6
aj	*	*	*	*	276.5	688.4	276.5	688.4	276.5	688.4	276.5	688.4	276.5	688.4
al	*	*	*	*	321.1	646.2	321.1	646.2	321.1	646.2	321.1	646.2	321.1	646.2
am	*	*	*	*	232.6	645.4	232.6	645.4	225.9	639.2	225.9	639.2	225.3	638.1
ao	*	*	*	*	435.0	706.1	435.0	706.1	435.0	706.1	435.0	706.1	431.8	707.1
aq	*	*	*	*	440.7	634.5	440.7	634.5	446.8	639.1	446.8	639.1	446.8	639.1

Annexe 3, suite...

Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
ar	*	*	*	*	428.7	626.9	428.3	629.2	428.3	629.2	428.3	629.2	428.3	629.2
as	*	*	*	*	465.3	621.1	465.3	621.1	465.3	621.1	465.3	621.1	465.3	621.1
au	*	*	*	*	420.4	539.5	415.7	477.2	414.8	479.9	414.8	479.9	414.8	479.9
av	*	*	*	*	425.6	543.9	427.8	542.5	424.4	541.7	424.4	541.7	420.9	540.6
aw	*	*	*	*	424.7	547.3	424.7	547.3	424.7	547.3	424.4	541.7	431.7	560.8
ax	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ay	*	*	*	*	256.7	442.9	256.7	442.9	256.7	442.9	256.7	442.9	256.7	442.9
b	*	*	*	*	435.2	29.2	435.2	29.2	435.2	29.2	432.2	28.8	435.2	29.2
ba	*	*	*	*	434.5	487.4	434.5	487.4	434.5	487.4	434.5	487.4	431.7	488.5
bb	*	*	*	*	472.5	451.5	472.5	451.5	472.5	451.5	472.5	451.5	457.9	436.7
bc	*	*	*	*	450.0	434.9	450.0	434.9	450.0	434.9	450.0	434.9	451.6	437.0
bd	*	*	*	*	456.2	447.7	456.2	447.7	456.2	447.7	456.2	447.7	426.0	457.9
be	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bf	*	*	*	*	429.0	405.3	429.0	405.3	429.0	405.3	429.0	405.3	429.0	405.3
bg	*	*	*	*	425.5	369.1	425.5	369.1	425.5	369.1	425.5	369.1	425.5	369.1
bi	*	*	*	*	174.1	90.3	174.1	90.3	174.1	90.3	174.1	90.3	174.1	90.3
bj	*	*	*	*	150.0	57.5	150.0	57.5	150.0	57.5	150.0	57.5	150.0	57.5
bl	*	*	*	*	198.8	91.4	198.3	90.2	195.4	91.3	195.4	91.3	195.4	91.3
bm	*	*	*	*	109.7	126.2	109.7	126.2	109.7	126.2	107.3	127.0	109.1	123.7
bn	*	*	*	*	3.5	165.9	3.5	165.9	3.5	165.9	3.5	165.9	3.5	165.9
bo	*	*	*	*	28.9	133.8	28.9	133.8	28.3	132.6	28.3	132.6	25.2	131.9
bp	*	*	*	*	27.1	141.4	27.1	141.4	27.1	141.4	27.1	141.4	27.1	141.4
bq	*	*	*	*	*	*	*	*	*	*	*	*	*	*
br	*	*	*	*	7.3	266.9	7.3	266.9	7.3	266.9	5.3	268.4	6.5	265.7
bs	*	*	*	*	6.9	293.7	6.9	293.7	4.6	291.3	6.9	293.7	6.9	293.7
bt	*	*	*	*	18.8	320.7	18.8	320.7	18.8	320.7	18.8	320.7	18.8	320.7
bu	*	*	*	*	10.0	470.4	10.0	470.4	10.0	470.4	10.0	470.4	10.0	470.4
bv	*	*	*	*	21.1	446.2	21.1	446.2	21.1	446.2	21.1	446.2	21.1	446.2
bw	*	*	*	*	28.3	448.2	28.3	448.2	28.3	448.2	28.3	448.2	28.3	448.2
bx	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Annexe 3, suite...

Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
by	*	*	*	*	130.6	604.8	130.6	604.8	130.6	604.8	130.6	604.8	130.6	604.8
bz	*	*	*	*	253.5	526.3	253.5	526.3	253.5	526.3	253.5	526.3	253.5	526.3
ca	*	*	*	*	*	*	*	*	*	*	*	*	*	*
cc	*	*	*	*	164.4	600.5	164.4	600.5	164.4	600.5	164.4	600.5	167.2	613.7
ce	*	*	*	*	443.6	751.3	442.8	750.3	443.6	751.3	443.6	751.3	443.6	751.3
cf	*	*	*	*	328.7	765.1	328.7	765.1	328.7	765.1	328.7	765.1	328.7	765.1
cg	*	*	*	*	337.1	759.2	337.1	759.2	337.1	759.2	337.1	759.2	335.8	761.5
ci	*	*	*	*	322.7	762.0	322.7	762.0	322.7	762.0	322.7	762.0	322.7	762.0
cm	*	*	*	*	36.9	689.2	36.9	689.2	36.9	689.2	36.9	689.2	36.9	689.2
cs	*	*	*	*	195.3	735.2	191.0	734.4	191.0	734.4	191.0	734.4	193.9	735.0
ct	*	*	*	*	165.9	790.3	165.9	790.3	165.9	790.3	165.9	790.3	165.9	790.3
cu	*	*	*	*	242.5	783.8	242.5	783.8	242.5	783.8	240.2	782.1	237.9	780.4
d	*	*	*	*	462.4	48.0	462.4	48.0	462.4	48.0	462.4	48.0	462.4	48.0
da	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dc	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dd	*	*	*	*	281.5	776.5	281.5	776.5	281.5	776.5	281.5	776.5	281.5	776.5
df	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dj	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dl	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dm	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dn	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dq	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dr	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ds	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dt	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dv	*	*	*	*	*	*	*	*	*	*	*	*	*	*
dw	*	*	*	*	*	*	*	*	*	*	*	*	*	*
e	*	*	*	*	382.5	89.8	382.5	89.8	382.5	89.8	382.5	89.8	382.5	89.8
el	*	*	*	*	*	*	*	*	*	*	*	*	*	*
em	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Annexe 3, suite...

Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
eo	*	*	*	*	*	*	*	*	*	*	*	*	*	*
es	*	*	*	*	*	*	*	*	*	*	*	*	*	*
et	*	*	*	*	*	*	*	*	*	*	*	*	*	*
eu	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ex	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ey	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fa	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fb	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fc	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ff	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fh	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fi	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fj	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fq	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fr	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fv	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fw	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fx	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fy	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fz	*	*	*	*	*	*	*	*	*	*	*	*	*	*
g	*	*	*	*	350.7	29.0	350.7	29.0	350.7	29.0	350.7	29.0	354.2	21.9
ga	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ge	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gg	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gh	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gk	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gl	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gm	*	*	*	*	*	*	*	*	*	*	*	*	*	*
gn	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Annexe 3, suite...

Moule	17 aout 1988	23 aout 1988	9 septembre 1988	22 septembre 1988	14 octobre 1988	30 octobre 1988	25 mai 1989
go	X	Y	X	Y	X	Y	Y
gr	*	*	*	*	*	*	*
gs	*	*	*	*	*	*	*
gt	*	*	*	*	*	*	*
gv	*	*	*	*	*	*	*
gx	*	*	*	*	*	*	*
gy	*	*	*	*	*	*	*
ha	*	*	*	*	*	*	*
hb	*	*	*	*	*	*	*
hc	*	*	*	*	*	*	*
hd	*	*	*	*	*	*	*
he	*	*	*	*	*	*	*
hf	*	*	*	*	*	*	*
hg	*	*	*	*	*	*	*
hh	*	*	*	*	*	*	*
hk	*	*	*	*	*	*	*
hl	*	*	*	*	*	*	*
hm	*	*	*	*	*	*	*
hn	*	*	*	*	*	*	*
hp	*	*	*	*	*	*	*
hq	*	*	*	*	*	*	*
hr	*	*	*	*	*	*	*
hs	*	*	*	*	*	*	*
ht	*	*	*	*	*	*	*
hu	*	*	*	*	*	*	*
hv	*	*	*	*	*	*	*
hw	*	*	*	*	*	*	*
hx	*	*	*	*	*	*	*
hy	*	*	*	*	*	*	*
i							
			300.4	300.4	300.4	300.4	306.1
			38.1	38.1	38.1	38.1	35.0

Annexe 3, suite...

Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
ia	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ib	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ic	*	*	*	*	*	*	*	*	*	*	*	*	*	*
id	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ie	*	*	*	*	*	*	*	*	*	*	*	*	*	*
if	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ig	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ij	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ik	*	*	*	*	*	*	*	*	*	*	*	*	*	*
il	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ip	*	*	*	*	*	*	*	*	*	*	*	*	*	*
iq	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ir	*	*	*	*	*	*	*	*	*	*	*	*	*	*
it	*	*	*	*	*	*	*	*	*	*	*	*	*	*
iu	*	*	*	*	*	*	*	*	*	*	*	*	*	*
iv	*	*	*	*	*	*	*	*	*	*	*	*	*	*
iy	*	*	*	*	*	*	*	*	*	*	*	*	*	*
j	*	*	*	*	245.8	21.9	245.8	21.9	245.8	21.9	245.8	21.9	245.8	21.9
jd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jf	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ji	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jj	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jm	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jn	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jo	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jq	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jr	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jt	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ju	*	*	*	*	*	*	*	*	*	*	*	*	*	*
jv	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Annexe 3, suite...

Moule	17 aout 1988	23 aout 1988	9 septembre 1988	22 septembre 1988	14 octobre 1988	30 octobre 1988	25 mai 1989
jx	X	X	X	X	X	X	X
jy	*	*	*	*	*	*	*
jz	*	*	*	*	*	*	*
k	*	*	*	*	*	*	*
kd	*	*	*	*	*	*	*
kg	*	*	*	*	*	*	*
kh	*	*	*	*	*	*	*
ki	*	*	*	*	*	*	*
kj	*	*	*	*	*	*	*
kl	*	*	*	*	*	*	*
km	*	*	*	*	*	*	*
ko	*	*	*	*	*	*	*
kp	*	*	*	*	*	*	*
kq	*	*	*	*	*	*	*
kr	*	*	*	*	*	*	*
ks	*	*	*	*	*	*	*
kt	*	*	*	*	*	*	*
ku	*	*	*	*	*	*	*
kv	*	*	*	*	*	*	*
kw	*	*	*	*	*	*	*
kx	*	*	*	*	*	*	*
ky	*	*	*	*	*	*	*
kz	*	*	*	*	*	*	*
la	*	*	*	*	*	*	*
lc	*	*	*	*	*	*	*
ld	*	*	*	*	*	*	*
lf	*	*	*	*	*	*	*
lg	*	*	*	*	*	*	*
lh	*	*	*	*	*	*	*
li	*	*	*	*	*	*	*

Annexe 3, suite...

Moule	17 aout 1988		23 aout 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
lj	*	*	*	*	*	*	*	*	*	*	*	*	*	*
lk	*	*	*	*	*	*	*	*	*	*	*	*	*	*
m	*	*	*	*	462.4	148.0	462.4	148.0	462.4	148.0	462.4	148.0	463.9	146.0
n	*	*	*	*	485.2	279.9	485.2	279.9	485.2	279.9	485.2	279.9	451.6	141.2
o	*	*	*	*	*	*	*	*	*	*	*	*	*	*
p	*	*	*	*	414.8	125.2	414.8	125.2	414.8	125.2	414.8	125.2	416.5	118.2
pb	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pc	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pe	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pi	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pj	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pk	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pl	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pm	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pn	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pq	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pr	*	*	*	*	*	*	*	*	*	*	*	*	*	*
q	*	*	*	*	410.5	128.6	410.5	128.6	410.5	128.6	410.5	128.6	410.5	128.6
qc	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qe	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qf	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qj	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qk	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ql	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qm	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qn	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qo	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qq	*	*	*	*	*	*	*	*	*	*	*	*	*	*



Annexe 3, suite...

Moule	17 août 1988		23 août 1988		9 septembre 1988		22 septembre 1988		14 octobre 1988		30 octobre 1988		25 mai 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
qr	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qs	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qt	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qx	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qz	*	*	*	*	*	*	*	*	*	*	*	*	*	*
r	*	*	*	*	400.5	166.0	400.5	166.0	400.5	166.0	400.5	166.0	398.4	176.2
rb	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rf	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rg	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rh	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ri	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rk	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rl	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rm	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ro	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rp	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rq	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rs	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rt	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rx	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ry	*	*	*	*	*	*	*	*	*	*	*	*	*	*
s	*	*	*	*	471.2	182.8	472.4	181.8	472.4	181.8	472.4	181.8	478.7	186.3
t	*	*	*	*	467.8	204.4	467.8	204.4	467.8	204.4	467.8	204.4	467.8	204.4
u	*	*	*	*	483.7	188.7	484.8	187.6	484.8	187.6	484.8	187.6	485.9	186.5
v	*	*	*	*	355.8	202.7	355.8	202.7	355.8	202.7	355.8	202.7	355.8	202.7
w	*	*	*	*	256.6	170.2	256.6	170.2	256.6	170.2	256.6	170.2	257.5	167.8
x	*	*	*	*	232.9	154.3	232.9	154.3	232.9	154.3	232.9	154.3	232.9	154.3
y	*	*	*	*	444.5	252.2	444.5	252.2	444.5	252.2	444.5	252.2	444.5	252.2
z	*	*	*	*	480.2	291.9	480.2	291.9	483.0	302.7	483.0	302.7	483.0	302.7

Annexe 3, suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
10	309.7	699.9	309.7	699.9	309.7	699.9	292.2	675.8	293.2	673.3	294.1	673.4	283.4	666.5
100	37.6	683.4	44.6	694.1	43.3	693.3	42.0	692.5	57.8	689.6	57.8	689.6	61.1	696.6
101	98.5	799.0	93.1	793.7	98.8	791.4	101.1	788.9	98.3	790.2	101.1	788.9	98.9	788.9
102	36.3	624.3	36.6	621.6	33.0	623.8	50.0	635.9	50.0	639.1	48.4	637.0	48.4	637.0
1021	35.0	637.9	32.6	645.4	32.6	645.4	22.9	653.7	22.9	653.7	17.6	650.3	16.3	648.1
104	95.2	727.5	94.0	750.4	94.0	750.4	94.0	750.4	90.3	761.5	90.3	761.5	95.2	763.3
105	101.0	725.4	97.7	727.8	97.7	727.8	78.7	712.3	78.7	712.3	85.7	710.6	81.6	710.2
106	37.6	610.6	29.5	623.5	36.9	626.9	43.0	627.6	50.0	625.0	60.2	627.2	58.9	629.9
109	33.1	679.8	44.5	697.0	41.6	698.2	40.5	679.2	40.5	679.2	40.2	682.1	40.2	682.1
11	23.7	117.0	35.8	124.1	28.6	138.9	28.6	138.9	30.5	167.0	27.8	195.1	23.0	204.2
110	99.7	755.9	99.7	755.9	101.2	755.9	98.3	758.4	101.2	755.9	101.6	776.2	101.6	776.2
111	2.0	748.2	2.0	748.2	2.0	748.2	2.0	748.2	2.0	748.2	*	*	*	*
1118	57.5	783.8	60.1	785.1	60.1	785.1	60.1	785.1	50.0	785.5	50.0	785.5	48.7	786.2
113	*	*	*	*	*	*	*	*	*	*	*	*	493.9	569.6
1138	421.1	530.4	421.1	530.4	428.3	532.6	428.3	532.6	428.3	532.6	428.3	532.6	457.9	536.7
114	23.2	739.4	35.5	749.5	23.4	745.1	23.4	745.1	78.6	691.5	76.5	688.4	76.5	688.4
115	89.0	701.0	108.9	683.3	107.9	684.7	121.3	686.3	131.7	688.5	131.7	688.5	127.8	695.1
1164	146.1	57.4	148.1	55.8	160.5	65.2	156.3	65.5	164.8	73.3	158.6	101.1	158.8	103.9
1169	388.7	623.9	388.7	623.9	380.6	629.4	262.9	516.1	293.9	569.6	286.4	556.8	335.3	664.6
1172	161.1	571.4	161.1	571.4	165.1	567.8	165.1	567.8	174.5	569.1	174.5	569.1	174.5	569.1
118	476.0	535.0	475.8	535.8	475.8	535.8	473.5	540.3	473.5	540.3	475.8	535.8	478.0	537.1
1184	163.8	658.2	163.8	658.2	163.8	658.2	163.8	658.2	163.8	658.2	277.3	780.7	350.0	708.4
119	452.7	551.4	464.2	536.1	464.2	536.1	467.6	528.0	467.6	528.0	484.2	520.9	484.2	520.9
12	368.8	343.3	385.5	332.5	388.7	331.0	416.7	292.5	419.8	291.9	419.8	291.9	422.0	283.5
120	428.2	578.9	408.9	560.3	411.7	559.8	411.7	559.8	411.9	541.5	429.9	520.8	443.7	513.8
1214	448.1	555.8	450.0	550.6	450.0	550.6	373.5	588.1	373.5	587.5	391.1	583.3	382.3	600.0
122	15.2	751.1	15.5	734.8	26.3	734.3	56.5	738.9	56.5	738.9	51.8	748.8	50.0	746.9
123	58.4	698.2	61.6	702.3	58.6	701.1	58.6	701.1	61.6	702.3	58.6	701.1	58.6	701.1
1246	311.4	444.3	308.7	450.1	308.7	450.1	307.7	451.5	301.8	453.3	312.7	441.3	323.8	450.6
1254	146.3	154.0	126.9	163.1	126.9	163.1	126.9	163.1	126.9	163.1	197.6	138.0	197.6	138.0

Annexe 3, suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
126	309.7	426.2	323.5	488.4	320.5	489.1	237.0	478.1	187.9	513.1	177.9	525.1	153.0	530.2
1269	89.6	462.1	78.2	409.6	81.6	410.2	131.7	488.5	135.0	494.0	135.0	494.0	136.0	497.7
127	453.6	531.8	470.7	524.9	452.7	518.6	424.5	532.4	413.9	582.7	406.7	578.5	387.0	585.4
1270	203.9	754.5	201.2	758.4	201.2	758.4	198.3	758.4	198.8	758.4	207.3	763.1	208.2	775.8
1273	127.6	360.0	106.1	360.7	104.2	363.4	103.4	359.6	107.4	357.9	104.2	363.4	102.5	366.0
129	60.8	793.7	60.8	793.7	60.8	793.7	*	*	*	*	*	*	*	*
1297	359.8	382.1	352.5	387.0	352.5	387.0	380.9	394.6	397.6	392.7	419.0	384.2	414.4	400.6
13	334.5	433.7	334.5	433.7	331.5	421.7	334.8	395.4	372.7	397.9	373.7	403.4	373.7	403.4
130	118.0	717.9	118.0	717.9	118.0	717.9	126.1	749.4	126.1	749.4	147.0	730.2	150.0	730.2
131	65.9	690.3	68.3	688.5	68.3	688.5	68.3	688.5	81.0	652.5	79.9	649.4	76.2	650.6
132	33.5	776.8	31.4	775.0	31.4	775.0	31.4	775.0	31.4	775.0	34.0	773.8	31.4	775.0
135	20.3	702.1	23.6	701.4	32.2	704.4	41.0	706.7	54.5	707.6	53.0	707.0	56.1	708.3
136	100.3	761.0	130.4	797.0	130.4	797.0	59.8	782.1	106.0	722.0	118.4	697.3	137.6	648.0
1365	300.3	361.0	310.3	393.4	322.4	406.9	318.4	410.2	318.4	410.2	317.7	412.9	321.3	412.3
137	33.0	798.8	33.0	798.8	33.0	798.8	33.0	798.8	33.0	798.8	33.0	798.8	33.0	798.8
138	21.4	775.8	20.6	778.6	20.6	778.6	20.6	778.6	20.6	778.6	20.6	778.6	11.8	780.4
139	17.7	700.0	75.8	729.4	75.8	729.4	66.9	722.6	66.9	722.6	83.4	722.5	83.5	718.2
14	22.9	116.0	53.1	134.8	51.9	155.8	71.9	168.1	58.5	181.5	59.8	182.1	52.3	175.0
140	335.6	100.5	335.6	100.5	335.2	40.1	332.6	45.4	333.9	37.9	333.9	37.9	335.2	40.1
1407	462.4	183.4	462.4	183.4	460.3	188.0	452.4	181.0	450.0	181.1	450.0	182.6	445.0	185.4
141	310.9	258.7	303.2	255.8	307.7	263.0	308.2	268.1	351.4	297.8	347.4	289.9	347.4	289.9
142	250.0	419.5	250.0	419.5	250.0	419.5	244.9	424.2	247.0	430.2	243.2	424.8	239.6	426.0
143	168.9	526.1	153.5	526.3	148.4	518.8	146.4	534.5	151.9	555.8	148.2	552.3	155.7	555.6
1438	217.5	245.0	217.5	245.0	212.7	241.3	222.9	253.7	222.9	253.7	225.3	252.7	220.5	254.7
144	266.9	279.8	269.6	297.0	266.6	296.0	268.1	296.5	290.7	306.3	287.2	305.9	290.8	306.3
145	441.2	603.9	425.2	608.9	425.2	608.9	419.5	623.4	404.3	622.5	402.1	615.1	402.1	615.1
1451	434.5	756.3	436.2	758.2	438.0	760.1	438.0	760.1	465.9	790.3	468.7	791.3	463.1	789.2
1459	492.7	134.8	492.7	134.8	492.7	134.8	492.7	134.8	488.3	159.8	488.3	159.8	489.8	157.5
146	376.3	567.1	376.3	567.1	418.4	625.7	413.6	625.8	413.6	625.8	463.4	621.6	467.2	613.7
147	4.6	558.2	2.1	516.8	*	*	*	*	*	*	*	*	*	*

suite...

Annexe 3, suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
1472	487.1	138.5	487.1	138.5	487.1	138.5	487.1	138.5	487.1	138.5	487.1	138.5	487.1	138.5
148	178.9	559.9	191.1	560.3	233.5	562.7	233.5	562.7	248.0	562.4	252.1	565.7	243.9	562.3
149	362.8	666.5	362.8	666.5	362.8	666.5	362.8	666.5	362.8	666.5	366.0	659.6	362.0	660.1
150	216.5	553.4	262.1	580.4	259.5	579.2	291.1	631.8	308.9	660.3	315.9	661.5	330.0	670.1
152	143.1	474.8	147.6	478.0	142.0	492.5	138.9	496.6	138.9	496.6	120.1	517.7	113.6	527.3
153	131.1	426.1	139.1	434.1	139.1	434.1	139.1	434.1	143.0	446.7	138.0	460.1	138.0	460.1
155	91.5	208.9	88.5	208.0	89.5	213.8	89.1	214.1	91.2	222.5	91.5	221.2	89.7	217.5
157	199.5	366.0	226.3	403.4	234.7	408.9	274.4	443.9	279.8	470.8	279.8	470.8	289.2	483.1
158	451.8	748.8	402.4	743.1	402.4	743.1	494.3	730.3	408.2	768.1	408.2	768.1	405.9	773.4
159	308.9	88.5	317.6	36.6	330.2	27.2	339.9	42.6	364.2	61.5	370.6	73.1	375.9	75.0
16	204.3	104.1	204.3	104.1	212.7	118.7	212.7	118.7	221.5	141.8	219.8	144.0	218.6	141.7
160	347.9	65.7	347.9	65.7	345.9	64.0	372.6	71.1	372.6	71.1	373.8	66.1	396.5	73.6
161	230.3	430.8	230.3	430.8	229.3	431.7	236.3	424.3	236.9	426.9	236.3	424.3	239.8	423.3
162	291.1	588.5	291.1	588.5	287.9	608.6	284.4	608.1	277.1	616.0	259.4	612.3	256.6	619.3
163	395.8	425.1	397.4	409.2	374.1	390.3	367.6	428.0	365.5	433.7	371.9	410.8	368.6	409.9
164	420.2	570.8	442.7	580.8	442.7	580.8	442.7	580.8	470.6	573.1	476.4	559.0	468.1	539.5
165	147.6	481.0	157.3	480.8	184.4	508.1	174.6	527.0	208.4	550.1	208.4	550.1	214.0	554.1
166	221.8	409.6	209.3	406.3	204.0	401.5	202.6	409.2	204.3	422.5	201.0	425.4	186.9	435.8
167	266.9	622.6	266.9	622.6	266.6	619.9	244.8	588.3	244.6	569.5	244.6	569.5	241.5	566.9
168	256.6	519.3	256.8	524.8	255.2	525.6	246.5	529.0	240.3	538.7	242.1	536.7	240.3	538.7
169	269.4	515.4	269.4	515.4	260.3	488.0	260.3	488.0	260.3	488.0	260.3	488.0	291.3	555.2
17	134.0	326.6	153.4	323.6	150.0	322.3	179.1	340.6	180.2	341.2	179.1	340.6	179.1	340.6
170	221.1	459.9	222.0	456.8	221.1	459.9	225.5	455.4	224.4	455.9	215.3	459.0	226.9	446.0
171	378.0	556.9	403.3	560.9	403.3	560.9	410.5	562.6	410.0	570.4	411.8	572.7	424.4	555.9
172	201.9	457.1	208.6	470.6	208.6	470.6	218.1	479.2	215.9	495.2	250.0	491.4	264.3	478.6
173	219.8	391.9	219.8	391.9	227.6	381.8	233.3	368.6	244.5	352.2	244.5	352.2	264.2	361.5
174	282.5	439.5	282.5	439.5	282.5	439.5	302.1	416.8	324.5	422.2	326.7	419.0	336.6	421.6
175	128.3	92.3	128.3	92.3	128.3	92.3	128.3	92.3	128.3	92.3	128.3	92.3	128.3	92.3
176	52.2	268.8	46.5	346.9	54.9	382.5	47.5	384.0	48.7	386.2	50.0	385.5	50.0	388.4
177	144.7	366.3	144.7	366.3	151.2	383.3	176.2	381.7	187.5	386.7	170.1	399.8	165.9	390.3

Annexe 3, suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
178	194.4	530.0	194.4	530.0	214.5	526.2	213.6	527.3	213.6	527.3	222.0	556.9	224.5	564.1
179	331.7	660.8	318.7	647.2	318.7	647.2	319.0	644.4	326.5	640.3	325.3	638.1	325.3	638.1
18	261.6	602.3	259.0	606.7	258.9	605.3	285.1	610.8	285.1	610.8	285.1	610.8	288.7	652.3
180	51.3	214.5	52.8	224.9	53.5	229.0	91.2	244.9	91.2	244.9	91.2	244.9	91.2	244.9
181	20.0	132.4	20.0	132.4	33.0	123.8	33.0	123.8	35.5	114.0	39.8	123.3	36.8	118.9
182	70.6	108.2	87.2	127.6	84.9	126.5	88.7	123.9	84.9	126.5	84.9	126.5	82.6	125.1
183	40.5	55.4	60.5	65.2	58.5	66.9	43.7	65.5	62.4	48.0	46.0	60.7	67.7	57.6
184	189.7	693.4	213.7	762.0	217.1	761.2	217.1	761.2	217.1	761.2	217.1	761.2	217.1	761.2
186	144.6	194.1	132.2	185.6	150.0	182.6	164.3	178.6	168.1	196.5	172.7	197.9	162.1	207.8
187	118.5	260.7	150.0	300.0	159.0	306.7	165.6	311.7	172.2	320.1	159.2	309.5	159.2	309.5
188	78.3	103.2	78.3	103.2	79.7	102.1	79.0	99.4	79.0	99.4	79.0	99.4	78.4	96.7
19	411.3	611.2	411.3	611.2	395.0	630.1	411.3	611.2	436.2	658.2	434.5	656.3	429.4	673.1
191	67.4	101.6	64.4	100.5	64.4	100.5	79.5	154.7	58.5	144.7	60.1	142.6	60.1	142.6
192	63.7	124.3	75.5	122.2	72.7	130.1	74.1	139.2	74.1	139.2	73.5	140.3	73.5	140.3
193	70.2	250.3	71.7	248.2	70.9	253.6	68.7	252.3	68.7	252.3	85.6	259.2	88.3	259.8
194	88.3	132.2	86.4	130.1	87.9	125.2	87.3	118.7	91.5	121.2	81.2	120.7	81.2	120.7
195	84.5	56.3	84.5	56.3	96.7	50.7	96.7	50.7	96.7	50.7	96.7	50.7	103.7	48.1
197	90.0	47.2	90.0	47.2	96.0	40.4	92.6	47.7	93.8	45.3	93.8	45.3	91.2	44.9
198	321.0	799.4	341.6	798.2	341.6	798.2	469.0	799.8	355.7	799.8	355.7	799.8	355.7	799.8
199	*	*	*	*	*	*	*	*	6.6	86.1	6.1	60.7	10.5	28.6
2	339.8	362.0	330.5	367.0	330.5	367.0	330.5	367.0	325.4	374.5	328.2	378.9	326.1	377.0
20	84.0	584.9	153.7	554.0	150.0	514.0	181.6	510.2	203.3	521.3	193.4	526.8	193.4	526.8
200	80.2	444.0	73.7	421.7	73.7	421.7	73.7	421.7	63.5	572.6	38.9	596.6	38.9	596.6
201	47.2	424.9	64.8	440.1	64.8	440.1	64.8	440.1	64.8	440.1	64.8	440.1	68.1	448.9
202	390.0	652.4	390.0	652.4	390.0	652.4	390.0	652.4	377.1	670.0	378.1	665.0	370.0	658.8
203	463.4	321.6	*	*	*	*	*	*	*	*	*	*	*	*
204	423.4	177.8	447.5	184.0	447.5	184.0	470.1	199.8	482.3	212.9	482.3	212.9	482.3	212.9
205	50.0	400.0	50.0	400.0	51.4	397.8	51.4	399.2	51.4	399.2	47.2	398.5	48.6	397.8
206	72.7	397.9	114.4	390.3	109.4	391.0	143.5	416.6	143.5	416.6	159.4	412.3	161.4	399.4
207	444.6	494.1	447.3	495.6	447.3	495.6	430.8	494.1	428.3	492.3	425.3	493.1	456.1	508.3

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
208	8.8	244.9	24.4	255.9	44.5	252.2	64.8	240.1	71.4	238.9	72.6	236.6	72.6	236.6
209	284.5	156.3	285.6	159.2	283.8	157.4	284.5	156.3	283.0	158.6	287.8	164.9	287.8	164.9
21	374.2	724.3	383.2	724.6	385.8	713.4	369.0	712.6	369.0	712.6	366.3	717.2	366.3	717.2
210	391.1	83.3	392.3	72.0	399.2	68.6	414.7	72.2	423.4	77.8	423.4	77.8	423.4	77.8
211	485.6	159.2	485.6	159.2	485.6	159.2	485.6	159.2	485.6	159.2	485.6	159.2	485.6	159.2
212	164.5	549.5	182.4	550.3	183.7	548.1	191.0	525.4	189.9	531.4	185.5	526.2	188.7	531.0
213	343.5	516.6	340.2	517.8	340.2	517.8	340.2	517.8	340.3	521.6	301.1	509.2	294.8	537.7
214	27.6	413.5	43.2	424.8	56.7	422.1	56.7	422.1	64.6	416.7	62.9	416.1	66.3	417.2
215	410.5	162.6	407.0	170.8	407.0	170.8	407.0	170.8	383.4	166.5	390.4	178.2	375.2	172.0
216	139.2	268.3	188.5	294.6	188.1	293.2	189.7	293.4	188.1	293.2	189.7	293.4	188.1	293.2
217	124.8	472.0	129.1	488.0	129.4	486.6	129.4	486.6	201.1	419.0	205.1	419.3	195.2	427.5
218	13.9	482.7	13.9	482.7	16.0	484.9	16.9	482.1	15.2	487.6	13.9	482.7	13.9	482.7
219	377.9	625.1	377.9	625.1	377.9	625.1	377.9	625.1	377.9	625.1	356.3	613.8	354.8	614.6
22	43.2	524.8	29.1	526.2	32.6	535.6	33.9	537.9	32.6	535.6	11.3	549.5	32.6	535.6
220	136.5	164.0	136.1	175.7	138.5	174.4	128.8	189.4	134.9	184.5	134.9	184.5	132.3	157.6
221	44.3	299.8	47.1	301.3	43.8	311.1	46.9	312.6	46.9	312.6	43.8	311.1	46.9	312.6
222	180.3	604.8	217.1	615.6	220.7	615.0	261.6	619.7	261.6	619.7	298.9	609.2	298.9	609.2
223	317.5	514.7	307.6	511.5	307.0	532.3	312.6	551.8	303.1	543.1	292.7	527.0	261.9	529.6
224	99.9	433.0	82.2	428.3	82.2	428.3	89.3	436.6	93.4	440.1	92.3	442.5	97.6	443.1
225	18.3	487.0	17.5	489.8	13.5	493.0	13.5	493.0	13.5	493.0	13.5	493.0	13.5	493.0
226	64.7	203.4	61.6	202.3	64.0	197.7	66.6	196.0	69.6	197.0	63.7	194.9	66.3	193.1
227	118.4	197.3	140.3	221.6	140.3	221.6	133.7	217.2	133.7	217.2	132.6	201.6	132.6	201.6
228	197.7	188.9	201.2	183.8	199.1	181.3	210.8	183.1	210.8	183.1	223.4	180.5	214.8	179.9
23	59.2	609.5	58.4	598.2	59.7	596.0	60.8	593.7	54.4	570.3	54.4	570.3	54.4	570.3
230	79.4	178.6	78.6	175.8	73.5	187.5	72.9	184.7	72.9	184.7	70.1	183.7	72.4	181.8
231	133.7	193.1	134.1	190.3	136.6	192.0	134.1	190.3	134.1	190.3	134.1	190.3	130.8	194.1
232	69.7	318.1	92.6	324.2	92.6	324.2	97.3	340.6	104.0	340.4	96.0	340.4	99.6	338.1
233	141.2	703.9	141.2	703.9	150.0	708.4	155.8	702.7	178.7	712.3	175.3	711.6	150.0	705.6
234	102.0	445.7	104.9	445.5	108.4	450.1	105.4	450.5	105.4	450.5	106.6	447.8	109.0	448.7
235	28.7	465.1	26.9	463.1	28.7	465.1	26.1	449.4	26.1	449.4	26.1	449.4	33.3	446.4

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
236	68.1	472.0	78.0	483.5	78.0	483.5	86.5	493.0	86.5	493.0	85.6	490.3	79.0	499.4
237	6.1	260.7	15.9	261.5	15.9	261.5	20.2	270.8	31.4	275.0	31.1	263.9	47.9	265.7
238	7.8	375.8	7.8	375.8	7.8	375.8	8.9	373.1	11.8	380.4	7.7	383.5	7.7	383.5
239	24.4	455.9	24.4	455.9	23.6	459.0	24.4	455.9	26.0	457.9	26.0	457.9	26.0	457.9
24	82.3	612.9	94.3	606.5	0.2	697.8	100.6	604.1	100.6	604.1	102.6	609.2	103.5	606.6
240	348.5	127.7	348.5	127.7	350.7	123.5	353.2	139.1	343.3	343.3	142.9	338.5	338.9	136.5
241	307.6	111.5	254.6	76.5	254.6	76.5	252.4	78.0	254.6	76.5	75.0	252.3	252.4	78.0
242	119.0	107.5	112.7	95.7	110.6	93.4	110.6	93.4	110.6	93.4	101.1	88.9	101.1	88.9
244	324.7	611.6	321.8	609.6	323.3	610.6	324.7	611.6	334.5	633.7	332.6	635.6	332.6	635.6
245	100.5	66.0	100.5	66.0	159.8	158.7	159.8	158.7	170.0	158.8	165.5	156.3	164.5	149.5
246	198.5	533.0	218.6	541.7	218.6	541.7	218.6	541.7	213.3	533.0	206.1	535.0	206.1	535.0
247	70.9	253.6	68.7	252.3	66.5	262.7	66.5	262.7	64.7	281.6	74.1	290.3	83.1	282.1
248	168.9	326.1	168.9	326.1	174.7	338.1	173.7	345.0	174.4	343.9	173.1	346.0	173.1	346.0
249	207.6	80.9	209.3	80.7	207.6	80.9	210.3	85.7	208.7	80.8	213.1	77.6	208.7	80.8
250	218.9	463.3	224.9	462.5	224.9	462.5	224.9	462.5	211.4	470.2	215.3	469.4	211.8	472.7
252	23.5	388.4	18.3	387.0	15.9	395.2	32.2	404.4	29.5	402.5	32.6	401.6	33.0	398.8
253	31.1	226.1	70.0	258.8	76.3	267.1	77.2	266.0	81.6	268.7	79.8	270.8	79.8	270.8
254	191.6	589.8	178.0	637.1	178.0	637.1	178.0	637.1	178.0	637.1	223.7	617.0	223.7	617.0
256	179.8	462.9	179.8	462.9	181.3	447.2	193.3	449.1	194.0	450.4	195.3	448.0	194.0	450.4
257	54.4	70.3	56.5	68.6	47.2	98.5	50.0	100.0	48.6	99.2	48.6	99.2	44.6	94.1
258	291.5	221.2	268.1	272.0	268.1	272.0	293.6	232.4	310.0	252.4	308.7	250.1	311.7	259.8
259	174.7	325.0	170.9	326.2	170.9	326.2	189.5	313.8	196.7	314.9	190.9	312.7	189.5	313.8
260	118.0	730.7	105.7	727.3	106.4	724.6	106.4	724.6	111.2	715.4	103.9	711.7	103.7	711.7
262	135.0	106.1	135.0	106.1	131.8	107.1	135.0	106.1	141.4	101.1	128.5	108.1	128.5	108.1
264	198.6	740.6	198.6	740.6	198.6	740.6	201.4	740.6	198.6	740.6	198.6	740.6	202.4	738.0
265	184.8	751.1	184.8	751.1	192.7	752.8	204.0	753.2	207.4	757.9	202.4	750.7	203.9	750.7
267	127.7	768.3	127.7	768.3	127.7	768.3	141.6	798.2	144.3	799.8	141.4	801.1	141.4	801.1
268	97.9	166.0	93.0	170.8	93.0	170.8	94.1	173.4	89.9	173.0	93.3	178.5	95.3	176.1
269	300.4	738.1	300.4	738.1	297.6	738.0	300.4	738.1	300.4	738.1	297.6	738.0	302.1	735.5
27	44.5	652.2	50.0	630.4	48.5	627.7	50.0	625.0	58.8	637.7	56.2	634.7	55.1	644.9

Annexe 3, suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
270	87.9	488.1	63.7	494.9	63.1	489.2	78.1	465.0	76.3	467.1	79.8	462.9	79.8	462.9
272	177.1	791.1	169.6	780.8	174.5	779.9	174.5	779.9	182.4	750.3	179.9	749.4	182.4	750.3
273	232.6	735.6	235.8	736.1	234.7	737.1	238.7	739.5	235.8	736.1	235.8	736.1	234.5	733.7
274	33.0	723.8	75.8	714.3	80.2	681.4	85.3	694.1	85.3	694.1	86.5	693.0	87.3	695.7
275	235.3	781.6	235.3	781.6	233.8	783.6	258.3	763.7	271.2	776.0	273.9	777.0	273.9	777.0
276	258.5	524.7	253.5	546.9	251.8	548.8	251.8	548.8	254.7	554.8	260.5	546.4	253.9	557.4
277	*	*	*	*	13.8	548.9	13.8	548.9	48.9	568.1	50.0	560.8	50.0	560.8
278	297.4	755.8	321.0	734.8	323.4	745.1	323.4	745.1	336.1	746.0	336.1	746.0	387.9	725.2
279	191.5	470.6	191.3	480.8	190.3	478.1	195.2	463.3	201.8	452.0	201.8	452.0	190.6	436.9
280	379.3	415.0	375.8	429.4	378.4	427.7	402.6	455.8	423.6	459.0	436.8	469.6	444.5	452.2
282	10.9	429.8	30.3	430.8	35.3	435.2	35.8	436.1	35.8	436.1	35.8	436.1	29.9	420.8
283	312.8	570.0	326.9	563.1	325.2	561.0	325.2	561.0	323.6	559.0	317.6	550.3	319.0	552.5
284	56.7	571.8	56.9	574.8	71.6	572.1	70.6	573.1	70.6	573.1	72.6	571.1	83.2	562.6
285	79.5	454.7	79.5	454.7	82.4	450.3	94.0	450.4	104.6	453.1	111.8	454.6	111.8	454.6
288	242.1	113.1	250.0	146.9	236.7	154.9	300.3	173.7	299.7	173.7	301.0	171.1	304.0	171.0
290	153.0	107.0	150.0	105.6	150.0	105.6	150.0	105.6	152.9	101.3	152.9	101.3	152.9	104.2
292	119.1	94.6	124.2	98.7	124.2	98.7	121.0	99.4	121.0	99.4	132.6	101.6	132.6	101.6
293	242.4	32.3	234.7	21.1	232.0	20.7	233.7	17.7	232.0	20.7	233.7	11.4	225.6	16.5
294	181.7	87.0	204.2	81.2	204.2	81.2	202.9	78.7	215.6	69.4	216.9	71.7	211.8	72.7
295	350.0	70.4	350.0	70.4	351.1	69.6	351.1	69.6	345.6	70.3	370.0	70.1	370.0	70.1
297	45.1	582.5	45.1	582.5	30.5	567.0	30.5	567.0	30.5	567.0	30.5	567.0	25.2	561.0
298	138.4	102.3	138.4	102.3	138.4	102.3	138.4	102.3	138.4	102.3	133.4	96.0	130.8	94.1
299	196.0	101.5	196.0	101.5	195.0	98.9	195.0	98.9	201.0	122.8	203.7	111.7	203.7	111.7
300	344.5	397.0	377.6	406.9	377.6	406.9	377.6	406.9	374.4	416.5	378.2	409.6	378.2	409.6
302	87.2	305.9	90.3	316.4	90.3	316.4	90.3	316.4	90.3	316.4	35.3	403.4	38.4	402.3
303	411.4	22.7	411.4	22.7	411.4	22.7	411.8	23.9	411.4	22.7	409.7	26.2	407.3	27.0
304	424.1	75.0	422.1	72.9	435.7	78.6	438.2	77.4	445.1	82.5	445.0	85.4	445.0	85.4
305	459.3	76.2	476.4	59.0	475.6	55.9	475.6	55.9	459.7	38.7	456.5	38.9	458.2	40.8
307	496.7	60.9	496.7	60.9	496.7	60.9	492.3	63.0	489.5	62.6	489.5	62.6	496.0	71.0

suite...



Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
308	428.2	25.6	420.1	3.3	421.3	3.3	420.1	3.3	416.5	6.7	416.5	6.7	418.8	3.2
309	452.2	71.9	452.2	71.9	452.2	71.9	458.0	92.5	460.8	93.7	460.8	93.7	460.8	93.7
31	148.6	594.9	152.7	592.8	150.0	594.2	139.7	588.0	141.1	585.9	142.5	583.8	142.4	586.7
310	389.0	36.5	386.9	35.8	399.1	30.5	411.4	44.3	412.7	41.3	420.1	49.4	420.1	49.4
311	474.3	206.1	474.3	206.1	467.4	201.6	483.3	192.5	474.1	190.3	476.5	188.4	477.1	191.1
312	468.6	109.9	453.2	115.3	456.3	113.8	438.4	156.8	436.2	158.2	436.2	158.2	436.2	158.2
313	482.5	45.0	477.1	53.7	478.1	61.0	477.3	80.7	483.3	92.5	483.3	92.5	495.3	76.1
314	442.1	36.7	440.7	34.5	439.8	35.5	445.6	27.6	448.5	27.7	445.6	27.6	445.6	27.6
317	494.7	68.4	502.5	66.0	498.1	63.5	498.1	63.5	501.2	58.4	501.2	58.4	501.2	58.4
318	66.9	379.8	72.9	384.7	70.6	386.6	71.2	389.4	71.2	389.4	85.6	390.3	84.8	387.6
32	80.9	694.6	72.7	697.9	73.2	700.6	59.0	706.7	60.6	707.3	59.4	712.3	62.4	710.6
320	323.4	45.1	337.1	38.3	337.1	38.3	337.1	38.3	337.1	38.3	358.0	60.5	355.9	59.0
322	254.2	21.9	251.6	41.2	251.6	41.2	253.2	39.1	250.0	39.1	250.0	39.1	255.1	44.9
323	*	*	*	*	*	*	*	*	*	*	*	*	*	*
324	335.3	181.6	332.2	185.6	334.5	187.4	309.7	216.4	309.7	216.4	307.7	242.5	308.8	244.9
326	485.9	563.2	485.9	563.2	485.9	563.2	485.9	563.2	485.9	563.2	485.9	563.2	457.6	632.3
327	252.6	9.0	294.0	55.6	294.0	55.6	291.8	68.1	293.9	60.7	292.3	63.0	292.3	63.0
328	482.5	339.5	482.5	339.5	483.5	337.2	483.5	337.2	501.6	322.8	501.6	322.8	501.6	322.8
330	304.0	101.5	305.8	101.4	305.8	101.4	296.2	117.4	298.9	109.2	296.1	111.7	298.9	109.2
331	178.0	83.5	187.3	77.7	193.5	65.7	192.3	63.0	192.3	63.0	192.3	63.0	187.9	64.9
336	393.0	93.7	390.6	91.0	393.0	93.7	387.7	91.9	386.5	93.0	391.2	93.6	389.4	93.4
337	116.6	66.5	124.4	41.7	124.4	41.7	145.5	73.4	147.8	71.9	147.8	71.9	147.8	71.9
338	373.1	63.1	397.1	78.7	411.8	72.7	414.7	72.2	417.5	71.6	417.5	71.6	417.5	71.6
34	329.4	673.1	331.9	672.0	331.9	672.0	329.5	670.3	329.5	670.3	332.5	668.9	333.0	665.9
341	203.9	9.4	290.0	49.8	291.3	50.1	288.7	49.5	290.6	65.4	219.7	104.8	219.7	104.8
343	450.0	530.4	454.9	541.1	462.4	548.0	480.5	557.8	488.3	559.8	495.3	548.0	468.6	533.2
344	479.8	570.8	479.8	570.8	479.8	570.8	470.0	570.1	470.0	570.1	464.2	561.5	468.3	560.8
346	329.9	241.1	329.9	241.1	325.8	224.3	325.8	224.3	331.1	226.1	325.8	224.3	326.3	221.7
347	366.3	217.7	377.9	272.9	379.8	270.8	377.9	272.9	371.8	278.9	369.1	277.9	371.8	278.9
348	471.7	92.3	471.7	92.3	471.7	92.3	467.8	85.6	467.8	85.6	467.8	85.6	467.8	85.6

Annexe 3, suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
349	360.0	220.5	360.0	220.5	360.0	220.5	347.9	265.7	360.5	246.4	363.6	231.7	356.7	222.1
35	357.3	480.8	374.5	499.7	375.8	498.7	384.4	514.5	384.4	514.5	403.0	514.3	405.7	506.5
350	147.5	84.0	150.0	94.2	150.0	94.2	168.6	109.9	165.6	111.7	165.3	108.9	163.1	126.9
352	477.6	106.9	474.3	106.1	479.0	105.9	477.6	106.9	474.3	106.1	474.3	106.1	472.4	113.5
353	315.5	134.8	289.7	117.5	289.7	117.5	289.7	117.5	268.6	109.9	269.0	112.6	265.6	111.7
354	450.0	205.6	437.2	200.0	436.9	189.2	438.0	169.0	447.2	198.5	418.5	176.5	418.5	176.5
358	459.8	58.7	459.8	58.7	461.6	56.8	461.6	56.8	461.6	56.8	461.6	56.8	461.6	56.8
359	9.4	12.0	9.4	12.0	9.4	12.0	9.4	12.0	9.4	12.0	9.4	12.0	9.4	12.0
36	322.4	648.4	322.4	648.4	322.4	648.4	320.2	641.0	320.2	641.0	318.6	641.7	318.6	641.7
361	314.2	656.7	385.2	679.9	387.3	677.7	386.9	677.6	386.9	677.6	373.1	663.1	364.7	664.6
364	332.2	428.8	332.2	428.8	331.3	429.8	346.9	412.6	346.9	412.6	346.9	409.8	346.9	409.8
365	320.6	778.6	330.0	770.1	328.1	768.1	356.0	754.0	339.9	742.6	339.9	742.6	338.5	740.5
366	195.0	198.9	233.8	255.2	233.8	255.2	233.8	255.2	233.8	255.2	233.8	255.2	233.8	255.2
367	55.4	218.5	48.5	227.7	46.8	215.3	46.8	215.3	54.0	214.5	63.1	226.9	64.8	229.2
368	433.0	498.8	434.7	508.9	421.6	496.7	424.2	498.7	424.2	498.7	421.6	496.7	421.0	499.4
369	450.0	627.7	450.0	627.7	471.0	605.3	467.8	604.4	469.2	594.1	467.4	582.7	467.4	582.7
37	43.3	622.1	28.2	578.9	28.8	576.0	31.4	575.0	36.7	554.9	36.2	558.2	27.8	564.1
370	371.9	468.1	370.0	458.8	353.7	454.0	340.5	455.4	348.0	459.2	353.5	446.9	353.4	443.1
371	366.9	722.6	368.5	719.1	368.5	721.7	356.2	711.1	361.4	724.4	357.2	733.0	361.9	729.6
372	445.6	470.3	445.6	470.3	445.6	470.3	441.2	470.0	442.5	453.8	438.8	453.5	451.8	448.8
373	455.7	655.6	452.3	675.0	431.9	672.0	437.2	666.5	437.2	666.5	476.2	650.6	488.0	645.4
374	337.1	751.5	323.6	759.0	325.6	743.9	335.5	732.5	331.9	748.9	331.9	748.9	327.4	736.6
375	396.3	711.7	396.3	711.7	392.4	711.5	396.1	711.7	396.1	711.7	396.3	711.7	396.3	711.7
378	361.6	619.7	356.6	619.3	353.1	609.8	353.1	609.8	354.2	621.9	353.2	615.3	340.4	615.0
379	111.3	231.0	101.4	240.6	101.4	240.6	91.3	250.1	103.3	250.7	97.6	243.1	105.1	242.9
380	360.8	768.3	362.0	760.1	364.2	761.5	364.2	761.5	375.2	772.0	372.6	771.1	372.6	771.1
381	407.9	691.1	416.7	692.5	419.8	691.9	420.3	702.1	415.2	697.9	415.2	697.9	415.2	697.9
382	508.0	670.5	508.0	670.5	508.0	670.5	508.0	670.5	495.4	653.1	494.0	650.4	486.2	648.9
383	253.3	620.8	253.3	620.8	253.3	620.8	255.7	599.8	255.2	608.9	255.2	608.9	257.6	586.7
384	436.7	654.9	435.0	653.0	435.5	649.5	435.0	653.0	435.0	653.0	438.8	653.5	437.1	651.5

Annexe 3, suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
385	252.2	668.8	252.2	668.8	252.2	668.8	252.2	668.8	252.2	668.8	252.1	665.7	252.1	665.7
386	346.0	660.7	348.0	662.4	348.0	662.4	348.0	662.4	362.1	680.4	362.4	683.4	362.4	683.4
387	379.9	617.7	381.4	616.6	390.3	616.4	392.4	618.9	392.4	618.9	396.3	625.1	396.5	622.6
388	453.6	634.5	453.6	634.5	478.0	583.5	475.8	585.5	466.5	576.8	463.5	572.6	463.5	572.6
389	412.6	746.6	421.0	734.8	421.0	734.8	486.5	734.8	424.2	735.8	422.0	737.1	421.0	734.8
39	296.4	659.9	296.4	659.9	301.0	625.4	301.0	625.4	301.0	625.4	301.0	625.4	303.7	625.1
390	428.7	665.1	439.2	668.3	439.2	668.3	447.5	684.0	444.3	699.8	444.3	699.8	427.3	697.9
391	416.6	774.4	394.6	750.5	390.0	752.4	439.3	732.5	440.7	734.5	437.6	734.1	439.4	732.1
392	434.0	659.6	436.2	658.2	436.2	658.2	436.2	658.2	436.2	658.2	420.7	715.0	439.9	642.6
393	477.2	731.4	479.7	726.0	473.2	729.3	430.3	724.2	430.3	724.2	466.0	714.4	466.0	714.4
394	468.5	736.1	474.8	731.9	466.8	737.0	496.0	734.3	473.7	734.3	475.8	735.8	475.8	735.8
396	464.7	535.2	470.1	520.8	469.0	517.4	476.3	517.0	483.1	511.2	485.1	510.8	483.5	518.2
397	150.0	702.8	150.0	705.6	150.0	702.8	146.6	723.6	125.6	716.5	126.4	719.8	115.8	720.9
398	425.3	593.1	444.6	594.1	447.3	595.6	444.6	594.1	450.0	594.2	450.0	594.2	447.3	592.8
399	362.9	516.1	350.0	502.8	347.1	501.3	352.5	484.0	350.0	479.6	352.4	481.0	352.4	481.0
4	310.8	283.1	302.4	281.2	307.7	283.5	302.5	266.0	302.5	266.0	300.3	273.7	302.5	271.1
40	164.3	378.6	185.1	364.3	184.1	361.5	183.0	358.6	181.7	358.2	180.5	357.8	178.0	356.9
400	481.1	623.0	481.1	623.0	480.5	620.3	483.4	622.5	490.6	612.0	484.2	620.9	486.9	618.7
401	499.1	724.0	499.1	724.0	499.1	724.0	499.1	724.0	499.1	724.0	499.1	724.0	499.1	724.0
402	484.4	608.1	484.4	608.1	481.0	607.5	484.4	608.1	484.4	608.1	469.4	615.4	459.3	634.5
403	469.1	725.8	473.6	719.8	460.4	726.0	423.3	730.1	430.8	694.1	430.8	694.1	433.4	696.0
404	429.1	553.6	443.0	546.7	443.0	546.7	431.5	536.1	431.9	539.5	429.5	535.0	430.6	537.3
406	263.4	621.6	263.4	621.6	262.9	616.1	269.7	618.1	265.3	621.1	263.2	618.9	250.0	614.0
407	461.6	702.3	468.7	691.3	468.7	691.3	447.1	701.3	472.5	713.1	469.4	715.4	472.8	716.2
408	434.9	584.5	434.0	582.2	437.3	586.3	432.2	585.6	432.2	585.6	431.7	588.5	429.4	586.6
409	486.8	731.4	488.7	731.0	483.4	733.6	483.4	733.6	483.4	733.6	483.4	733.6	483.4	733.6
41	271.3	317.2	261.5	340.5	318.9	323.0	311.0	333.8	293.3	378.5	293.3	378.5	291.3	380.8
410	458.5	744.7	464.8	729.2	460.9	734.1	455.0	720.1	354.0	714.5	354.0	714.5	440.8	709.5
411	363.6	531.7	360.5	528.7	358.8	529.5	358.8	529.5	348.5	532.6	350.0	530.4	348.5	532.6
412	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Annexe 3, suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
414	432.7	725.3	398.3	727.9	398.3	727.9	386.5	716.1	386.5	716.1	400.2	711.8	403.9	711.7
416	426.8	200.6	433.0	198.8	427.3	197.9	411.3	223.9	411.4	222.7	411.4	222.7	412.8	227.6
417	291.9	488.5	268.3	488.5	269.5	487.5	272.5	525.3	272.5	525.3	274.7	538.1	291.1	542.2
418	490.3	586.5	490.3	586.5	490.3	586.5	490.3	586.5	476.5	588.4	476.4	588.3	484.0	584.9
419	440.8	736.3	423.7	717.0	426.3	721.7	416.3	705.4	410.3	693.4	409.4	696.1	408.9	693.7
42	215.2	587.6	215.2	587.6	215.3	587.6	227.4	589.9	228.3	592.3	227.1	584.7	217.7	579.3
420	500.6	335.6	500.6	335.6	500.6	335.6	500.6	335.6	500.6	335.6	500.6	335.6	500.6	335.6
421	225.3	125.0	228.2	125.6	227.2	116.2	227.2	116.2	310.0	147.2	307.4	147.7	307.4	147.7
422	354.4	470.3	355.4	494.1	355.4	494.1	348.5	503.5	347.1	504.2	347.1	501.3	324.2	514.3
423	275.8	314.3	314.3	335.3	324.5	332.4	367.4	282.7	364.7	281.6	364.7	281.6	362.1	280.4
425	403.5	345.6	400.8	339.4	414.4	324.0	419.5	323.4	419.5	323.4	418.9	323.0	419.5	320.3
426	285.3	272.2	310.0	280.0	400.0	302.1	460.0	302.7	482.3	300.0	479.7	302.1	483.0	302.7
428	426.5	387.5	426.5	387.5	425.0	387.9	426.1	371.6	427.4	371.1	417.6	363.7	415.9	361.5
43	421.1	367.9	421.1	367.9	419.7	368.3	434.5	356.3	434.5	356.3	434.5	356.3	434.5	356.3
431	398.0	245.7	398.0	245.7	398.0	245.7	398.0	245.7	399.4	235.6	399.4	235.6	393.0	232.3
432	410.5	262.6	411.3	263.8	411.3	263.8	412.2	264.9	394.0	255.6	393.0	252.9	393.0	252.9
434	442.4	386.7	442.4	386.7	442.4	386.7	459.6	415.0	460.3	408.8	459.6	415.0	459.6	415.0
435	347.8	268.8	368.6	275.0	370.6	273.1	382.2	259.6	383.0	258.6	377.1	253.7	373.9	249.4
437	486.1	367.2	486.1	367.2	496.5	365.9	496.5	330.0	410.0	270.0	390.0	200.0	368.6	150.0
438	429.5	435.0	429.5	435.0	429.5	435.0	429.7	435.2	423.0	404.2	423.0	404.2	426.8	400.6
439	302.1	606.7	308.7	580.8	311.0	580.5	293.2	573.3	293.5	572.1	280.3	549.6	279.0	546.3
44	112.1	313.1	121.6	296.7	121.6	296.7	122.8	285.9	123.4	283.1	121.2	283.7	125.5	279.9
441	271.4	738.9	267.0	723.8	267.0	723.8	307.3	734.8	307.3	734.8	307.3	734.8	307.3	734.8
442	238.4	756.8	242.5	753.8	242.5	753.8	242.5	753.8	243.0	746.7	243.0	746.7	232.9	754.3
444	313.9	767.2	327.1	784.7	327.6	781.8	307.8	775.8	371.9	768.1	368.9	763.9	371.3	765.1
446	255.1	786.9	260.3	788.0	257.5	767.8	256.5	768.6	247.9	765.7	263.8	758.2	271.6	756.8
450	324.2	729.4	335.8	724.1	336.1	727.1	339.3	731.4	348.5	732.6	337.6	734.1	337.6	734.1
451	152.2	168.8	166.5	162.7	166.5	162.7	166.5	162.7	166.5	162.7	166.5	162.7	170.6	162.0
452	267.7	757.6	270.0	758.8	270.0	758.8	270.9	753.6	278.9	759.9	276.4	759.0	276.4	759.0
454	178.2	609.6	170.1	599.8	166.3	617.2	170.1	620.8	173.7	627.6	144.6	694.1	193.4	603.9

suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
455	99.0	122.8	98.4	125.3	98.4	125.3	102.7	119.3	102.7	119.3	105.2	137.7	114.4	124.0
457	281.6	672.6	280.6	673.7	270.7	694.6	285.8	713.4	243.8	734.7	255.9	705.5	258.8	703.9
459	162.0	660.1	167.5	668.9	166.0	673.8	158.2	695.4	147.1	701.3	147.1	701.3	159.4	712.3
46	177.0	304.2	188.7	323.9	184.8	323.5	219.7	349.6	214.9	364.3	238.2	377.4	260.6	390.9
460	404.6	14.5	404.6	14.5	404.6	14.5	404.6	14.5	404.6	14.5	404.6	14.5	404.6	14.5
461	390.1	31.5	391.5	30.6	393.0	32.3	366.1	22.5	365.3	21.1	362.5	21.4	363.5	18.0
462	430.2	13.4	430.2	13.4	430.2	13.4	430.2	13.4	430.2	13.4	430.2	13.4	430.2	13.4
463	472.6	36.6	473.7	34.3	473.7	34.3	486.2	71.1	487.2	70.0	488.9	67.7	488.9	67.7
464	465.0	453.0	465.0	453.0	465.0	453.0	462.9	451.5	462.9	451.5	462.9	451.5	484.1	461.5
465	432.5	68.9	438.9	71.4	438.9	71.4	450.0	73.5	454.6	76.5	459.5	79.2	459.5	79.2
466	496.2	432.8	496.2	432.8	496.2	432.8	496.2	432.8	496.2	432.8	496.2	432.8	496.2	432.8
467	187.2	105.9	192.3	142.5	219.4	173.7	227.3	197.9	231.0	212.6	228.1	210.8	208.1	215.8
468	424.5	464.1	422.7	462.0	440.5	455.4	440.5	455.4	491.3	505.2	489.8	503.6	489.8	503.6
47	282.5	289.8	283.1	282.1	292.4	280.9	335.8	261.5	361.4	299.4	344.2	302.7	361.9	329.6
470	396.7	235.4	396.7	235.4	391.5	221.2	403.5	224.4	406.0	222.0	404.2	225.1	406.6	224.5
471	400.4	78.7	402.8	73.6	402.8	73.6	402.8	73.6	402.8	73.6	402.8	73.6	402.8	73.6
472	436.8	318.9	428.9	315.8	425.6	316.5	425.6	316.5	425.6	316.5	427.2	316.2	423.7	317.0
473	394.2	20.8	394.8	36.5	393.4	47.8	405.3	68.4	406.5	65.7	403.5	65.9	403.5	65.9
475	358.2	640.8	358.2	640.8	356.7	642.9	356.7	642.9	373.7	634.3	360.4	626.0	361.9	629.6
476	458.0	292.5	458.6	301.1	458.4	298.2	439.2	293.7	439.2	293.7	439.4	290.9	439.2	293.7
477	397.5	396.5	389.9	396.0	390.5	398.6	395.5	387.5	402.3	388.9	391.9	388.5	430.7	372.5
479	232.6	82.7	307.3	127.0	314.0	127.1	300.4	78.7	330.0	70.1	347.2	98.5	361.9	105.1
48	146.6	572.7	146.6	572.7	161.1	536.5	161.1	514.2	190.4	520.7	190.3	516.4	188.6	522.7
480	38.1	405.1	34.7	408.9	29.5	402.5	29.5	402.5	47.5	384.0	47.5	384.0	47.5	384.0
481	292.6	216.2	292.1	218.7	292.1	218.7	292.1	218.7	297.5	217.6	297.5	217.6	295.5	215.5
482	391.1	183.3	392.4	198.8	412.7	218.7	429.1	226.2	455.1	244.9	455.1	244.9	455.1	244.9
483	196.5	522.6	206.5	509.0	208.5	508.9	253.3	518.1	297.6	481.2	288.1	470.1	290.0	470.4
484	78.9	567.9	115.2	540.4	115.2	540.4	129.9	499.8	127.1	510.8	127.3	497.9	137.5	473.5
485	19.0	430.0	21.8	409.6	59.0	406.7	66.6	419.9	113.3	442.4	96.7	450.7	94.0	450.4
486	273.1	163.1	273.1	163.1	274.8	161.0	274.8	161.0	274.8	161.0	263.3	154.9	277.3	162.0

Annexe 3, suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
487	38.5	174.4	38.5	174.4	40.7	176.2	73.1	163.1	81.3	136.1	83.4	134.3	102.6	109.2
488	89.9	244.6	104.2	263.4	102.5	266.0	92.3	263.0	90.6	265.4	89.5	262.6	90.6	265.4
489	120.1	517.7	121.8	509.6	124.2	514.3	133.4	496.0	121.3	486.3	126.1	477.0	144.8	488.3
490	38.5	300.8	44.2	302.7	44.3	299.8	43.5	289.0	42.2	289.6	33.5	276.8	35.7	278.6
492	116.5	237.2	100.3	243.2	100.3	243.2	82.4	263.7	82.4	263.7	82.4	263.7	89.2	275.4
493	155.4	18.5	203.9	9.4	242.3	8.9	263.1	26.9	263.1	26.9	283.4	22.5	283.4	22.5
494	77.7	193.9	78.0	183.5	95.3	176.1	105.5	183.6	104.5	183.7	101.1	188.9	95.5	188.8
495	484.8	151.1	477.6	148.4	475.3	147.3	502.7	160.9	502.7	160.9	502.7	160.9	502.7	160.9
496	180.9	394.6	186.5	393.0	185.7	395.5	196.0	401.5	195.5	421.1	194.0	422.0	197.0	420.1
497	94.7	268.4	100.9	281.3	100.9	281.3	102.1	299.0	122.9	316.0	122.9	316.0	121.0	299.4
498	184.8	197.9	191.5	198.7	200.1	194.0	199.9	194.0	200.1	194.0	204.6	191.3	201.1	188.9
499	57.6	486.7	57.6	486.7	66.0	473.8	100.3	473.7	102.8	473.6	100.3	473.7	100.3	473.7
5	355.8	402.7	361.6	402.3	382.0	419.3	381.6	425.7	371.4	438.9	371.4	438.9	384.4	408.1
50	310.3	241.9	315.9	219.8	307.6	211.5	314.9	210.8	314.9	210.8	314.9	210.8	318.9	223.0
500	280.5	157.8	280.5	157.8	278.0	156.9	270.0	158.8	290.0	152.4	294.0	150.4	291.3	150.1
504	267.0	523.8	267.0	523.8	246.7	518.1	246.7	518.1	249.2	540.2	233.9	537.9	204.7	535.2
505	318.5	676.5	309.8	682.0	309.8	682.0	309.8	682.0	331.3	691.3	331.3	691.3	327.8	695.1
507	493.7	107.7	494.2	92.5	495.4	91.3	495.2	95.1	495.2	95.1	495.2	95.1	495.2	95.1
508	464.7	103.4	464.7	103.4	453.1	109.8	453.1	109.8	453.1	109.8	453.1	109.8	453.1	109.8
509	406.7	78.5	406.7	78.5	407.0	70.8	407.0	70.8	408.2	68.1	402.3	68.5	407.0	70.8
510	7.9	624.2	10.5	613.8	7.0	613.5	6.8	614.1	32.2	604.4	32.2	604.4	32.2	604.4
511	316.1	671.9	330.5	667.0	359.2	651.9	336.0	597.7	352.5	587.0	347.8	571.9	347.8	571.9
514	416.6	22.5	415.5	23.2	416.6	22.5	421.6	21.5	421.6	21.5	426.8	8.0	426.8	8.0
515	197.6	43.1	194.9	42.9	194.9	42.9	196.0	40.4	196.0	40.4	195.4	41.7	194.0	42.8
516	322.3	693.9	333.7	717.7	333.4	719.9	330.3	718.1	324.2	729.4	324.2	729.4	318.8	720.7
52	177.3	562.0	184.3	577.2	186.1	582.7	216.5	553.4	227.4	536.6	231.9	539.5	231.2	543.3
520	346.0	14.5	346.0	14.5	346.0	14.5	346.0	14.5	375.8	7.7	375.8	7.7	373.2	8.0
522	189.2	75.4	187.2	57.0	187.2	57.0	187.2	57.0	186.0	54.1	186.0	54.1	181.6	68.7
524	377.3	680.7	379.4	678.6	379.4	678.6	379.4	678.6	384.8	687.6	385.6	690.3	385.6	690.3
525	188.6	54.7	186.1	67.2	184.4	69.4	186.1	67.2	187.9	88.1	189.7	93.4	189.7	93.4

## Annexe 3, suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
526	165.8	180.7	164.7	181.6	164.7	181.6	181.6	225.7	181.6	225.7	201.4	240.6	194.6	250.5
527	90.9	112.7	80.5	123.4	78.4	121.5	81.6	110.2	81.6	110.2	81.6	110.2	81.6	110.2
528	38.9	36.5	38.9	36.5	37.1	51.5	40.8	51.9	40.8	51.9	39.2	50.0	37.1	51.5
529	146.0	14.5	146.0	14.5	146.0	14.5	146.0	14.5	102.3	27.8	102.3	27.8	146.0	14.5
53	323.1	233.4	323.1	233.4	323.1	233.4	326.8	229.3	326.8	229.3	328.7	228.9	328.7	228.9
54	279.8	270.8	284.3	277.2	289.0	280.5	292.2	275.8	297.2	273.6	292.2	275.8	294.2	274.7
55	192.3	283.5	186.1	282.7	185.6	290.3	185.6	290.3	185.6	290.3	185.6	290.3	185.6	290.3
57	159.7	321.6	159.7	321.6	153.2	315.3	153.2	315.3	151.5	332.6	144.7	331.0	154.7	336.9
59	404.8	609.1	406.8	614.1	406.0	616.7	410.1	627.4	410.1	627.4	418.7	636.1	417.7	633.7
60	265.1	667.8	265.1	667.8	267.5	668.9	267.5	668.9	241.2	670.0	243.5	668.6	243.5	668.6
600	480.6	608.0	480.6	608.0	480.6	608.0	480.6	608.0	480.6	608.0	480.6	608.0	480.6	608.0
601	494.0	550.4	497.0	538.0	497.0	538.0	496.2	532.8	496.2	532.8	496.2	532.8	496.2	532.8
602	439.5	646.4	439.5	646.4	439.5	646.4	439.5	646.4	439.4	632.1	435.8	629.8	439.8	627.2
603	404.6	653.1	404.6	653.1	404.6	653.1	429.4	673.1	443.5	668.6	443.5	668.6	450.0	676.6
605	465.1	667.8	462.8	666.5	462.8	666.5	465.1	667.8	465.1	667.8	462.8	666.5	465.1	667.8
607	417.5	689.8	421.9	665.0	432.9	654.3	448.2	652.3	457.7	657.2	465.5	687.4	457.5	683.8
608	383.7	679.6	380.9	694.6	380.9	694.6	380.9	694.6	380.9	694.6	380.9	694.6	414.2	713.4
609	432.5	668.9	423.7	667.1	421.9	665.0	428.1	668.1	414.8	679.9	414.8	679.9	426.8	674.0
61	252.1	765.7	327.2	757.4	327.2	757.4	387.5	682.9	374.5	679.9	372.4	681.8	375.9	675.0
610	443.0	627.6	467.5	668.9	469.5	667.0	450.0	667.3	426.4	719.8	422.6	722.4	412.0	721.3
611	401.7	658.4	401.7	658.4	401.7	658.4	426.1	649.4	426.1	649.4	446.7	618.1	442.4	632.3
612	428.8	776.0	450.0	767.3	450.0	767.3	447.2	753.0	444.1	759.0	442.3	757.2	444.3	755.6
613	310.5	762.6	312.2	764.9	312.2	764.9	301.7	758.4	301.7	758.4	272.4	760.0	273.2	759.0
616	318.9	723.0	318.9	723.0	318.9	723.0	318.9	723.0	338.9	671.4	338.5	674.4	338.9	671.4
618	261.5	774.4	263.4	792.0	263.4	792.0	263.4	792.0	287.3	795.7	285.6	790.3	278.4	796.7
619	222.8	757.9	220.5	754.7	230.6	755.6	275.6	755.9	291.2	744.9	277.6	724.2	264.9	719.4
620	200.8	748.3	188.3	759.8	196.7	760.9	210.4	767.8	203.5	765.9	207.3	758.0	207.3	758.0
621	232.5	768.9	239.7	788.0	239.9	785.1	239.9	785.1	221.0	799.4	223.6	801.4	191.1	760.3
624	200.8	748.3	208.0	741.1	208.0	741.1	214.1	738.1	231.1	726.1	225.4	727.0	222.1	725.1
625	152.7	792.8	152.7	792.8	152.7	792.8	145.7	767.2	144.6	767.9	143.5	768.6	145.6	770.3

C.

suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
626	129.0	753.6	163.4	742.2	161.5	740.5	250.0	727.7	251.4	722.0	250.0	727.7	250.0	727.7
627	159.0	773.1	136.8	718.9	136.8	718.9	136.8	718.9	153.1	712.6	150.0	711.2	140.4	715.0
628	168.3	760.8	168.3	760.8	168.3	760.8	166.0	759.6	166.0	759.6	165.5	756.3	165.5	756.3
630	104.6	796.4	103.4	793.9	84.4	769.4	106.2	778.5	106.7	778.5	107.8	775.8	109.7	778.1
64	322.0	637.1	322.0	637.1	333.2	641.7	343.7	642.5	343.7	642.5	374.8	661.0	374.8	661.0
640	*	*	*	*	*	*	135.3	803.4	135.3	803.4	135.3	803.4	139.2	793.7
641	145.8	721.9	136.1	727.1	150.0	722.3	184.9	745.8	185.5	744.7	182.5	745.0	184.9	745.8
642	14.8	779.9	15.7	777.2	15.7	777.2	15.7	777.2	15.7	777.2	5.6	781.1	3.5	778.7
644	67.0	748.9	67.0	748.9	67.0	748.9	151.8	748.8	151.8	748.8	240.0	720.5	291.8	721.6
645	44.7	748.6	54.9	782.5	54.9	782.5	54.9	782.5	63.4	771.1	57.3	780.8	57.3	780.8
646	36.2	758.2	36.2	758.2	36.7	754.9	36.7	754.9	36.7	754.9	38.4	756.8	36.7	754.9
647	118.8	763.3	118.8	763.3	118.8	763.3	138.8	753.5	138.8	753.5	138.8	753.5	148.2	752.3
648	1.0	771.1	11.7	759.8	8.9	760.3	8.9	760.3	8.9	760.3	10.2	757.5	18.0	755.6
65	296.7	735.4	309.1	723.7	306.0	735.1	277.4	722.4	277.4	722.4	312.2	733.4	312.2	733.4
650	60.6	732.1	91.1	731.8	91.1	731.8	91.1	731.8	125.3	738.1	124.4	741.7	124.4	741.7
652	423.5	588.4	412.7	595.7	403.0	609.2	403.0	609.2	403.0	609.2	468.1	772.0	472.6	736.6
653	*	*	*	*	*	*	*	*	*	*	*	*	*	*
654	403.5	778.7	403.5	778.7	402.4	781.2	413.6	773.1	408.9	773.1	408.9	773.1	408.9	773.1
655	394.6	706.5	396.8	701.5	396.0	701.5	396.0	701.5	404.6	691.3	401.2	691.4	411.2	690.8
68	150.0	694.2	152.6	689.9	152.6	689.9	154.9	682.5	164.7	681.6	162.1	680.4	162.1	680.4
700	38.0	44.3	38.0	44.3	23.2	39.4	61.5	40.5	61.5	40.5	60.1	42.6	60.1	42.6
702	50.0	85.5	50.0	85.5	36.9	89.2	36.9	89.2	36.9	89.2	36.9	89.2	36.9	89.2
703	196.5	39.2	196.5	39.2	196.5	39.2	196.5	39.2	196.5	39.2	196.5	39.2	194.8	37.7
704	224.7	147.3	224.7	147.3	220.5	154.7	230.0	158.8	280.3	204.8	280.3	204.8	280.3	218.0
705	279.0	77.2	276.6	77.8	276.6	77.8	276.6	77.8	279.4	78.6	260.5	65.2	259.8	58.7
707	396.7	35.4	396.2	32.8	396.7	35.4	395.3	35.2	405.6	37.7	403.0	38.0	411.4	44.3
708	442.4	32.3	441.8	40.8	439.9	42.6	463.1	26.9	463.1	26.9	461.1	36.5	464.2	36.1
709	362.4	34.1	361.1	71.4	365.1	84.5	365.1	84.5	392.5	101.3	394.3	98.9	396.8	101.5
71	180.2	781.4	184.8	787.6	184.0	784.9	184.0	784.9	168.6	799.3	168.7	791.3	171.2	789.4
711	452.1	65.7	456.5	68.6	456.5	68.6	457.3	80.8	454.8	79.5	454.8	79.5	457.3	80.8



Annexe 3, suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
712	440.5	255.4	442.5	253.8	440.5	255.4	423.6	259.0	422.0	256.9	422.0	256.9	417.6	250.3
715	258.8	558.0	304.9	514.2	315.1	526.5	379.4	578.6	379.4	578.6	437.6	534.1	435.8	536.1
717	87.0	585.4	89.2	583.1	87.7	582.9	86.1	582.7	98.8	583.8	98.8	583.8	113.3	575.0
72	174.8	508.9	174.8	508.9	174.8	508.9	179.0	505.9	179.2	527.3	182.3	512.9	179.1	518.6
721	406.0	396.3	406.0	396.3	406.0	396.3	435.0	437.9	435.0	437.9	443.2	424.8	443.2	424.8
722	316.3	405.4	313.6	403.2	316.3	405.4	316.3	405.4	315.3	403.0	317.0	402.7	316.3	405.4
723	302.0	545.7	295.3	548.0	299.2	545.7	299.2	545.7	295.1	545.5	295.1	545.5	295.1	545.5
725	145.5	473.4	184.8	497.9	184.8	497.9	215.0	540.5	215.0	540.5	219.3	565.8	218.4	568.7
726	93.3	478.5	108.9	473.1	108.9	473.1	108.9	473.1	119.0	430.0	122.1	431.0	120.0	432.4
727	439.2	350.0	440.8	351.9	436.7	354.9	438.4	356.8	438.4	356.8	433.5	351.0	433.5	351.0
729	333.5	251.0	330.5	246.8	333.5	251.0	333.5	251.0	293.4	210.8	291.5	208.9	288.8	190.8
73	85.6	100.6	145.4	176.5	145.1	182.5	170.0	258.8	199.6	330.5	199.6	330.5	191.0	319.0
730	186.3	375.0	194.4	381.1	195.5	383.7	193.4	382.3	195.5	383.7	203.4	386.3	178.9	359.9
731	92.7	352.8	106.5	365.7	99.5	366.0	102.5	366.0	114.7	376.1	95.2	395.1	94.0	396.3
732	232.0	220.7	232.0	220.7	232.0	220.7	232.0	220.7	264.9	219.4	269.7	218.1	276.3	217.0
733	497.9	215.1	487.9	208.6	491.2	202.5	*	*	*	*	*	*	*	*
734	458.6	283.0	456.9	296.2	455.4	294.1	458.8	303.9	455.8	302.7	465.3	308.9	474.3	306.1
735	366.6	219.9	366.6	219.9	374.3	215.3	372.8	216.2	372.4	213.5	372.8	216.2	379.9	217.7
736	422.6	322.4	435.1	319.4	433.7	317.7	433.7	317.7	439.2	318.2	446.8	315.3	450.0	314.0
740	461.6	102.3	461.6	102.3	474.0	157.9	474.0	157.9	474.0	157.9	474.0	157.9	474.0	157.9
741	100.3	253.3	254.3	367.2	254.3	367.2	351.7	245.0	393.9	260.7	391.1	260.3	394.3	260.7
742	284.5	234.8	284.5	234.8	284.5	234.8	338.7	217.0	373.7	221.7	376.3	217.0	389.3	201.0
744	198.5	99.0	197.5	96.5	196.5	93.9	199.9	94.0	197.5	96.5	198.2	94.0	197.5	96.5
745	175.3	195.9	184.5	291.4	184.5	291.4	184.1	290.0	195.0	317.1	189.5	313.8	188.7	311.2
76	339.2	668.3	363.9	675.7	368.6	675.0	368.6	675.0	419.0	652.5	417.6	650.3	417.6	650.3
77	302.5	196.5	302.5	196.5	302.5	196.5	305.0	198.9	302.5	196.5	298.9	188.9	298.9	188.9
78	89.5	62.6	84.3	77.2	84.3	77.2	85.8	113.4	94.5	119.6	91.9	129.4	90.3	126.2
79	341.7	163.7	337.2	166.5	344.5	171.0	362.7	186.3	373.5	187.5	377.7	193.9	377.7	193.9
8	359.7	338.7	420.6	378.6	420.6	378.6	420.6	378.6	495.5	383.7	495.5	383.7	495.5	383.7
80	104.2	263.4	96.5	265.9	100.8	268.6	117.1	261.2	119.3	265.8	115.4	264.2	121.9	265.0

Annexe 3, suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
801	473.2	659.0	455.9	659.0	453.9	657.4	453.9	657.4	453.9	657.4	453.9	657.4	453.9	657.4
802	497.9	480.0	497.9	480.0	497.9	480.0	497.9	480.0	497.9	480.0	497.9	480.0	497.9	480.0
804	429.1	526.2	429.1	526.2	429.2	528.2	428.7	528.9	428.7	528.9	414.2	513.4	411.3	511.2
805	410.0	570.4	397.5	566.0	397.5	566.0	391.1	560.3	387.4	546.6	390.4	547.3	384.3	541.6
807	492.6	573.3	492.6	573.3	492.6	573.3	492.6	573.3	492.6	573.3	484.0	584.9	486.1	582.7
81	125.3	352.7	136.6	342.2	144.9	344.9	153.9	357.4	148.0	362.4	146.0	360.7	148.1	355.8
810	8.7	650.1	8.7	650.1	8.7	650.1	7.4	647.7	7.4	647.7	8.7	650.1	8.7	650.1
811	319.0	684.2	300.3	655.9	300.3	655.9	300.3	655.9	300.3	655.9	300.3	655.9	345.4	676.5
812	335.3	664.6	329.1	644.7	331.2	643.3	327.7	642.6	332.9	654.3	330.0	658.8	326.9	663.1
813	412.7	641.3	412.7	641.3	412.7	641.3	416.7	656.0	416.7	656.0	416.7	656.0	440.8	651.9
815	360.9	634.1	357.2	633.0	360.7	631.4	393.0	621.8	391.5	621.2	393.0	621.8	392.1	618.7
816	273.1	663.1	253.5	646.9	261.5	640.5	247.2	624.9	247.2	624.9	252.7	592.8	252.7	592.8
817	240.5	655.4	240.5	655.4	240.5	655.4	240.5	655.4	240.8	651.9	242.5	653.8	242.5	653.8
818	194.0	655.6	195.4	653.1	194.0	650.4	195.4	653.1	195.4	653.1	192.7	652.8	192.7	652.8
819	139.7	688.0	139.7	688.0	142.4	686.7	142.4	686.7	160.1	685.1	160.1	685.1	157.5	683.8
82	29.1	453.6	40.7	434.5	50.0	435.9	88.2	398.4	88.2	398.4	80.2	391.9	80.2	391.9
820	107.3	652.8	99.6	638.1	99.6	638.1	113.6	630.1	111.3	631.0	111.3	631.0	126.8	635.4
825	450.0	522.3	451.7	521.6	455.7	524.8	457.2	533.0	457.2	533.0	457.6	532.3	457.6	532.3
83	47.1	401.3	47.1	401.3	47.1	401.3	48.6	400.7	48.6	400.7	47.1	401.3	47.1	401.3
834	192.6	757.9	251.6	741.2	251.6	741.2	251.6	741.2	218.1	717.8	218.9	723.0	218.9	723.0
835	139.0	762.5	139.0	762.5	132.1	730.7	205.4	750.5	199.2	748.3	202.0	745.7	202.0	745.7
836	39.4	732.1	44.3	724.8	34.0	747.5	40.8	751.9	40.8	751.9	42.8	750.3	40.8	751.9
837	75.5	764.1	75.5	764.1	92.6	757.9	98.2	753.3	102.2	745.7	104.2	740.4	105.1	742.9
838	41.5	724.7	36.1	727.1	41.5	724.7	41.5	724.7	36.9	726.9	30.9	725.8	29.1	726.2
839	62.0	760.1	70.6	762.0	70.6	762.0	67.4	735.6	67.4	735.6	76.6	745.1	76.6	745.1
84	68.3	188.5	68.3	188.5	68.3	188.5	64.7	181.6	61.8	177.4	65.1	167.8	66.8	141.7
840	-0.9	781.3	-0.9	781.3	-0.9	781.3	21.3	786.3	21.3	786.3	16.7	792.5	14.4	790.3
843	443.5	668.6	422.1	672.9	422.1	672.9	422.1	672.9	470.6	662.0	470.6	662.0	470.6	662.0
844	438.5	674.4	438.2	677.4	435.7	678.6	440.7	676.2	440.7	676.2	438.5	674.4	438.2	677.4
845	461.3	639.5	454.3	667.2	456.5	668.6	436.8	669.6	436.8	669.6	436.8	669.6	436.8	669.6

Annexe 3, suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
846	453.6	633.1	453.6	633.1	453.6	633.1	458.9	648.4	458.9	648.4	458.9	648.4	455.3	648.6
847	426.0	657.9	430.6	655.6	436.2	658.2	395.9	665.9	381.0	684.2	377.3	680.7	376.6	677.8
848	463.6	637.2	463.6	637.2	463.6	637.2	474.7	638.1	478.0	637.1	475.8	635.8	475.8	635.8
849	470.6	662.0	476.5	688.4	476.5	688.4	473.7	703.4	454.0	714.5	443.8	711.1	453.1	709.8
85	66.3	493.1	66.3	493.1	63.7	494.9	66.3	493.1	89.7	493.4	93.1	493.7	103.4	493.9
850	442.0	660.5	439.5	665.2	421.6	670.4	398.5	633.0	399.6	630.5	395.8	632.8	391.1	631.8
87	326.1	677.0	326.1	677.0	384.0	684.9	318.1	639.2	318.1	639.2	328.1	668.1	347.0	607.0
88	94.1	373.4	110.0	389.6	102.8	388.9	102.8	388.9	121.6	396.7	121.6	396.7	121.6	396.7
89	75.8	429.4	70.5	423.5	63.2	418.9	63.2	418.9	66.6	419.9	63.7	424.3	63.4	421.6
90	71.2	376.0	62.1	380.4	60.8	393.7	75.8	398.7	87.9	408.6	87.9	408.6	81.0	407.5
91	374.7	352.7	374.7	352.7	377.1	353.7	378.9	367.9	380.7	365.8	380.7	365.8	356.5	368.6
92	43.5	116.6	43.5	116.6	43.5	116.6	43.5	116.6	43.5	116.6	17.4	125.1	21.2	128.6
93	134.5	556.3	145.6	570.3	134.9	567.8	176.3	617.0	177.6	624.2	171.0	605.3	161.4	599.4
94	77.3	180.7	77.3	180.7	75.2	182.7	68.3	188.5	68.3	188.5	68.3	188.5	67.8	185.6
96	62.4	683.4	62.4	683.4	62.4	683.4	77.9	672.9	77.9	672.9	85.2	679.9	85.2	679.9
97	50.0	191.4	57.1	177.8	66.0	173.8	80.6	173.7	77.9	172.9	88.2	172.7	89.2	175.4
98	38.8	153.5	38.4	156.8	38.4	156.8	37.6	148.0	36.1	146.0	36.1	146.0	36.1	146.0
99	30.8	494.1	45.9	464.0	56.5	468.6	71.0	469.1	75.2	472.0	62.4	463.3	62.4	463.3
aa	474.0	257.9	471.6	256.8	483.2	231.3	477.2	231.4	471.8	225.6	467.3	225.3	473.3	219.0
ab	403.4	286.3	403.4	286.3	394.5	268.4	389.9	273.0	388.2	272.7	391.4	270.6	391.4	270.6
ac	402.1	235.5	402.1	235.5	385.6	224.0	387.8	240.1	383.5	237.2	383.9	237.3	383.5	237.2
ae	439.5	328.7	438.1	329.6	438.1	329.6	435.2	329.2	440.8	351.9	440.5	355.4	473.3	319.0
af	*	*	324.5	364.1	324.5	364.1	324.5	364.1	324.5	364.1	352.1	365.7	352.4	378.0
ah	450.0	639.1	450.0	639.1	436.3	624.3	436.3	624.3	423.3	617.7	414.5	632.5	413.3	633.0
ai	406.0	658.1	406.0	658.1	406.0	658.1	402.8	673.6	409.4	665.4	401.7	658.4	402.0	648.2
aj	276.5	688.4	276.5	688.4	282.6	722.0	295.3	735.2	295.3	735.2	292.2	745.0	293.4	747.8
al	319.8	644.0	319.0	652.5	326.8	654.8	292.6	657.9	291.4	670.6	299.0	671.1	295.5	683.7
am	225.3	638.1	221.8	609.6	207.6	611.5	211.3	611.2	215.3	617.0	214.2	613.4	212.0	621.3
ao	434.7	708.9	434.7	708.9	407.6	711.5	394.3	706.5	394.3	706.5	393.5	709.0	390.8	706.3
aq	446.3	637.2	425.9	690.3	437.4	713.4	456.1	708.3	456.1	708.3	489.7	693.4	489.7	693.4

Annexe 3, suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989		
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	
ar	428.1	610.8	427.3	597.9	424.7	595.9	415.9	619.8	415.9	619.8	410.5	628.6	408.1	629.4	
as	465.3	621.1	465.3	621.1	465.3	621.1	465.3	621.1	465.3	621.1	398.5	633.0	396.6	631.6	
au	414.8	479.9	414.8	479.9	428.1	468.1	467.8	504.4	467.8	504.4	458.2	540.8	439.2	550.0	
av	422.1	542.9	420.9	540.6	423.1	533.4	430.2	531.2	440.3	538.7	434.6	543.9	436.1	546.0	
aw	433.5	562.7	444.9	544.9	444.9	544.9	434.8	540.5	435.2	540.1	431.9	539.5	424.2	535.8	
ax	*	*	*	*	*	*	288.0	521.3	305.6	481.1	304.5	488.8	299.9	486.4	
ay	256.7	442.9	262.0	444.3	266.1	437.9	266.1	437.9	268.6	433.2	267.9	430.7	270.9	426.2	
b	435.2	29.2	432.2	28.8	432.2	28.8	432.2	28.8	434.0	26.6	429.2	28.2	432.2	28.8	
ba	419.1	494.6	419.8	491.9	419.8	491.9	419.0	489.4	441.6	498.2	415.6	508.1	447.1	504.2	
bb	457.9	436.7	457.9	436.7	478.1	461.0	478.1	461.0	478.1	461.0	478.1	461.0	478.1	461.0	
bc	450.0	434.9	450.0	434.9	439.0	428.4	438.7	439.5	454.2	421.9	453.5	429.0	456.6	419.3	
bd	427.6	460.0	434.9	484.5	421.6	521.5	421.6	521.5	470.6	508.2	482.9	515.6	479.3	515.0	
be	*	*	*	*	*	*	*	*	*	*	*	*	*	375.9	375.0
bf	419.0	407.5	417.0	402.7	417.0	402.7	417.0	402.7	410.6	397.2	408.5	398.7	408.5	398.7	
bg	425.5	369.1	425.5	369.1	425.5	369.1	425.5	369.1	425.5	369.1	425.5	369.1	425.5	369.1	
bi	174.1	90.3	174.1	90.3	173.5	87.5	157.5	83.8	168.7	91.3	168.7	91.3	168.7	91.3	
bj	150.0	57.5	150.0	57.5	164.2	61.5	178.9	67.9	211.2	90.8	210.6	93.4	201.2	83.8	
bl	197.7	88.9	195.2	109.1	190.7	106.3	200.8	114.3	203.8	132.8	203.7	125.1	203.0	127.8	
bm	106.6	124.5	130.3	130.8	140.4	115.0	137.4	113.4	158.9	129.9	183.7	145.4	177.9	131.0	
bn	3.5	165.9	1.9	163.5	1.9	163.5	1.9	163.5	1.9	163.5	10.8	183.1	3.4	186.3	
bo	25.2	131.9	24.2	129.4	21.2	128.6	21.2	128.6	21.2	128.6	43.4	119.3	43.4	119.3	
bp	24.4	141.7	38.0	144.3	46.8	139.1	60.8	150.0	71.8	178.9	71.8	178.9	74.5	179.9	
bq	*	*	*	*	*	*	*	*	*	*	*	*	209.8	285.8	
br	7.9	265.6	7.9	265.6	7.9	265.6	7.9	265.6	7.9	265.6	24.7	289.4	25.9	290.3	
bs	7.9	291.1	6.9	293.7	*	*	*	*	*	*	*	*	*	*	
bt	24.5	332.4	24.5	332.4	24.5	332.4	36.6	342.2	79.5	354.7	80.2	353.6	86.7	362.1	
bu	13.6	503.2	50.0	564.1	47.9	565.7	50.0	564.1	47.9	565.7	52.2	568.8	56.7	571.8	
bv	7.4	457.9	6.1	460.7	6.1	460.7	9.1	462.8	6.5	465.7	*	*	*	*	
bw	56.9	474.8	56.9	474.8	56.9	474.8	74.1	490.3	149.3	523.5	151.4	522.0	156.3	513.8	
bx	*	*	*	*	*	*	*	*	*	*	*	*	162.1	407.8	

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
by	130.6	604.8	130.6	604.8	130.6	604.8	130.6	604.8	130.6	604.8	130.6	604.8	130.6	604.8
bz	253.5	526.3	255.2	528.3	255.2	528.3	246.4	531.8	246.1	535.9	243.5	538.9	246.5	546.9
ca	*	*	*	*	*	*	*	*	*	*	*	*	4.0	571.0
cc	167.4	601.6	166.9	622.6	163.4	621.6	169.0	612.6	179.1	618.6	175.3	611.6	178.7	612.3
ce	442.5	753.8	442.5	753.8	444.5	752.2	438.7	751.9	444.5	752.2	440.8	751.9	440.8	751.9
cf	333.0	765.9	334.4	770.8	336.8	769.6	336.8	769.6	336.8	769.6	350.0	734.9	336.8	769.6
cg	334.0	759.6	345.9	764.0	345.9	764.0	345.9	764.0	354.8	779.5	360.1	785.1	360.1	785.1
ci	322.7	762.0	322.7	762.0	320.2	762.9	320.2	762.9	320.2	762.9	318.7	736.1	318.7	736.1
cm	36.9	689.2	36.9	689.2	36.9	689.2	36.9	689.2	36.9	689.2	65.5	687.4	65.9	690.3
cs	192.7	734.8	283.4	774.4	339.2	793.7	339.2	793.7	341.6	798.2	341.6	798.2	309.8	785.8
ct	165.9	790.3	165.9	790.3	165.9	790.3	165.9	790.3	159.0	773.1	156.9	774.8	150.0	767.3
cu	240.2	782.1	240.5	779.2	240.5	779.2	240.5	779.2	250.0	788.4	247.4	789.9	243.9	762.3
d	462.4	48.0	485.3	72.2	482.5	71.6	478.0	83.5	478.0	83.5	478.0	83.5	478.7	86.3
da	*	*	*	*	*	*	*	*	*	*	*	*	10.7	636.6
dc	*	*	*	*	*	*	*	*	*	*	*	*	420.2	715.4
dd	281.5	776.5	281.5	776.5	281.5	776.5	281.5	776.5	281.5	776.5	336.3	794.9	322.3	793.9
df	*	*	*	*	*	*	*	*	*	*	*	*	2.1	716.8
dj	*	*	*	*	*	*	*	*	*	*	*	*	31.7	788.5
dl	*	*	*	*	*	*	*	*	*	*	*	*	79.5	789.1
dm	*	*	*	*	*	*	*	*	*	*	*	*	82.3	779.3
dn	*	*	*	*	*	*	*	*	*	*	*	*	164.0	797.7
dq	*	*	*	*	*	*	*	*	*	*	*	*	141.5	766.9
dr	*	*	*	*	*	*	*	*	*	*	*	*	199.9	786.4
ds	*	*	*	*	*	*	*	*	*	*	*	*	246.4	731.8
dt	*	*	*	*	*	*	*	*	*	*	*	*	278.5	751.6
dv	*	*	*	*	*	*	*	*	*	*	*	*	235.8	761.5
dw	*	*	*	*	*	*	*	*	*	*	*	*	258.4	798.2
e	382.5	89.8	393.1	101.4	393.1	101.4	400.8	100.3	413.2	111.9	413.6	103.2	413.6	103.2
el	*	*	*	*	*	*	*	*	*	*	*	*	*	*
em	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
eo	*	*	*	*	*	*	*	*	*	*	*	*	*	*
es	*	*	*	*	*	*	*	*	*	*	*	*	*	*
et	*	*	*	*	*	*	*	*	*	*	*	*	*	*
eu	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ex	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ey	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fa	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fb	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fc	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ff	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fh	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fi	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fj	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fq	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fr	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fv	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fw	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fx	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fy	*	*	*	*	*	*	*	*	*	*	*	*	*	*
fz	*	*	*	*	*	*	*	*	*	*	*	*	*	*
g	415.5	34.8	454.6	76.5	454.6	76.5	454.9	82.5	457.3	80.8	457.5	83.8	455.0	85.4
ga	*	*	*	*	*	*	*	*	*	*	*	*	305.9	773.4
gd	*	*	*	*	*	*	*	*	*	*	*	*	321.1	746.2
ge	*	*	*	*	*	*	*	*	*	*	*	*	345.2	779.5
gg	*	*	*	*	*	*	*	*	*	*	*	*	341.8	740.8
gh	*	*	*	*	*	*	*	*	*	*	*	*	418.3	787.0
gk	*	*	*	*	*	*	*	*	*	*	*	*	455.0	85.4
gl	*	*	*	*	*	*	*	*	*	*	*	*	414.8	779.9
gm	*	*	*	*	*	*	*	*	*	*	*	*	452.1	765.7
gn	*	*	*	*	*	*	*	*	*	*	*	*	458.5	744.7
													440.3	738.7
													197.0	730.3
													371.8	678.9
													353.7	654.0
													350.0	616.7
													410.0	652.4

Annexe 3, suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
go	*	*	*	*	*	*	*	*	*	*	*	*	433.9	637.9
gr	*	*	*	*	*	*	*	*	*	*	*	*	162.4	548.0
gs	*	*	*	*	*	*	*	*	*	*	*	*	143.3	571.8
gt	*	*	*	*	*	*	*	*	*	*	*	*	297.4	609.2
gv	*	*	*	*	*	*	*	*	*	*	*	*	438.4	556.8
gx	*	*	*	*	*	*	*	*	*	*	*	*	202.6	409.2
gy	*	*	*	*	*	*	*	*	*	*	*	*	235.3	364.6
ha	*	*	*	*	*	*	*	*	*	*	*	*	310.5	413.8
hb	*	*	*	*	*	*	*	*	*	*	*	*	336.2	358.2
hc	*	*	*	*	*	*	*	*	*	*	*	*	419.3	365.8
hd	*	*	*	*	*	*	*	*	*	*	*	*	117.5	289.8
he	*	*	*	*	*	*	*	*	*	*	*	*	332.6	235.6
hf	*	*	*	*	*	*	*	*	*	*	*	*	460.7	278.3
hg	*	*	*	*	*	*	*	*	*	*	*	*	470.6	273.1
hh	*	*	*	*	*	*	*	*	*	*	*	*	112.1	188.1
hk	*	*	*	*	*	*	*	*	*	*	*	*	299.2	168.6
hl	*	*	*	*	*	*	*	*	*	*	*	*	216.3	105.4
hm	*	*	*	*	*	*	*	*	*	*	*	*	218.4	210.2
hn	*	*	*	*	*	*	*	*	*	*	*	*	330.9	177.9
hp	*	*	*	*	*	*	*	*	*	*	*	*	374.1	190.3
hq	*	*	*	*	*	*	*	*	*	*	*	*	480.7	137.2
hr	*	*	*	*	*	*	*	*	*	*	*	*	488.7	111.2
hs	*	*	*	*	*	*	*	*	*	*	*	*	263.7	94.9
ht	*	*	*	*	*	*	*	*	*	*	*	*	185.6	90.3
hu	*	*	*	*	*	*	*	*	*	*	*	*	176.5	88.4
hv	*	*	*	*	*	*	*	*	*	*	*	*	237.1	51.5
hw	*	*	*	*	*	*	*	*	*	*	*	*	174.0	57.9
hx	*	*	*	*	*	*	*	*	*	*	*	*	121.0	99.4
hy	*	*	*	*	*	*	*	*	*	*	*	*	236.3	11.6
i	299.4	35.6	302.1	35.5	306.1	35.0	323.2	56.4	322.9	53.7	322.9	53.7	322.9	53.7

Annexe 3, suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
ia	*	*	*	*	*	*	*	*	*	*	*	*	222.1	42.9
ib	*	*	*	*	*	*	*	*	*	*	*	*	251.6	41.2
ic	*	*	*	*	*	*	*	*	*	*	*	*	251.6	37.0
id	*	*	*	*	*	*	*	*	*	*	*	*	336.2	58.2
ie	*	*	*	*	*	*	*	*	*	*	*	*	335.0	53.0
if	*	*	*	*	*	*	*	*	*	*	*	*	359.2	51.9
ig	*	*	*	*	*	*	*	*	*	*	*	*	367.0	65.9
ij	*	*	*	*	*	*	*	*	*	*	*	*	363.4	42.2
ik	*	*	*	*	*	*	*	*	*	*	*	*	466.5	76.8
il	*	*	*	*	*	*	*	*	*	*	*	*	454.8	79.5
ip	*	*	*	*	*	*	*	*	*	*	*	*	481.7	87.0
iq	*	*	*	*	*	*	*	*	*	*	*	*	505.4	70.9
ir	*	*	*	*	*	*	*	*	*	*	*	*	476.6	45.1
it	*	*	*	*	*	*	*	*	*	*	*	*	403.5	3.6
iu	*	*	*	*	*	*	*	*	*	*	*	*	407.9	18.7
iv	*	*	*	*	*	*	*	*	*	*	*	*	*	*
iy	*	*	*	*	*	*	*	*	*	*	*	*	10.0	70.4
j	245.8	21.9	253.1	34.8	253.1	34.8	256.6	14.4	261.1	11.8	261.1	11.8	261.1	11.8
jd	*	*	*	*	*	*	*	*	*	*	*	*	243.3	42.9
jf	*	*	*	*	*	*	*	*	*	*	*	*	52.8	98.5
ji	*	*	*	*	*	*	*	*	*	*	*	*	120.0	32.4
lj	*	*	*	*	*	*	*	*	*	*	*	*	136.2	58.2
jm	*	*	*	*	*	*	*	*	*	*	*	*	11.3	131.0
jn	*	*	*	*	*	*	*	*	*	*	*	*	67.4	135.6
jo	*	*	*	*	*	*	*	*	*	*	*	*	32.6	182.7
jq	*	*	*	*	*	*	*	*	*	*	*	*	19.1	194.6
jr	*	*	*	*	*	*	*	*	*	*	*	*	26.8	200.6
jt	*	*	*	*	*	*	*	*	*	*	*	*	51.5	227.7
ju	*	*	*	*	*	*	*	*	*	*	*	*	51.8	248.8
jv	*	*	*	*	*	*	*	*	*	*	*	*	5.9	273.4



Annexe 3, suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
jx	*	*	*	*	*	*	*	*	*	*	*	*	12.6	251.8
jy	*	*	*	*	*	*	*	*	*	*	*	*	41.2	303.9
jz	*	*	*	*	*	*	*	*	*	*	*	*	67.0	298.8
k	*	*	*	*	*	*	*	*	*	*	*	*	324.0	229.0
kd	*	*	*	*	*	*	*	*	*	*	*	*	24.5	332.4
kg	*	*	*	*	*	*	*	*	*	*	*	*	45.0	385.4
kh	*	*	*	*	*	*	*	*	*	*	*	*	84.8	397.9
ki	*	*	*	*	*	*	*	*	*	*	*	*	100.5	401.6
kj	*	*	*	*	*	*	*	*	*	*	*	*	86.3	375.0
kl	*	*	*	*	*	*	*	*	*	*	*	*	91.3	450.1
km	*	*	*	*	*	*	*	*	*	*	*	*	103.3	486.3
ko	*	*	*	*	*	*	*	*	*	*	*	*	10.0	470.4
kp	*	*	*	*	*	*	*	*	*	*	*	*	19.4	473.7
kq	*	*	*	*	*	*	*	*	*	*	*	*	39.7	488.0
kr	*	*	*	*	*	*	*	*	*	*	*	*	35.0	453.0
ks	*	*	*	*	*	*	*	*	*	*	*	*	93.3	478.5
kt	*	*	*	*	*	*	*	*	*	*	*	*	198.3	490.2
ku	*	*	*	*	*	*	*	*	*	*	*	*	225.3	493.1
kv	*	*	*	*	*	*	*	*	*	*	*	*	479.0	499.4
kw	*	*	*	*	*	*	*	*	*	*	*	*	484.1	528.9
kx	*	*	*	*	*	*	*	*	*	*	*	*	485.9	538.1
ky	*	*	*	*	*	*	*	*	*	*	*	*	42.3	557.2
kz	*	*	*	*	*	*	*	*	*	*	*	*	28.5	608.1
la	*	*	*	*	*	*	*	*	*	*	*	*	11.3	611.2
lc	*	*	*	*	*	*	*	*	*	*	*	*	22.1	642.9
ld	*	*	*	*	*	*	*	*	*	*	*	*	4.6	653.1
lf	*	*	*	*	*	*	*	*	*	*	*	*	44.7	648.6
lg	*	*	*	*	*	*	*	*	*	*	*	*	31.4	633.2
lh	*	*	*	*	*	*	*	*	*	*	*	*	43.5	568.6
li	*	*	*	*	*	*	*	*	*	*	*	*	143.0	627.6

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
lj	*	*	*	*	*	*	*	*	*	*	*	*	19.8	681.4
lk	*	*	*	*	*	*	*	*	*	*	*	*	14.8	679.9
m	463.9	146.0	453.7	154.0	441.7	163.7	441.7	163.7	441.7	163.7	443.9	162.3	444.1	159.0
n	451.6	141.2	450.0	143.1	486.9	135.8	494.7	168.4	494.7	168.4	496.5	165.9	496.5	165.9
o	*	*	477.1	191.1	477.1	191.1	504.2	181.2	504.2	181.2	504.2	181.2	504.2	181.2
p	414.4	124.0	413.6	103.2	416.3	105.4	435.3	103.4	435.6	100.5	429.9	99.8	429.9	99.8
pb	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pc	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pe	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pi	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pj	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pk	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pl	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pm	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pn	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pq	*	*	*	*	*	*	*	*	*	*	*	*	*	*
pr	*	*	*	*	*	*	*	*	*	*	*	*	*	*
q	415.9	128.9	427.3	130.1	424.2	129.4	436.8	118.9	446.8	115.3	446.8	115.3	446.8	115.3
qc	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qe	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qf	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qj	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qk	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ql	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qm	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qn	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qo	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qq	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Annexe 3, suite...

Moule	1 juin 1989		8 juin 1989		15 juin 1989		22 juin 1989		29 juin 1989		6 juillet 1989		13 juillet 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
qr	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qs	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qt	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qx	*	*	*	*	*	*	*	*	*	*	*	*	*	*
qz	*	*	*	*	*	*	*	*	*	*	*	*	*	*
r	381.3	147.2	400.7	168.6	398.4	176.2	398.4	176.2	416.7	192.5	416.7	192.5	415.9	195.2
rb	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rf	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rg	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rh	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ri	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rk	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rl	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rm	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ro	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rp	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rq	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rs	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rt	*	*	*	*	*	*	*	*	*	*	*	*	*	*
rx	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ry	*	*	*	*	*	*	*	*	*	*	*	*	*	*
s	478.7	186.3	489.7	193.4	489.7	193.4	489.8	203.6	489.8	203.6	489.8	203.6	489.8	203.6
t	467.4	182.7	461.1	161.0	460.2	162.0	484.8	151.1	484.8	151.1	484.8	151.1	484.8	151.1
u	484.8	187.6	487.0	185.4	484.8	187.6	484.2	220.9	484.2	220.9	484.2	220.9	504.2	232.8
v	355.8	202.7	358.6	201.1	357.2	201.9	351.5	210.5	356.2	211.1	359.6	215.0	359.6	215.0
w	256.5	168.6	256.5	168.6	256.5	168.6	256.5	168.6	282.9	115.6	295.2	109.1	302.6	109.2
x	232.9	154.3	232.9	154.3	232.9	154.3	232.9	154.3	232.9	154.3	232.3	157.6	232.3	157.6
y	439.2	250.0	441.0	250.2	439.2	250.0	440.2	249.2	454.3	267.2	452.1	265.7	465.5	287.4
z	483.0	302.7	483.0	302.7	489.8	303.6	493.4	303.9	498.8	307.5	498.8	307.5	498.8	307.5

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
10	280.7	665.8	259.8	658.7	257.7	657.2	257.5	653.8	259.5	655.4	259.5	655.4	265.0	653.0
100	63.4	692.0	68.3	688.5	65.5	687.4	68.3	688.5	68.3	688.5	68.3	688.5	67.1	689.4
101	124.7	795.9	121.6	796.7	124.7	795.9	127.3	797.9	124.2	798.7	124.2	798.7	124.2	798.7
102	46.9	634.8	46.9	634.8	46.9	634.8	50.0	633.2	50.0	630.4	46.9	634.8	50.0	630.4
1021	16.3	648.1	20.0	632.4	19.0	630.0	21.1	630.4	21.1	630.4	19.0	630.0	18.4	625.7
104	95.8	763.4	96.7	760.9	83.7	763.3	98.1	763.5	95.8	763.4	95.2	763.3	96.7	760.9
105	81.6	710.2	78.2	709.6	81.6	710.2	81.6	710.2	78.2	709.6	81.6	710.2	81.6	710.2
106	66.7	631.3	74.8	631.9	77.9	631.0	77.9	625.1	74.6	627.0	77.9	625.1	81.1	623.0
109	3.5	678.7	-1.6	676.2	0.4	678.7	-1.6	676.2	-1.6	676.2	-1.6	676.2	-1.6	676.2
11	8.5	208.9	8.5	208.9	9.7	226.2	9.7	226.2	11.3	223.9	8.2	221.6	9.1	223.7
110	101.6	776.2	101.6	776.2	101.6	776.2	104.9	776.0	101.6	776.2	104.9	776.0	101.6	776.2
111	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1118	48.7	786.2	45.1	782.5	27.5	783.8	39.9	785.1	37.6	783.4	37.3	786.3	33.1	779.8
113	493.9	569.6	493.9	569.6	493.9	569.6	493.9	569.6	494.7	568.4	496.0	571.0	494.7	568.4
1138	463.9	546.0	463.9	546.0	473.2	574.0	463.5	572.6	463.5	572.6	458.3	563.7	453.9	557.4
114	77.1	691.1	72.7	697.9	75.8	698.7	73.2	700.6	75.8	698.7	75.8	698.7	73.2	700.6
115	127.8	695.1	127.8	695.1	124.2	698.7	127.3	697.9	124.2	698.7	124.2	698.7	126.8	700.6
1164	158.6	101.1	161.4	99.4	164.0	97.7	161.4	99.4	161.4	99.4	161.4	99.4	161.4	99.4
1169	335.3	664.6	325.2	661.0	325.2	661.0	325.2	661.0	325.2	661.0	325.2	661.0	325.2	661.0
1172	179.8	570.8	185.3	572.2	185.3	572.2	185.3	572.2	185.3	572.2	188.3	538.9	188.3	538.9
118	475.8	535.8	473.7	534.3	472.7	530.1	472.7	530.1	469.4	537.3	472.7	530.1	467.4	535.6
1184	325.3	638.1	325.2	631.9	331.4	509.9	389.8	503.6	401.9	463.5	412.1	288.1	348.5	232.6
119	484.1	519.8	489.1	529.8	487.2	527.6	487.2	527.6	489.5	528.6	489.5	528.6	486.8	528.9
12	419.8	281.4	419.8	281.4	422.7	280.7	419.8	281.4	419.8	281.4	419.8	281.4	422.7	280.7
120	441.6	498.2	436.9	489.2	432.2	485.6	426.3	482.3	427.6	481.8	425.5	479.9	412.2	464.9
1214	354.5	632.5	303.7	611.7	297.4	609.2	300.2	611.8	298.4	606.7	301.1	609.2	308.5	608.9
122	48.2	752.3	46.1	757.4	97.6	757.4	97.6	757.4	97.6	757.4	34.0	759.6	31.7	760.8
123	58.6	701.1	61.6	702.3	61.6	702.3	61.6	702.3	58.8	703.9	61.9	705.1	58.8	703.9
1246	323.8	450.6	341.3	446.6	344.1	459.0	343.9	462.3	343.9	462.3	343.9	462.3	342.0	460.5
1254	217.0	142.4	216.3	142.7	192.6	147.7	193.8	145.3	190.7	144.8	193.8	145.3	193.8	145.3

Annexe 3, suite...

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
126	157.5	483.8	166.5	476.8	163.2	469.6	160.8	468.3	162.8	466.5	162.4	463.3	164.2	461.5
1269	133.7	493.1	133.7	493.1	129.9	483.7	130.4	480.8	130.4	480.8	130.4	480.8	111.8	480.4
127	378.0	583.5	373.2	574.0	367.5	568.9	370.5	567.5	359.5	555.4	359.5	555.4	359.5	555.4
1270	205.5	783.6	204.2	781.2	204.2	781.2	204.2	781.2	203.4	786.3	201.2	791.4	201.2	791.4
1273	115.9	361.5	108.4	350.1	108.1	337.2	115.5	334.8	98.8	333.0	105.0	330.1	105.1	319.3
129	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1297	431.3	452.3	424.5	451.6	429.8	450.3	438.4	456.8	451.8	452.3	453.7	454.0	453.7	454.0
13	377.0	404.2	373.7	403.4	373.7	403.4	371.0	405.3	371.0	405.3	371.0	405.3	373.7	403.4
130	144.9	744.9	144.7	748.6	144.9	744.9	143.0	746.7	144.9	744.9	144.9	744.9	144.5	752.2
131	79.9	649.4	79.9	649.4	82.4	650.3	81.3	647.2	81.3	647.2	82.4	650.3	80.3	649.6
132	33.5	776.8	31.4	775.0	31.4	775.0	31.9	772.0	32.5	768.9	31.9	772.0	31.9	772.0
135	56.1	708.3	56.1	708.3	53.1	709.8	53.1	709.8	53.1	709.8	56.1	708.3	53.1	709.8
136	97.2	673.6	108.9	673.1	107.1	668.2	107.1	668.2	104.0	653.2	104.0	653.2	104.0	653.2
1365	321.3	412.3	315.9	419.8	314.9	410.8	314.9	410.8	314.9	410.8	312.1	408.6	310.2	403.6
137	33.0	798.8	33.0	798.8	105.7	743.1	105.7	743.1	105.7	743.1	105.7	743.1	4.0	740.4
138	11.8	772.7	11.8	772.7	11.8	772.7	11.8	772.7	13.7	775.0	13.7	775.0	22.7	780.7
139	79.9	717.7	84.4	708.1	84.4	708.1	87.2	705.9	89.8	703.6	88.1	695.8	91.5	698.7
14	52.3	175.0	50.0	173.5	52.3	175.0	50.0	173.5	50.0	173.5	50.0	173.5	54.5	173.4
140	333.9	37.9	333.9	37.9	333.9	37.9	333.9	37.9	338.5	33.1	338.1	29.6	338.1	29.6
1407	436.9	189.2	419.0	184.2	419.0	184.2	419.0	184.2	422.7	180.7	428.2	178.9	428.2	178.9
141	363.9	275.7	365.0	274.8	365.0	274.8	365.6	270.8	369.5	267.0	369.5	267.0	369.5	267.0
142	229.5	423.5	224.3	425.9	222.6	422.4	222.6	422.4	225.3	425.0	220.3	426.0	218.9	423.0
143	158.0	560.5	154.3	567.2	152.1	565.7	154.3	567.2	152.1	565.7	152.1	565.7	150.0	567.3
1438	208.7	250.1	202.0	248.2	200.8	248.3	199.5	250.8	187.9	259.8	192.3	263.0	191.1	260.3
144	276.3	317.0	276.3	317.0	275.8	314.3	275.8	314.3	269.4	315.4	262.6	313.4	262.6	313.4
145	388.2	598.4	386.1	596.8	391.8	596.2	388.1	595.8	391.8	596.2	389.4	593.4	382.5	589.8
1451	468.3	788.5	469.0	784.7	467.8	785.6	467.8	785.6	467.8	785.6	467.8	785.6	467.8	785.6
1459	496.7	160.9	495.2	163.3	486.1	167.2	486.1	167.2	482.5	171.6	480.6	173.7	480.6	173.7
146	467.2	613.7	462.4	610.6	462.4	610.6	455.8	602.7	458.8	603.9	455.7	599.8	452.8	598.5
147	*	*	*	*	*	*	*	*	*	*	*	*	*	*

suite...

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
1472	487.1	138.5	495.2	109.1	495.2	109.1	497.9	115.1	497.9	115.1	495.2	109.1	495.2	109.1
148	243.9	562.3	245.9	564.0	245.9	564.0	243.9	562.3	245.9	564.0	243.9	562.3	245.9	564.0
149	360.5	665.2	350.0	664.1	348.0	662.4	350.0	664.1	350.0	664.1	348.0	662.4	345.9	664.0
150	332.5	668.9	334.4	670.8	332.5	668.9	332.5	668.9	332.5	668.9	330.5	667.0	333.1	679.8
152	119.5	520.3	115.8	520.9	118.9	523.0	115.8	520.9	118.9	523.0	118.9	523.0	118.9	523.0
153	120.2	462.9	104.2	463.4	102.7	460.9	102.7	460.9	102.7	460.9	102.7	460.9	110.5	462.6
155	89.2	220.1	89.2	220.1	89.5	228.6	88.6	222.7	85.5	226.2	95.2	227.5	92.7	227.0
157	262.1	480.4	200.9	481.3	196.0	471.0	194.1	473.4	189.5	462.6	186.7	462.1	178.0	456.9
158	404.9	772.2	407.0	770.8	407.0	770.8	405.9	773.4	405.9	773.4	399.7	773.7	387.2	770.0
159	395.1	76.0	402.4	81.2	400.8	81.3	399.1	81.3	396.7	86.3	395.5	88.8	395.5	88.8
16	228.6	138.9	226.5	140.3	226.5	140.3	235.2	140.1	233.2	141.7	236.6	142.2	243.3	142.9
160	399.7	73.7	405.9	73.4	401.6	76.2	398.4	76.2	396.5	73.6	396.5	73.6	396.5	73.6
161	246.5	426.3	254.5	432.5	253.5	429.0	260.6	432.1	262.4	434.1	267.4	435.6	272.6	436.6
162	250.0	619.5	246.5	626.3	246.5	626.3	248.5	627.7	239.6	626.0	236.3	624.3	238.1	629.6
163	379.7	402.1	383.3	392.5	375.8	414.3	372.8	416.2	376.3	417.0	376.3	417.0	373.3	419.0
164	453.2	539.1	434.5	556.3	447.1	556.6	448.0	562.4	450.0	560.8	450.0	560.8	450.0	560.8
165	222.0	556.8	222.0	556.8	221.9	565.0	221.9	565.0	219.4	573.7	217.7	579.3	229.9	583.7
166	186.9	435.8	197.7	427.8	198.4	425.3	194.4	430.0	194.4	430.0	189.4	426.6	195.2	427.5
167	229.9	599.8	236.0	597.7	229.9	599.8	232.2	604.4	231.8	607.1	235.0	606.1	226.4	619.8
168	236.6	542.2	235.5	549.5	235.5	549.5	237.6	548.0	237.6	548.0	235.5	549.5	238.8	553.5
169	291.3	555.2	292.8	555.4	293.0	552.9	310.1	552.4	308.7	555.2	311.3	549.5	312.6	551.8
17	175.6	341.7	174.4	343.9	174.4	343.9	177.9	342.9	177.9	342.9	165.0	337.9	174.4	343.9
170	219.5	457.8	211.9	433.5	209.9	431.5	206.4	424.6	201.6	425.3	188.7	423.9	194.0	422.0
171	416.5	553.4	369.5	567.0	355.9	559.0	354.0	560.7	354.0	560.7	354.0	560.7	334.4	570.8
172	271.2	476.0	275.9	475.0	278.6	475.8	279.4	478.6	279.4	478.6	279.4	478.6	279.4	478.6
173	260.5	365.2	246.1	357.4	246.3	354.0	242.8	350.3	222.9	353.7	222.9	353.7	222.9	353.7
174	336.6	442.2	336.7	454.9	336.7	454.9	324.5	464.1	321.9	465.0	321.9	465.0	315.6	469.4
175	128.3	92.3	124.2	98.7	124.2	98.7	124.2	98.7	124.2	98.7	126.8	100.6	125.5	99.7
176	50.0	385.5	47.5	387.0	48.7	386.2	50.0	385.5	45.0	385.4	45.0	385.4	47.5	387.0
177	154.6	376.5	156.3	365.5	154.1	364.0	154.0	360.7	154.0	360.7	154.0	360.7	146.0	360.7

Annexe 3, suite...

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
178	229.5	564.7	241.2	603.9	227.2	616.2	217.7	612.9	204.8	609.1	195.7	604.1	194.0	596.3
179	333.9	637.9	334.8	637.0	333.9	637.9	348.4	637.0	346.9	634.8	382.4	650.3	378.1	665.0
18	271.7	632.6	271.7	632.6	329.4	686.6	341.4	701.1	340.0	720.5	340.2	717.8	340.2	717.8
180	91.2	244.9	88.6	244.3	91.2	244.9	91.2	244.9	91.2	244.9	91.2	244.9	91.2	244.9
181	36.8	118.9	37.1	116.1	40.2	117.8	37.1	116.1	36.8	118.9	33.7	117.2	36.8	118.9
182	85.5	126.2	85.5	126.2	84.8	123.5	85.5	126.2	85.5	126.2	84.8	123.5	88.7	123.9
183	56.5	68.6	58.8	70.0	58.8	70.0	58.8	70.0	61.1	71.4	61.1	71.4	61.1	71.4
184	217.1	761.2	217.1	761.2	217.1	761.2	217.1	761.2	217.1	761.2	217.1	761.2	217.1	761.2
186	163.4	221.6	175.8	235.8	168.5	236.1	168.5	236.1	168.5	236.1	168.5	236.1	175.6	241.7
187	159.0	306.7	159.2	309.5	159.2	309.5	155.8	302.7	155.9	305.5	155.9	305.5	155.9	305.5
188	78.4	96.7	79.0	99.4	79.0	99.4	75.8	98.7	75.8	98.7	75.8	98.7	75.8	98.7
19	417.0	702.7	393.0	713.5	390.3	716.4	386.5	716.1	385.1	710.8	385.1	710.8	379.9	717.7
191	58.5	144.7	60.1	142.6	60.1	142.6	60.1	142.6	60.1	142.6	58.5	144.7	57.0	146.7
192	73.5	140.3	69.5	146.8	69.5	146.8	70.9	144.7	70.9	144.7	68.8	143.3	70.2	145.8
193	87.2	257.0	87.2	257.0	89.8	257.5	88.7	249.5	90.0	247.2	90.0	247.2	90.0	247.2
194	80.5	120.3	83.5	118.2	87.2	130.4	89.4	126.6	86.1	128.8	85.5	126.2	83.9	127.3
195	103.7	48.1	112.7	46.6	114.2	46.1	112.7	46.6	115.8	45.6	115.8	45.6	115.8	45.6
197	92.6	47.7	94.0	55.6	92.6	57.9	94.0	55.6	94.0	55.6	92.6	57.9	87.5	61.0
198	355.7	799.8	358.8	803.9	358.8	803.9	358.8	803.9	358.8	803.9	358.8	803.9	358.8	803.9
199	5.6	30.0	5.6	30.0	5.6	30.0	5.6	30.0	5.6	30.0	5.6	30.0	5.6	30.0
2	321.4	375.8	326.1	377.0	326.1	377.0	326.1	377.0	328.2	378.9	321.0	399.4	326.8	400.6
20	193.4	526.8	186.1	528.8	190.3	534.2	186.1	528.8	186.1	528.8	189.3	536.6	184.5	534.8
200	38.9	596.6	31.9	648.9	31.9	648.9	31.9	648.9	13.9	643.6	10.3	641.9	11.4	644.3
201	68.1	448.9	77.6	448.4	77.6	448.4	78.0	437.1	76.8	439.4	78.0	437.1	76.9	433.4
202	366.5	651.0	360.8	650.0	359.2	651.9	359.2	651.9	357.2	650.3	357.2	650.3	357.2	650.3
203	*	*	*	*	*	*	*	*	*	*	*	*	*	*
204	483.5	218.2	473.7	234.3	475.8	235.8	476.8	239.4	474.7	238.1	474.7	238.1	474.7	238.1
205	44.5	397.0	44.6	394.1	44.6	394.1	44.6	394.1	44.7	391.2	44.7	391.2	44.7	391.2
206	161.4	399.4	159.8	382.1	142.9	377.8	142.5	383.8	142.4	386.7	136.6	392.0	145.1	382.5
207	455.8	502.7	455.4	494.1	436.6	481.0	429.9	483.7	432.6	482.7	432.6	482.7	432.6	482.7

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
208	72.6	236.6	72.6	236.6	72.6	236.6	72.6	236.6	70.5	235.0	72.6	236.6	67.6	228.0
209	287.2	170.0	287.2	170.0	291.8	175.8	291.8	175.8	291.8	175.8	295.1	176.0	301.6	176.2
21	369.7	718.1	369.0	717.4	366.3	717.2	366.3	717.2	366.3	717.2	366.3	717.2	366.6	719.9
210	423.4	77.8	430.4	80.8	433.1	79.8	430.4	80.8	430.4	80.8	473.2	54.8	436.9	89.2
211	485.6	159.2	485.6	159.2	485.6	159.2	485.6	159.2	485.6	159.2	485.6	159.2	485.6	159.2
212	170.9	526.2	142.9	530.3	121.1	546.2	115.8	545.6	114.0	554.1	112.1	559.8	112.1	559.8
213	291.8	537.2	291.9	537.2	272.6	536.6	266.7	531.3	271.7	531.6	266.7	531.3	269.7	530.8
214	66.0	414.4	66.3	417.2	66.0	414.4	66.0	414.4	65.6	411.7	65.3	408.9	61.9	405.1
215	372.5	151.5	381.0	152.5	383.6	150.8	395.2	163.3	395.8	163.4	395.8	163.4	394.4	165.8
216	188.8	290.8	189.7	293.4	189.7	293.4	184.8	297.9	184.8	297.9	187.3	295.7	182.3	300.0
217	191.9	429.4	178.0	437.1	179.0	434.8	175.6	441.7	173.2	454.8	173.2	454.8	173.2	454.8
218	16.9	482.1	16.9	482.1	16.0	484.9	16.0	484.9	16.0	484.9	14.8	479.9	16.9	482.1
219	343.5	616.6	326.0	618.2	314.9	610.8	300.1	594.0	300.1	594.0	294.2	591.3	283.3	589.9
22	32.6	535.6	38.0	544.3	37.6	548.0	36.4	531.7	39.3	531.4	36.4	531.7	35.2	529.2
220	134.5	156.3	133.5	162.7	136.8	169.6	134.9	167.8	136.8	169.6	134.9	167.8	134.9	167.8
221	43.8	311.1	46.9	312.6	43.8	311.1	46.9	312.6	46.9	312.6	46.9	312.6	46.9	312.6
222	293.5	609.0	300.5	601.6	300.5	601.6	303.2	601.5	304.8	609.1	304.8	609.1	304.8	609.1
223	261.9	529.6	243.5	516.6	213.1	505.9	214.5	500.6	211.0	501.0	211.0	501.0	211.0	501.0
224	97.6	443.1	98.0	448.2	98.0	448.2	98.0	448.2	98.0	448.2	99.2	445.7	98.0	448.2
225	13.5	493.0	13.5	493.0	13.5	493.0	13.5	493.0	13.5	493.0	13.5	493.0	13.5	493.0
226	66.6	196.0	63.7	194.9	66.6	196.0	66.6	196.0	63.7	194.9	63.7	194.9	66.3	193.1
227	140.8	209.5	140.4	215.0	137.1	216.1	137.1	216.1	139.8	223.3	150.0	230.4	154.4	227.6
228	212.7	177.7	219.8	181.4	223.4	180.5	218.5	176.5	215.7	177.2	212.7	177.7	211.6	175.3
23	52.2	568.8	52.2	568.8	50.0	570.4	50.0	570.4	50.0	570.4	48.0	559.2	48.0	559.2
230	70.1	183.7	70.1	183.7	72.9	184.7	72.9	184.7	69.6	180.8	70.1	183.7	70.1	183.7
231	133.7	193.1	135.3	203.4	135.3	203.4	138.4	202.3	140.8	209.5	140.8	209.5	140.6	212.3
232	90.0	347.2	91.3	350.1	91.3	350.1	97.6	350.7	92.6	347.7	91.3	350.1	90.0	352.4
233	134.9	684.5	127.5	651.5	127.5	651.5	129.8	650.3	129.8	650.3	126.1	649.4	127.5	651.5
234	106.6	447.8	107.8	445.0	106.6	447.8	130.5	446.8	128.3	448.2	130.5	446.8	130.5	446.8
235	46.6	443.1	46.6	443.1	46.6	443.1	48.3	445.0	46.6	443.1	51.7	445.0	51.7	445.0



Annexe 3, suite...

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
236	74.3	506.1	74.3	506.1	74.3	506.1	74.3	506.1	74.3	506.1	74.3	506.1	74.3	506.1
237	48.1	255.8	48.2	248.8	47.0	230.2	45.8	221.9	40.0	220.5	40.0	220.5	37.1	216.1
238	7.7	383.5	12.1	388.1	11.2	390.8	8.9	388.5	11.2	390.8	12.1	388.1	11.2	390.8
239	6.1	460.7	8.9	460.3	8.9	460.3	8.9	460.3	8.9	460.3	8.9	460.3	8.9	460.3
24	101.1	609.2	106.0	616.7	106.0	616.7	105.1	619.3	106.0	616.7	101.8	616.8	101.8	616.8
240	340.7	134.5	345.6	127.6	345.6	127.6	337.5	121.4	336.7	122.8	329.9	120.8	334.7	121.1
241	252.4	78.0	254.6	76.5	254.6	76.5	253.5	77.3	252.4	78.0	254.6	76.5	254.8	79.5
242	89.2	83.1	89.2	83.1	88.2	80.4	87.3	77.7	87.3	77.7	87.3	77.7	84.3	77.2
244	332.6	635.6	310.9	629.8	308.9	631.8	308.9	631.8	308.1	629.4	308.1	629.4	310.5	628.6
245	163.9	127.1	146.7	120.8	147.2	124.9	150.0	111.2	144.1	105.5	137.9	107.8	131.4	109.9
246	260.1	585.1	260.1	585.1	259.8	597.4	258.4	598.2	258.4	598.2	258.4	598.2	264.0	597.7
247	82.3	279.3	82.3	279.3	90.2	285.8	98.5	299.0	97.9	299.0	98.5	299.0	101.5	299.0
248	173.1	346.0	167.4	345.4	165.4	343.9	167.4	345.4	165.4	343.9	161.3	339.5	166.8	341.7
249	215.7	77.2	221.4	75.8	218.5	76.5	223.8	75.1	220.2	70.8	222.9	70.0	225.5	69.1
250	200.8	481.3	195.3	476.1	195.3	476.1	196.5	478.7	193.8	478.5	198.4	476.2	192.2	475.8
252	33.0	398.8	33.4	396.0	33.0	398.8	33.0	398.8	30.8	394.1	30.8	394.1	30.4	397.0
253	79.8	270.8	79.8	270.8	80.2	281.4	80.2	281.4	80.2	281.4	80.2	281.4	83.1	282.1
254	191.9	603.8	187.3	595.7	187.3	595.7	187.0	585.4	184.0	584.9	183.1	582.1	157.6	586.7
256	196.5	445.6	196.5	445.6	199.2	445.7	199.2	445.7	193.4	447.8	198.6	440.6	200.3	443.2
257	50.0	105.6	50.0	114.0	53.2	115.3	50.0	114.0	50.0	116.7	50.0	116.7	53.2	115.3
258	301.2	258.4	341.8	295.4	300.5	250.8	294.0	242.8	296.9	243.1	296.9	243.1	296.9	243.1
259	188.7	311.2	188.7	311.2	188.7	311.2	187.9	308.6	188.7	311.2	191.5	308.9	191.5	308.9
260	95.3	714.2	86.9	735.8	37.3	730.0	91.9	729.4	94.4	730.0	89.5	728.6	91.9	729.4
262	123.0	104.2	126.3	103.4	126.3	103.4	126.3	103.4	126.3	103.4	123.0	104.2	124.4	105.2
264	198.6	740.6	199.6	738.1	199.6	738.1	202.4	738.0	202.4	738.0	201.4	740.6	201.4	740.6
265	202.4	750.7	204.9	745.5	202.0	745.7	204.9	745.5	206.0	742.8	200.8	745.7	200.3	743.2
267	141.4	801.1	141.4	801.1	141.4	801.1	141.4	801.1	141.4	801.1	141.4	801.1	141.4	801.1
268	89.2	183.1	89.2	183.1	87.9	188.1	90.2	185.8	90.2	185.8	90.2	185.8	89.2	183.1
269	307.3	734.8	314.9	732.3	314.5	732.5	314.5	732.5	314.5	732.5	313.6	730.1	314.5	732.5
27	53.4	643.1	48.3	645.0	48.3	645.0	50.0	646.9	50.0	646.9	53.5	646.9	50.0	644.0

Annexe 3, suite...

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
270	79.8	462.9	92.3	463.0	94.7	468.4	91.8	468.1	104.9	476.0	107.8	475.8		
272	181.3	747.2	180.2	744.0	180.2	744.0	181.4	741.7	179.1	740.6	180.8	742.9		
273	236.4	731.7	235.2	729.2	235.3	735.2	236.4	731.7	237.6	734.1	237.6	734.1		
274	84.8	697.9	84.8	697.9	84.8	697.9	84.8	697.9	84.8	697.9	81.6	697.3		
275	270.6	786.6	267.8	785.6	264.0	797.7	261.4	799.4	261.1	796.6	255.8	802.7		
276	246.1	557.4	244.1	559.0	244.1	559.0	244.1	559.0	244.1	559.0	247.9	565.7		
277	50.0	539.1	50.0	539.1	76.6	545.1	76.6	545.1	77.3	562.0	78.9	559.9		
278	381.6	725.7	381.9	717.8	370.1	720.8	370.1	720.8	370.1	720.8	366.6	719.9		
279	183.7	448.1	184.1	461.5	186.7	462.1	188.3	459.8	188.9	467.7	187.8	464.9		
280	450.0	443.1	450.0	443.1	445.6	447.8	443.0	446.7	443.0	446.7	439.9	442.6		
282	36.5	418.0	36.3	424.3	39.6	426.0	36.3	424.3	36.3	424.3	40.0	420.5		
283	316.5	553.4	320.8	550.5	317.6	550.3	318.9	549.9	316.3	548.1	318.7	547.2		
284	84.5	556.3	84.9	545.8	84.9	545.8	84.9	545.8	83.7	548.1	84.9	545.8		
285	114.5	448.7	107.1	440.0	109.0	434.4	113.6	430.1	107.0	432.3	102.3	430.4		
288	302.3	168.5	311.8	172.7	314.7	172.2	310.8	175.4	305.9	173.4	305.9	173.4		
290	152.9	104.2	150.0	100.0	150.0	100.0	150.0	100.0	147.2	98.5	150.0	100.0		
292	136.7	104.2	144.3	99.8	144.3	99.8	142.2	89.6	142.2	89.6	142.2	89.6		
293	228.3	17.0	228.3	17.0	228.3	17.0	232.2	28.8	234.0	26.6	234.0	26.6		
294	229.8	50.3	227.5	51.5	224.7	47.3	226.9	46.0	226.9	46.0	231.2	40.1		
295	370.0	70.1	365.6	70.8	369.1	71.0	367.8	70.5	367.5	68.9	367.5	68.9		
297	27.6	560.0	27.6	560.0	27.6	560.0	30.6	555.6	30.6	555.6	31.3	552.3		
298	131.7	88.5	131.7	88.5	131.7	88.5	138.2	77.4	138.2	77.4	138.2	77.4		
299	203.7	111.7	205.7	106.5	205.4	106.5	208.1	103.8	202.1	106.7	209.2	106.3		
300	374.8	408.9	374.8	408.9	374.8	408.9	374.8	408.9	374.8	408.9	374.8	408.9		
300	31.4	433.2	27.4	436.6	28.3	431.6	27.9	434.3	28.3	432.6	21.3	412.3		
302	409.7	26.2	412.1	25.2	412.1	25.2	412.1	25.2	409.7	26.2	409.1	23.7		
303	444.6	94.1	444.6	94.1	442.9	99.0	444.3	99.8	442.9	99.0	444.3	99.8		
304	456.5	38.9	457.2	37.9	440.5	55.4	456.5	38.9	456.5	38.9	456.7	42.9		
305	391.2	265.4	388.3	259.8	385.6	259.2	386.4	256.8	383.2	255.9	388.2	254.6		
307	495.5	83.7	497.6	81.2	494.4	81.1	494.4	81.1	494.4	81.1	494.4	81.1		

## Annexe 3, suite...

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
308	418.8	3.2	418.8	3.2	417.5	3.1	418.8	3.2	418.8	3.2	418.8	3.2	418.8	3.2
309	458.0	92.5	463.4	92.0	474.1	90.3	480.9	94.6	480.9	94.6	483.3	92.5	483.3	92.5
31	142.4	586.7	139.7	588.0	136.9	589.2	161.8	577.4	161.8	577.4	159.3	576.2	163.9	575.7
310	428.4	56.8	428.4	56.8	430.0	58.8	430.0	58.8	430.0	58.8	429.4	62.0	431.7	60.8
311	479.5	189.1	*	*	*	*	*	*	*	*	*	*	*	*
312	431.4	175.0	434.0	173.8	434.0	173.8	433.5	176.8	436.1	175.7	436.1	175.7	450.0	185.5
313	495.3	76.1	499.0	71.1	496.9	69.8	499.0	71.1	499.0	71.1	499.0	71.1	499.0	71.1
314	447.2	24.9	447.2	24.9	440.4	4.0	*	*	*	*	*	*	*	*
317	499.7	55.9	498.2	53.3	491.3	50.1	491.3	50.1	491.3	50.1	489.7	41.9	486.9	35.8
318	83.7	388.7	84.0	384.9	84.0	384.9	86.1	385.2	81.0	384.2	81.7	387.0	81.7	387.0
32	56.5	716.6	56.5	716.6	59.8	717.8	59.8	717.8	60.0	720.5	56.8	724.8	56.8	724.8
320	355.0	59.9	359.8	58.7	359.8	58.7	361.6	56.8	361.6	56.8	361.6	56.8	361.6	56.8
322	263.4	42.2	265.4	43.9	266.8	41.7	266.8	41.7	261.5	33.1	264.2	36.1	261.1	36.5
323	*	*	*	*	*	*	*	*	*	*	*	*	*	*
324	308.7	250.1	300.3	261.0	296.1	268.5	296.1	268.5	296.1	268.5	296.1	268.5	286.9	277.6
326	454.5	632.5	454.5	632.5	452.7	618.6	450.0	616.7	456.1	608.3	456.1	608.3	456.1	608.3
327	290.6	65.4	293.5	65.7	293.5	65.7	295.8	63.4	292.7	63.1	292.7	63.1	295.8	63.4
328	501.6	322.8	498.4	325.3	498.4	325.3	498.4	325.3	498.4	325.3	498.4	325.3	498.4	325.3
330	293.4	124.5	297.9	116.8	297.9	116.8	296.3	125.1	296.3	125.1	296.3	125.1	296.3	125.1
331	189.5	62.6	189.5	62.6	189.5	62.6	188.3	59.8	191.1	60.3	191.1	60.3	191.1	60.3
336	391.2	93.6	383.3	92.5	390.6	91.0	390.6	91.0	389.4	93.4	387.0	90.5	387.0	90.5
337	147.8	71.9	122.3	62.2	122.3	62.2	129.4	62.0	127.6	60.0	127.6	60.0	129.4	62.0
338	417.5	71.6	421.9	65.0	419.3	65.8	417.6	63.7	417.6	63.7	417.6	63.7	417.6	63.7
34	335.3	664.6	335.3	664.6	337.6	663.3	337.6	663.3	335.3	664.6	337.6	663.3	335.3	661.5
341	219.7	104.8	276.4	19.2	255.4	18.5	254.7	16.6	255.4	18.5	256.6	14.4	256.6	14.4
343	435.0	553.0	442.9	577.8	456.3	565.5	469.4	555.6	466.0	547.5	457.9	536.7	457.9	536.7
344	469.4	555.6	469.4	555.6	469.4	555.6	458.3	563.7	458.3	563.7	461.5	574.4	461.1	571.4
346	328.2	225.6	328.2	225.6	336.6	242.2	336.6	242.2	336.6	242.2	339.9	242.6	344.9	244.9
347	366.5	276.8	368.6	275.0	368.6	275.0	366.5	276.8	372.6	271.1	370.0	270.1	370.0	270.1
348	467.8	85.6	462.1	80.4	462.1	80.4	464.3	78.6	464.3	78.6	465.6	70.8	447.8	68.8

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
349	350.0	214.0	343.9	208.3	339.4	207.3	328.5	208.1	328.5	208.1	320.7	215.0	309.3	206.3
35	405.7	506.5	401.2	491.4	397.7	491.4	396.7	486.3	398.9	488.9	398.9	488.9	397.9	483.8
350	160.0	120.5	157.0	127.6	154.7	136.9	153.4	123.6	163.4	121.6	151.6	137.0	151.8	131.1
352	466.6	119.9	466.9	127.7	465.4	127.9	464.8	129.2	463.1	126.9	460.0	120.5	461.9	129.6
353	268.6	109.9	268.6	109.9	265.6	111.7	265.6	111.7	265.6	111.7	265.6	111.7	270.1	99.8
354	420.6	178.6	411.1	167.7	411.1	167.7	409.7	164.0	407.7	163.0	409.4	165.4	408.9	160.3
358	461.6	56.8	453.9	57.4	461.2	53.5	459.2	51.9	461.2	53.5	458.9	48.4	457.0	46.7
359	9.4	12.0	9.4	12.0	9.4	12.0	9.4	12.0	9.4	12.0	9.4	12.0	9.4	12.0
36	317.5	639.5	315.2	640.4	317.5	639.5	316.5	637.2	316.5	637.2	315.5	634.8	309.7	634.2
361	365.0	653.0	355.5	652.2	355.3	648.6	360.5	646.4	358.5	644.7	360.5	646.4	363.4	642.2
364	356.2	411.1	358.8	403.9	355.8	402.7	358.8	403.9	358.8	403.9	361.4	399.4	347.3	392.8
365	335.0	737.9	337.6	734.1	337.6	734.1	337.6	734.1	337.6	734.1	334.5	733.7	333.3	731.3
366	215.2	287.6	212.8	290.5	213.0	290.5	214.4	290.3	213.5	293.0	216.7	289.9	214.4	290.3
367	63.6	231.7	59.7	238.7	58.2	240.8	58.2	240.8	50.0	243.1	48.4	241.2	51.6	241.2
368	423.6	501.4	429.2	520.3	434.4	511.7	438.1	514.2	435.5	514.0	439.2	518.2	439.2	518.2
369	461.8	577.4	461.8	577.4	461.8	577.4	452.0	559.2	450.0	554.1	448.2	552.3	448.2	552.3
37	28.7	565.1	13.9	567.2	13.9	567.2	4.0	571.0	4.0	571.0	4.0	571.0	4.0	571.0
370	336.1	446.0	337.6	448.0	338.0	444.3	337.6	448.0	336.1	446.0	342.8	450.3	351.8	448.8
371	353.7	737.2	353.7	737.2	357.9	736.7	357.9	736.7	357.9	736.7	357.9	736.7	356.5	738.9
372	464.5	449.5	464.5	449.5	462.4	448.0	464.5	449.5	462.4	448.0	464.5	449.5	464.5	449.5
373	473.1	646.0	455.3	648.6	455.1	644.9	453.5	646.9	455.1	644.9	453.5	646.9	455.1	644.9
374	327.4	736.6	326.4	719.8	326.4	719.8	325.8	724.3	325.8	724.3	321.8	709.6	325.2	708.9
375	392.4	711.5	396.1	709.4	396.3	711.7	392.4	711.5	396.3	711.7	397.4	709.2	393.5	709.0
378	335.0	606.1	316.7	587.3	306.9	593.7	306.9	593.7	305.0	598.9	307.5	601.3	299.4	604.1
379	97.6	243.1	96.0	240.4	93.4	240.1	93.4	240.1	93.4	240.1	93.4	240.1	86.9	235.8
380	372.6	771.1	372.6	771.1	370.5	770.3	365.1	767.8	365.1	767.8	367.5	768.9	365.1	767.8
381	417.7	700.0	421.7	703.2	420.3	702.1	421.8	709.6	421.8	709.6	422.4	706.9	421.3	712.3
382	482.5	645.0	482.5	645.0	480.2	644.0	480.2	644.0	480.2	644.0	480.2	644.0	480.2	644.0
383	255.0	585.4	255.0	585.4	259.5	579.2	259.5	579.2	259.5	579.2	259.5	579.2	259.5	579.2
384	437.1	651.5	437.1	651.5	439.2	650.0	437.1	651.5	437.1	651.5	437.1	651.5	437.1	651.5

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
385	252.1	665.7	252.1	665.7	252.1	665.7	252.1	665.7	252.1	665.7	252.1	665.7	252.1	665.7
386	364.7	681.6	391.1	683.3	406.9	693.7	406.9	693.7	406.9	693.7	409.4	696.1	409.4	696.1
387	396.5	622.6	391.5	621.2	391.5	621.2	391.5	621.2	391.5	621.2	390.3	616.4	390.3	616.4
388	458.5	566.9	450.0	573.5	452.4	578.0	450.0	579.6	450.0	579.6	450.0	579.6	450.0	579.6
389	420.0	732.4	423.1	733.4	420.0	732.4	420.0	732.4	420.0	732.4	422.1	731.0	423.1	733.4
39	300.5	620.3	293.2	614.1	294.0	616.7	290.3	616.4	286.5	616.1	289.7	617.5	289.7	617.5
390	424.7	695.9	427.8	695.1	427.8	695.1	427.3	697.9	424.7	695.9	424.7	695.9	424.7	695.9
391	436.4	731.7	439.4	732.1	443.5	738.9	445.1	741.1	443.5	738.9	443.5	738.9	443.5	738.9
392	441.8	640.8	441.8	640.8	441.8	640.8	448.4	641.2	450.0	639.1	450.0	639.1	448.4	641.2
393	466.0	714.4	466.0	714.4	457.5	707.5	459.0	706.7	459.0	706.7	459.0	706.7	462.1	707.8
394	475.8	735.8	473.7	734.3	475.8	735.8	475.8	735.8	475.8	735.8	475.8	735.8	475.8	735.8
396	489.5	528.6	492.7	534.8	491.3	555.2	477.3	562.0	477.3	562.0	467.0	565.9	463.9	575.7
397	118.9	723.0	118.9	723.0	126.4	719.8	115.2	723.5	118.9	723.0	124.5	722.2	115.2	723.5
398	458.8	603.9	461.9	605.1	463.6	631.7	465.5	633.7	465.5	633.7	464.8	629.2	466.7	631.3
399	368.1	472.0	367.8	470.5	370.0	470.1	370.0	470.1	368.1	472.0	368.1	472.0	368.1	472.0
4	302.2	271.1	299.7	273.7	298.1	273.6	299.7	273.7	299.7	273.7	299.7	273.7	297.8	271.1
40	179.5	354.7	180.2	344.0	180.2	344.0	184.8	340.4	184.5	334.8	178.9	330.4	186.9	335.8
400	486.9	618.7	494.5	619.6	494.5	619.6	490.3	616.4	490.3	616.4	485.6	624.0	473.3	619.0
401	499.1	724.0	499.1	724.0	499.1	724.0	499.1	724.0	499.1	724.0	499.1	724.0	499.1	724.0
402	468.6	633.2	463.1	626.9	458.1	618.4	460.7	608.7	444.6	594.1	425.3	593.1	433.1	579.8
403	436.3	694.9	430.8	694.1	433.7	693.1	431.3	691.3	430.8	694.1	431.3	691.3	430.8	694.1
404	426.3	534.3	426.8	535.4	425.2	531.9	425.2	531.9	426.3	527.6	421.2	528.6	421.2	528.6
406	250.0	614.0	250.0	616.7	250.0	616.7	243.9	608.3	240.8	609.5	241.0	606.7	241.0	606.7
407	482.5	714.7	490.1	722.0	486.5	716.1	486.5	716.1	485.8	713.4	491.0	709.0	491.0	709.0
408	421.3	586.3	413.9	582.7	408.7	580.8	407.8	575.8	404.7	576.1	401.6	576.2	377.9	572.9
409	483.4	733.6	483.4	733.6	483.4	733.6	483.4	733.6	483.4	733.6	483.4	733.6	479.0	699.4
41	284.0	382.3	287.7	382.9	284.0	382.3	286.1	382.7	286.1	382.7	282.5	384.6	284.0	384.9
410	435.3	703.4	425.7	698.3	420.7	694.3	416.7	692.5	415.2	687.6	415.2	687.6	409.7	678.1
411	337.4	513.4	332.2	504.4	332.2	504.4	332.2	504.4	328.1	510.8	327.5	513.1	328.1	510.8
412	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
414	403.0	714.3	403.7	709.5	395.3	714.2	393.2	714.1	395.3	714.2	395.3	714.2	395.3	714.2
416	401.4	240.6	410.0	252.4	411.7	259.8	419.4	273.7	415.6	269.4	419.4	273.7	419.4	273.7
417	285.9	538.1	296.3	548.1	295.1	545.5	294.4	537.7	287.2	530.4	288.1	533.5	290.3	534.2
418	484.0	584.9	468.6	633.2	468.6	633.2	468.6	633.2	455.7	655.6	455.7	655.6	455.5	652.2
419	409.4	696.1	406.9	693.7	404.6	691.3	404.6	691.3	407.9	691.1	407.9	691.1	405.6	688.7
42	211.6	575.3	211.6	575.3	192.4	580.9	197.6	581.2	194.5	583.6	190.6	591.0	179.7	602.1
420	500.6	335.6	502.3	330.4	502.3	330.4	502.3	330.4	502.3	330.4	502.3	330.4	502.3	330.4
421	306.2	145.3	315.7	141.6	316.3	142.7	316.3	142.7	316.3	142.7	316.3	142.7	316.3	142.7
422	312.1	508.6	312.8	505.9	312.1	508.6	308.5	508.9	311.3	511.2	307.6	511.5	303.0	514.3
423	359.5	279.2	375.5	264.1	371.3	265.1	371.3	265.1	368.7	261.0	372.4	260.0	371.3	265.1
425	423.7	317.0	425.0	319.5	425.4	316.6	423.7	317.0	423.7	317.0	426.7	319.0	422.6	322.4
426	479.7	302.1	479.0	299.4	479.7	302.1	479.7	302.1	479.7	302.1	479.7	302.1	480.3	304.8
428	408.7	355.2	400.5	350.8	400.5	350.8	399.2	348.3	397.6	350.7	399.2	348.3	393.4	347.8
43	427.1	384.7	431.3	391.3	431.3	391.3	425.9	390.3	426.5	387.5	423.5	388.4	416.9	382.1
431	393.9	235.0	393.9	235.0	392.7	234.8	391.0	234.4	391.0	234.4	391.0	234.4	393.6	232.4
432	392.2	245.0	392.2	245.0	382.5	245.0	384.2	245.6	381.0	244.4	379.9	249.4	377.1	253.7
434	456.5	416.6	447.2	424.9	444.5	452.2	442.8	450.3	444.5	452.2	465.1	484.5	465.1	484.5
435	367.4	245.4	358.5	244.7	356.7	242.9	356.7	242.9	356.7	242.9	356.7	242.9	350.0	241.3
437	368.6	90.0	387.9	13.1	387.0	10.2	385.9	8.6	387.2	8.3	386.1	6.3	387.4	6.1
438	397.0	414.3	391.9	394.9	390.6	396.1	389.0	395.9	384.3	395.2	390.6	396.1	350.0	379.6
439	283.7	548.1	281.9	539.2	284.8	540.4	275.8	535.8	275.5	532.4	275.8	535.8	267.4	535.6
44	125.5	279.9	122.7	280.7	119.7	281.5	118.5	276.5	121.4	275.8	125.5	279.9	127.1	284.7
441	297.7	730.4	297.7	730.4	260.2	723.3	256.6	719.3	250.0	716.7	250.0	716.7	240.6	712.3
442	222.1	772.9	227.6	781.8	245.9	764.0	228.4	756.8	230.6	755.6	230.6	755.6	220.2	762.9
444	341.5	744.7	315.8	745.6	286.2	748.9	283.7	748.1	275.1	729.7	264.7	735.2	202.4	750.7
446	271.6	756.8	270.0	758.8	270.0	758.8	268.3	760.8	268.3	760.8	268.3	760.8	265.5	756.3
450	350.0	738.6	350.0	738.6	361.5	740.5	361.5	740.5	375.7	744.6	374.4	743.9	383.2	731.3
451	171.7	131.6	165.0	153.0	168.3	160.8	174.8	161.0	174.8	161.0	174.8	161.0	179.8	162.9
452	276.4	759.0	276.4	759.0	278.9	759.9	278.9	759.9	277.3	762.0	274.8	761.0	268.3	760.8
454	193.4	603.9	193.4	603.9	194.9	719.3	194.9	719.3	218.9	723.0	235.3	735.2	235.3	735.2

Annexe 3, suite...

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
455	115.8	120.9	106.5	109.0	103.7	111.7	100.8	114.3	100.8	114.3	103.0	114.3	100.8	114.3
457	255.8	702.7	258.6	701.1	258.4	698.2	258.6	701.1	258.6	701.1	255.8	702.7	258.6	701.1
459	171.3	728.9	184.5	734.8	172.5	751.5	167.1	754.3	160.5	746.4	160.5	746.4	160.5	746.4
46	266.3	393.1	272.2	395.1	269.2	394.1	275.8	398.7	273.2	400.6	277.6	406.9	274.3	406.1
460	404.6	14.5	404.6	14.5	404.6	14.5	404.6	14.5	404.6	14.5	404.6	14.5	404.6	14.5
461	374.4	16.5	380.4	11.8	382.5	14.7	379.8	15.4	375.5	10.5	375.1	12.7	375.1	12.7
462	430.2	13.4	430.2	13.4	430.2	13.4	430.2	13.4	430.2	13.4	430.2	13.4	430.2	13.4
463	473.1	63.1	467.6	51.6	466.5	51.0	466.5	51.0	468.1	48.9	462.4	48.0	453.6	50.5
464	482.2	459.6	484.1	461.5	484.1	461.5	492.6	457.9	489.8	457.5	489.8	457.5	489.8	457.5
465	459.5	79.2	477.7	93.9	477.7	93.9	477.7	93.9	475.3	95.9	474.7	93.1	469.2	94.1
466	496.2	432.8	496.2	432.8	496.2	432.8	496.2	432.8	496.2	432.8	496.2	432.8	496.2	432.8
467	208.1	215.8	214.1	231.3	219.0	244.4	216.5	253.4	226.0	257.9	235.8	261.5	245.6	270.3
468	489.8	503.6	489.0	501.0	489.0	501.0	489.0	501.0	489.0	501.0	489.0	501.0	489.0	501.0
47	380.0	332.4	399.7	327.9	400.3	325.4	399.7	327.9	399.7	327.9	399.7	327.9	408.2	321.6
470	404.7	235.2	404.7	235.2	397.0	238.0	395.8	232.8	390.8	223.7	380.5	220.3	372.4	213.5
471	402.8	73.6	402.8	73.6	402.8	73.6	402.8	73.6	402.8	73.6	402.8	73.6	402.8	73.6
472	424.2	314.3	420.9	318.6	419.5	312.6	417.7	312.9	421.3	312.3	421.3	312.3	421.3	312.3
473	403.5	65.9	403.5	65.9	410.5	62.6	407.7	63.0	410.5	62.6	410.5	62.6	408.2	68.1
475	354.4	627.6	341.1	629.9	341.1	629.9	332.2	628.8	332.2	628.8	323.1	633.4	325.2	631.9
476	442.0	292.5	436.9	289.2	436.6	292.0	436.6	292.0	439.2	293.7	439.2	293.7	439.2	293.7
477	427.4	371.1	422.1	372.9	421.1	367.9	422.9	370.0	421.9	365.0	420.2	362.9	421.9	365.0
479	376.4	101.4	387.3	95.7	389.4	93.4	391.8	96.2	391.8	96.2	373.5	87.5	376.5	88.4
48	190.3	516.4	186.5	516.1	189.5	513.8	193.2	514.1	196.1	511.7	196.1	511.7	196.1	511.7
480	47.5	384.0	47.5	384.0	45.4	376.5	45.4	376.5	45.4	376.5	54.3	367.2	54.3	367.2
481	303.0	214.3	312.8	217.4	309.0	219.0	309.0	219.0	302.1	216.8	302.1	216.8	299.2	214.3
482	455.1	244.9	455.1	244.9	461.1	236.5	461.1	236.5	457.6	232.3	458.9	229.9	458.9	229.9
483	290.0	470.4	281.5	460.7	283.0	458.6	283.0	458.6	283.0	458.6	283.0	458.6	284.5	456.3
484	137.5	473.5	137.5	473.5	145.5	473.4	145.6	470.3	147.8	471.9	147.8	468.8	156.3	465.5
485	88.6	444.3	88.6	444.3	88.6	444.3	88.6	444.3	90.3	434.2	91.1	431.8	90.3	434.2
486	274.8	161.0	277.3	162.0	277.7	162.2	277.3	162.0	277.7	162.2	279.8	162.9	271.9	168.1

Annexe 3, suite...

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
487	109.4	91.0	104.9	76.0	104.9	76.0	103.5	73.6	102.2	71.1	102.2	71.1	105.4	70.9
488	88.3	259.8	88.3	259.8	88.3	259.8	88.3	259.8	88.3	259.8	89.5	262.6	89.5	262.6
489	147.3	495.6	156.1	508.3	164.0	497.7	160.8	493.7	160.1	485.1	162.4	483.4	161.8	477.4
490	36.1	275.7	41.2	270.0	43.5	268.6	43.7	265.5	34.9	267.8	34.9	267.8	33.0	265.9
492	89.2	275.4	89.2	275.4	74.5	279.9	59.5	279.2	59.5	279.2	62.1	280.4	61.8	277.4
493	270.6	8.2	*	*	*	*	*	*	*	*	*	*	*	*
494	97.7	188.9	97.7	188.9	98.8	191.4	98.8	191.4	97.7	188.9	97.7	188.9	97.7	188.9
495	502.7	160.9	502.7	160.9	502.7	160.9	499.5	166.0	499.5	166.0	500.8	168.6	500.8	168.6
496	191.0	419.0	190.3	426.2	190.9	423.7	190.9	423.7	189.5	428.6	189.5	428.6	189.5	428.6
497	129.9	299.8	133.0	298.8	138.6	299.4	136.3	294.9	136.3	294.9	139.2	293.7	134.1	290.3
498	205.6	181.1	204.2	181.2	204.2	181.2	209.6	178.2	210.1	173.0	207.8	175.8	208.2	175.8
499	100.3	473.7	100.3	473.7	100.3	473.7	100.3	473.7	98.4	476.2	100.3	473.7	102.8	473.6
5	387.9	408.6	391.5	398.7	393.1	393.7	390.6	396.1	387.0	390.5	387.0	390.5	387.0	390.5
50	334.0	226.6	333.5	225.2	334.0	226.6	332.2	228.8	328.3	231.6	331.4	233.2	331.8	233.4
500	290.7	151.2	290.7	151.2	293.0	152.9	292.2	145.0	292.2	145.0	285.0	140.5	284.8	140.4
504	212.8	530.4	212.8	530.4	197.2	520.6	197.2	520.6	191.0	519.0	188.6	522.7	188.6	522.7
505	341.6	698.2	347.4	689.9	341.2	703.9	337.9	707.8	334.7	708.9	334.0	714.4	334.4	711.7
507	495.2	95.1	502.1	83.8	499.2	81.3	498.8	83.8	499.6	78.7	499.6	78.7	496.5	78.7
508	453.1	109.8	453.1	109.8	468.1	139.5	467.4	145.4	468.1	148.9	468.1	148.9	468.1	148.9
509	407.0	70.8	407.0	70.8	407.0	70.8	407.0	70.8	404.0	71.0	407.0	70.8	404.0	71.0
510	52.9	601.3	50.0	602.8	53.0	607.0	60.2	623.3	60.2	623.3	60.0	620.5	61.1	636.8
511	362.8	566.5	368.9	563.9	370.6	562.0	375.9	564.2	370.6	562.0	371.3	565.1	373.1	563.1
514	426.8	8.0	427.7	3.6	420.1	3.3	413.7	2.8	413.7	2.8	412.4	2.7	413.7	2.8
515	198.6	40.6	198.6	40.6	198.6	40.6	201.4	40.6	198.6	40.6	198.6	40.6	198.6	40.6
516	306.6	724.5	306.6	724.5	299.0	722.8	299.0	725.4	298.4	722.8	298.4	722.8	298.4	725.3
52	229.8	550.3	235.3	564.6	233.5	562.7	235.3	564.6	234.9	567.8	231.9	572.0	223.5	588.4
520	375.8	7.7	373.2	8.0	373.2	8.0	373.2	8.0	373.2	8.0	373.2	8.0	*	*
522	191.1	88.5	191.1	88.5	191.1	88.5	191.1	88.5	191.1	88.5	191.1	88.5	191.5	98.7
524	400.1	686.4	403.4	686.3	403.4	686.3	402.3	688.9	403.5	693.9	402.5	696.5	400.1	694.0
525	190.7	106.3	195.3	114.2	193.2	114.1	193.2	114.1	192.4	111.5	194.0	116.7	193.2	114.1



Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
526	180.5	257.8	170.1	241.1	160.9	234.1	160.9	234.1	167.9	230.7	167.9	230.7	182.5	239.5
527	90.6	124.1	88.7	123.9	91.5	126.6	92.6	124.2	89.4	126.6	89.4	126.6	91.0	125.4
528	37.1	51.5	37.1	51.5	37.1	51.5	37.6	48.0	35.5	49.5	35.5	49.5	35.5	49.5
529	98.4	25.3	101.0	25.4	101.0	25.4	101.6	22.8	99.0	22.8	101.0	25.4	101.0	25.4
53	329.5	235.0	329.5	235.0	322.1	242.9	319.8	244.0	318.6	241.7	316.3	242.7	316.3	242.7
54	300.3	273.7	302.8	273.6	299.7	273.7	295.1	276.0	295.1	276.0	295.1	276.0	295.1	276.0
55	181.0	284.2	178.0	283.5	178.0	283.5	176.6	277.8	182.3	279.3	178.6	275.8	179.4	278.6
57	155.5	352.2	161.2	353.5	161.2	353.5	161.2	353.5	161.6	356.8	163.3	354.9	163.3	354.9
59	412.7	641.3	405.1	642.9	405.1	642.9	406.2	645.3	406.2	645.3	405.1	642.9	405.1	642.9
60	243.5	668.6	243.5	668.6	226.8	654.8	226.8	654.8	226.8	654.8	226.8	654.8	221.5	651.6
600	480.6	608.0	480.6	608.0	480.6	608.0	480.6	608.0	480.6	608.0	480.6	608.0	480.6	608.0
601	496.2	532.8	496.2	532.8	496.2	532.8	496.2	532.8	496.2	532.8	496.2	532.8	496.2	532.8
602	436.9	626.9	439.8	627.2	441.9	618.4	439.8	623.3	439.8	623.3	439.7	620.0	439.8	623.3
603	452.7	692.8	452.7	692.8	447.1	701.3	443.9	708.3	443.9	708.3	437.6	710.6	427.6	713.5
605	456.7	671.8	451.1	672.7	452.3	675.0	454.5	673.4	452.3	675.0	452.3	675.0	452.3	675.0
607	460.1	685.1	457.3	680.8	457.3	680.8	457.3	680.8	457.3	680.8	457.3	680.8	457.3	680.8
608	401.1	709.2	421.6	707.4	419.7	704.8	419.7	704.8	418.4	697.3	415.9	695.2	418.4	697.3
609	429.4	673.1	429.4	673.1	440.2	682.1	440.2	682.1	440.2	682.1	442.4	686.7	442.0	692.5
61	377.9	672.9	380.7	665.8	386.7	662.1	387.9	664.9	389.5	662.6	394.3	660.7	394.3	660.7
610	408.2	721.6	392.3	717.4	382.9	715.6	382.9	715.6	379.3	715.0	383.1	711.2	375.8	714.3
611	441.9	628.7	441.9	628.7	448.2	648.8	441.1	648.4	441.1	648.4	441.1	648.4	441.1	648.4
612	438.0	760.1	437.6	763.3	441.7	763.7	439.8	762.0	448.2	752.3	448.2	752.3	448.2	752.3
613	273.6	760.5	272.4	760.0	274.8	761.0	272.4	760.0	272.4	760.0	272.4	760.0	266.0	759.6
616	338.9	671.4	338.9	671.4	331.1	663.9	331.1	663.9	329.4	662.0	329.4	662.0	331.1	663.9
618	278.4	796.7	270.1	799.8	270.1	799.8	270.1	799.8	267.4	801.6	267.4	801.6	267.0	798.8
619	262.4	710.6	267.8	704.4	270.5	702.5	267.8	704.4	267.8	704.4	267.8	704.4	267.8	704.4
620	196.5	765.9	194.1	773.4	194.1	773.4	194.1	773.4	194.1	773.4	194.1	773.4	195.3	776.1
621	188.7	749.5	199.5	750.8	200.8	748.3	202.4	750.7	191.3	755.2	191.3	755.2	191.3	755.2
624	218.1	717.8	194.9	719.3	191.8	721.6	191.8	721.6	191.8	721.6	200.5	715.2	184.8	723.5
625	143.5	768.6	143.5	768.6	143.5	768.6	152.2	768.8	152.2	768.8	165.1	767.8	168.1	772.0

Annexe 3, suite...

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
626	250.0	725.0	251.4	722.0	250.0	727.7	253.6	731.8	253.6	731.8	260.4	726.0	269.4	715.4
627	143.5	716.6	140.8	709.5	140.8	709.5	140.8	709.5	140.6	712.3	141.0	706.7	141.0	706.7
628	165.5	756.3	168.1	748.9	169.5	746.8	170.2	750.3	169.5	746.8	169.5	746.8	169.5	746.8
630	115.2	787.6	113.0	790.5	114.4	790.3	103.4	793.9	70.5	802.5	*	*	*	*
64	378.6	675.8	378.6	675.8	377.9	672.9	375.2	672.0	375.2	672.0	377.1	670.0	363.5	672.6
640	137.3	786.3	135.3	781.6	133.1	779.8	133.1	779.8	133.1	779.8	133.1	779.8	133.1	779.8
641	184.9	745.8	183.7	748.1	183.7	748.1	186.2	748.9	184.9	745.8	181.3	747.2	181.3	747.2
642	3.5	778.7	2.4	781.2	41.2	781.2	2.4	781.2	-0.9	781.3	-0.9	781.3	-0.9	781.3
644	291.8	721.6	291.8	721.6	303.1	714.9	302.1	715.1	299.5	715.2	297.9	716.8	297.9	716.8
645	57.3	780.8	47.8	771.9	98.4	770.4	50.0	773.5	50.0	770.4	47.8	771.9	47.8	771.9
646	36.7	754.9	35.0	753.0	31.4	751.5	37.1	751.5	37.1	751.5	37.1	751.5	35.0	753.0
647	150.0	750.6	158.2	740.8	158.2	740.8	160.1	742.6	161.5	740.5	158.2	740.8	160.1	742.6
648	14.0	754.1	20.1	749.4	36.4	745.1	23.4	745.1	23.2	739.4	23.2	739.4	23.2	739.4
65	318.7	736.1	326.3	734.3	326.3	734.3	326.3	734.3	326.3	734.3	325.2	731.9	322.4	724.2
650	124.7	747.3	124.7	747.3	127.5	751.5	132.3	757.6	136.2	758.2	135.8	761.5	141.7	763.7
652	484.1	728.9	469.5	687.5	475.2	682.7	477.1	670.0	472.5	651.5	472.5	651.5	461.9	629.6
653	*	*	*	*	*	*	*	*	*	*	*	*	*	*
654	405.9	773.4	405.9	773.4	405.9	773.4	410.0	770.4	410.0	770.4	407.0	770.8	404.0	771.0
655	407.9	691.1	411.0	701.0	407.5	701.3	411.9	703.5	413.6	703.2	411.0	701.0	413.6	703.2
68	172.9	684.7	180.2	681.4	180.2	681.4	182.3	679.3	183.1	682.1	183.1	682.1	177.7	693.9
700	66.0	47.5	68.1	48.9	68.1	48.9	69.4	37.3	69.4	37.3	69.4	37.3	63.6	31.7
702	36.9	89.2	10.3	93.4	6.9	93.7	0.1	86.4	0.1	86.4	-1.1	88.9	4.5	83.7
703	197.0	38.0	197.0	38.0	197.0	38.0	197.0	38.0	197.0	38.0	197.0	38.0	203.0	27.8
704	288.8	217.6	294.8	237.7	293.9	235.0	291.9	237.2	291.9	237.2	291.9	237.2	291.9	237.2
705	260.5	46.4	258.5	44.7	258.5	44.7	258.5	44.7	257.0	46.7	258.5	44.7	258.5	44.7
707	410.0	47.2	415.1	45.8	411.3	49.5	412.6	46.6	413.8	48.9	421.1	46.2	415.1	45.8
708	464.2	36.1	464.2	36.1	464.2	36.1	465.5	33.7	464.2	36.1	467.4	35.6	467.4	35.6
709	398.6	101.6	398.7	107.5	396.1	106.5	392.5	101.3	396.8	101.5	396.8	101.5	396.8	101.5
71	167.8	785.6	167.4	782.7	167.4	782.7	167.4	782.7	167.4	782.7	164.3	778.6	164.3	778.6
711	457.3	80.8	457.5	83.8	457.5	83.8	460.1	85.1	462.7	86.3	465.9	90.3	463.7	94.9

suite...

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
712	404.3	237.9	404.7	235.2	402.1	235.5	401.2	233.0	401.2	233.0	403.8	232.8	404.2	232.8
715	438.1	529.6	439.4	532.1	438.1	529.6	438.1	529.6	438.1	529.6	438.1	529.6	438.1	529.6
717	113.1	577.6	105.7	560.7	107.4	557.9	107.3	558.0	107.3	558.0	105.6	555.6	105.7	560.7
72	161.1	671.4	167.4	682.7	170.1	683.7	170.1	683.7	170.6	686.6	170.6	686.6	174.1	690.3
721	440.4	415.0	442.8	411.9	443.7	413.8	443.7	413.8	440.4	415.0	441.0	406.7	441.0	406.7
722	315.3	403.0	315.3	403.0	313.6	403.2	312.8	405.9	312.8	405.9	312.8	405.9	312.8	405.9
723	295.3	535.2	297.1	536.7	293.9	535.0	296.2	532.8	293.0	532.3	299.4	535.6	300.4	538.1
725	220.5	565.4	220.5	565.4	214.9	564.3	214.9	564.3	218.6	558.0	217.0	558.6	212.6	551.8
726	111.0	436.5	114.0	435.4	114.0	435.4	120.0	432.4	117.2	431.0	111.0	436.5	121.0	434.8
727	434.0	347.5	436.1	346.0	437.6	348.0	439.2	350.0	440.8	351.9	440.8	351.9	442.8	350.3
729	288.5	194.6	289.7	193.4	297.5	196.5	306.6	203.9	306.6	203.9	305.7	206.5	314.9	210.8
73	191.0	319.0	193.2	314.1	194.0	316.7	194.0	316.7	197.0	314.3	194.0	316.7	197.9	316.8
730	177.2	357.9	157.2	350.3	157.2	350.3	151.8	352.3	148.2	348.8	144.7	348.6	144.7	348.6
731	86.5	393.0	86.5	393.0	89.7	393.4	93.0	393.7	89.7	393.4	90.6	396.1	87.3	395.7
732	272.4	213.5	250.0	202.8	247.1	201.3	247.3	195.6	263.1	189.2	270.6	186.6	270.6	186.6
733	*	*	*	*	*	*	*	*	*	*	*	*	*	*
734	474.3	306.1	483.0	302.7	483.0	302.7	486.4	303.2	483.0	302.7	486.4	303.2	489.7	293.4
735	379.3	215.0	384.1	219.8	377.4	222.4	377.4	222.4	378.4	227.7	380.3	223.3	378.4	227.7
736	459.8	317.8	464.2	312.5	411.8	280.4	465.6	311.7	465.3	308.9	468.6	309.9	468.6	309.9
740	491.1	188.5	493.5	165.7	493.5	165.7	491.1	160.3	481.5	160.7	475.5	164.1	463.2	169.6
741	398.9	263.5	407.7	263.0	410.5	262.6	410.5	262.6	410.5	262.6	411.7	259.8	411.7	259.8
742	401.5	199.0	421.6	179.7	447.6	181.0	459.8	182.1	459.8	182.1	466.9	179.8	471.2	176.0
744	199.9	94.0	196.6	93.9	196.6	93.9	199.9	94.0	197.9	99.0	197.5	96.5	199.9	94.0
745	189.5	313.8	191.8	321.6	200.6	324.5	203.7	325.1	202.3	327.8	202.3	327.8	205.6	330.0
76	415.5	656.3	414.9	664.3	409.1	662.8	409.1	662.8	409.1	662.8	401.9	663.5	401.9	663.5
77	298.9	188.9	305.3	168.4	303.8	168.5	302.3	168.5	302.1	166.0	302.3	168.5	300.3	161.0
78	88.7	123.9	88.7	123.9	89.3	128.5	88.7	123.9	88.7	123.9	88.7	123.9	90.6	124.1
79	377.7	193.9	379.6	195.6	380.5	194.5	379.5	189.1	376.5	188.4	378.7	186.3	377.2	185.9
8	460.6	390.9	459.3	414.3	459.3	414.3	459.3	414.3	459.3	414.3	356.5	438.9	277.4	422.4
80	121.9	265.0	121.9	265.0	118.8	268.6	123.7	267.1	124.5	264.1	124.5	264.1	126.2	266.1

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
801	453.9	657.4	486.7	662.1	484.1	661.5	440.8	651.9	440.8	651.9	442.5	653.8	430.6	655.6
802	497.9	480.0	497.9	480.0	497.9	480.0	497.9	480.0	497.9	480.0	497.9	480.0	497.9	480.0
804	414.3	510.6	411.6	509.8	409.3	506.3	406.6	503.9	410.2	503.6	409.3	506.3	409.3	506.3
805	382.5	539.5	380.1	535.5	378.4	527.7	382.2	528.3	378.4	527.7	378.4	527.7	370.1	520.8
807	483.1	582.1	483.1	582.1	476.5	588.4	476.5	588.4	474.1	590.3	474.1	590.3	471.2	589.4
81	148.3	345.0	165.5	333.7	165.5	333.7	165.5	333.7	165.5	333.7	164.2	329.8	164.2	329.8
810	8.7	650.1	10.0	647.2	10.0	647.2	10.0	647.2	10.0	647.2	11.3	649.5	8.7	650.1
811	345.7	667.2	345.7	667.2	345.7	667.2	343.7	665.5	347.9	665.7	345.7	667.2	345.7	667.2
812	328.7	665.1	321.9	665.0	319.3	665.8	317.6	663.7	310.2	657.5	310.2	657.5	299.0	625.4
813	440.8	651.9	439.5	646.4	439.5	646.4	439.5	646.4	439.5	646.4	441.8	640.8	445.5	632.5
815	392.1	618.7	392.6	616.2	396.3	611.7	396.3	611.7	396.3	611.7	396.3	611.7	388.7	611.2
816	242.2	589.6	235.6	600.5	231.8	607.1	228.1	610.8	227.2	616.2	227.2	616.2	227.3	622.8
817	244.3	655.6	253.6	634.5	256.5	638.9	256.5	638.9	253.7	637.2	253.7	637.2	253.7	637.2
818	194.0	650.4	194.6	650.5	196.7	650.7	195.3	648.0	194.0	650.4	197.6	650.7	194.0	650.4
819	157.5	683.8	157.5	683.8	157.5	683.8	160.1	685.1	157.5	683.8	157.5	683.8	157.5	683.8
82	80.2	391.9	80.2	391.9	80.2	391.9	85.6	392.9	83.3	392.5	80.9	394.6	85.6	390.3
820	125.8	624.3	133.1	622.6	126.7	619.0	133.7	617.2	136.6	621.6	135.2	629.2	150.0	602.8
825	458.9	529.9	469.4	537.3	468.0	534.4	468.6	533.2	467.4	535.6	468.6	533.2	468.6	533.2
83	38.4	402.3	41.2	403.9	26.8	400.6	26.8	400.6	*	*	*	*	*	*
834	209.4	712.0	177.6	706.9	177.6	706.9	177.6	706.9	162.4	710.6	143.8	711.1	146.9	709.8
835	200.8	745.7	200.3	743.2	197.6	743.1	199.2	745.7	196.5	745.6	198.0	745.7	199.2	745.7
836	40.8	751.9	43.0	746.7	46.0	746.7	44.7	748.6	44.7	748.6	44.7	748.6	39.2	750.0
837	108.8	744.9	111.4	749.5	111.4	749.5	111.4	749.5	111.3	749.5	108.7	750.1	108.7	750.1
838	38.6	724.4	29.5	723.5	29.5	723.5	25.8	724.3	29.1	726.2	29.1	726.2	32.4	728.0
839	76.6	745.1	81.4	741.7	82.5	744.4	84.8	740.4	89.3	736.6	88.3	738.9	90.8	739.6
84	81.1	123.0	79.9	117.7	80.5	120.3	80.5	120.3	81.1	123.0	81.1	123.0	77.9	125.1
840	12.1	788.1	6.6	786.1	86.2	785.8	86.2	785.8	86.2	785.8	86.2	785.8	86.2	785.8
843	470.6	662.0	471.8	662.5	474.8	661.0	474.8	661.0	473.1	663.1	474.8	661.0	477.3	662.0
844	438.2	677.4	436.1	675.7	438.5	674.4	438.5	674.4	438.2	677.4	441.0	673.1	441.0	673.1
845	429.9	699.8	382.3	679.3	354.4	670.3	350.0	667.3	326.8	674.0	314.8	679.9	299.9	686.4

Annexe 3, suite...

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
846	467.1	654.3	467.1	654.3	468.7	652.3	468.7	652.3	468.7	652.3	468.7	652.3	472.5	651.5
847	379.4	678.6	391.8	675.8	384.4	669.4	392.9	668.2	392.9	668.2	407.7	663.0	407.7	663.0
848	479.0	634.8	472.8	616.2	475.1	612.7	472.8	616.2	472.8	616.2	472.5	613.1	479.9	617.7
849	444.8	708.9	421.6	696.7	418.4	697.3	415.1	692.8	416.7	692.5	414.4	690.3	414.4	690.3
85	103.4	493.9	122.3	493.9	137.6	483.4	140.5	479.2	141.0	473.1	141.0	473.1	137.2	466.5
850	391.1	631.8	376.9	633.4	376.9	633.4	376.9	633.4	376.9	633.4	380.5	620.3	384.2	620.9
87	322.0	583.5	322.0	583.5	244.8	588.3	244.7	591.2	244.8	588.3	244.8	588.3	236.9	589.2
88	121.6	396.7	105.5	383.6	105.5	383.6	113.9	382.7	104.5	388.8	104.5	388.8	112.1	388.1
89	58.5	424.7	57.0	427.6	57.0	427.6	57.0	427.6	57.0	427.6	62.4	434.1	62.9	438.3
90	81.6	410.2	81.6	410.2	81.6	410.2	81.0	407.5	78.2	409.6	81.6	410.2	74.3	406.1
91	356.5	368.6	356.5	368.6	356.5	368.6	356.5	368.6	358.3	363.7	358.3	363.7	356.3	365.5
92	23.3	126.9	24.2	129.4	23.3	126.9	23.3	126.9	22.1	125.1	22.1	125.1	35.2	129.2
93	137.9	607.8	114.2	613.4	114.2	613.4	96.9	604.1	95.7	604.1	96.9	604.1	90.6	596.1
94	65.1	184.5	62.7	186.3	65.1	184.5	62.7	186.3	65.1	184.5	65.5	187.4	65.1	184.5
96	93.3	678.5	94.4	681.1	100.9	681.3	100.9	681.3	100.9	681.3	95.8	681.2	99.6	678.7
97	86.3	175.0	86.3	175.0	93.3	178.5	95.3	176.1	93.3	178.5	93.3	178.5	93.3	178.5
98	34.0	147.5	30.5	146.8	29.1	144.7	30.5	146.8	29.1	144.7	31.2	143.3	29.1	144.7
99	58.0	460.5	53.6	450.5	53.5	446.9	53.5	446.9	53.5	446.9	48.4	441.2	48.3	445.0
aa	475.3	211.6	478.4	196.7	478.4	196.7	478.4	196.7	478.4	196.7	478.4	196.7	478.4	196.7
ab	387.9	264.9	387.9	264.9	388.6	254.7	388.2	254.6	388.2	254.6	393.0	252.9	395.4	253.1
ac	383.9	237.3	383.9	237.3	389.3	236.6	389.0	236.5	389.0	236.5	389.0	236.5	391.8	237.2
ae	458.8	303.9	446.1	290.6	444.7	291.2	444.6	294.1	439.9	285.1	417.6	250.3	417.6	250.3
af	366.9	379.8	378.4	379.7	371.8	378.9	371.8	378.9	365.1	384.5	362.7	386.3	358.0	392.5
ah	413.6	630.1	408.1	629.4	407.3	627.0	408.2	621.6	408.2	621.6	403.5	622.6	403.5	622.6
ai	405.1	642.9	406.4	632.4	408.9	631.8	408.9	631.8	408.9	631.8	408.9	631.8	407.3	627.0
aj	295.3	748.0	288.6	744.3	290.0	747.2	290.0	747.2	288.6	749.5	284.9	745.8	284.9	745.8
al	281.5	676.5	310.5	662.6	310.5	662.6	310.8	675.4	316.7	692.5	316.7	692.5	316.7	692.5
am	212.0	621.3	191.8	621.6	191.8	621.6	197.0	638.0	194.4	637.7	200.5	650.8	198.0	648.2
ao	393.5	709.0	394.3	706.5	394.6	706.5	395.7	704.1	396.8	701.5	393.1	701.4	393.1	701.4
aq	489.7	693.4	493.4	710.8	488.7	711.2	491.5	708.9	487.9	708.6	489.0	701.0	487.3	695.7

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
ar	411.3	649.5	399.7	643.2	401.4	640.6	401.4	640.6	401.4	640.6	381.6	625.7	381.6	625.7
as	397.7	630.4	408.0	611.5	408.5	608.9	408.5	608.9	408.5	608.9	395.4	596.4	392.3	583.5
au	433.2	541.7	426.5	540.3	433.2	541.7	433.2	541.7	421.0	534.8	420.0	532.4	407.6	511.5
av	436.1	546.0	436.1	546.0	436.1	546.0	431.9	548.9	430.5	546.8	429.1	544.7	428.3	548.2
aw	417.7	533.7	416.5	553.4	410.0	552.4	410.0	552.4	407.3	552.8	411.4	554.7	411.4	554.7
ax	284.8	497.9	284.8	497.9	275.8	514.3	266.3	517.2	264.7	518.0	262.5	521.4	269.7	518.1
ay	270.9	426.2	276.3	417.0	279.3	415.0	279.3	415.0	278.2	409.6	281.0	407.5	281.0	407.5
b	431.1	26.1	429.2	28.2	430.3	30.8	420.3	26.0	418.2	27.6	418.2	27.6	418.2	27.6
ba	446.9	509.8	432.6	535.6	433.6	534.7	427.4	536.6	429.5	535.0	416.3	542.7	416.3	542.7
bb	488.9	467.7	487.3	454.4	486.7	453.0	486.0	454.1	484.8	451.1	483.7	448.1	484.9	445.8
bc	464.4	400.5	415.2	397.9	366.8	441.7	358.9	448.4	359.2	451.9	339.4	490.9	312.8	470.0
bd	482.5	514.7	482.5	514.7	480.4	511.8	480.4	511.8	480.4	511.8	482.5	514.7	482.5	514.7
be	371.9	368.1	378.8	420.1	374.8	418.0	386.6	432.9	393.4	426.8	388.7	431.0	379.9	449.4
bf	411.8	398.4	409.4	396.1	408.5	398.7	406.9	393.7	406.9	393.7	403.4	386.3	403.4	386.3
bg	425.5	369.1	397.4	353.3	396.0	353.2	394.6	350.5	389.9	352.4	389.9	352.4	389.9	352.4
bi	168.7	91.3	168.7	91.3	168.7	91.3	171.2	89.4	168.7	91.3	168.7	91.3	172.2	95.1
bj	183.0	69.1	166.0	59.6	163.8	58.2	154.0	60.7	145.9	64.0	141.2	70.0	139.0	81.3
bl	204.7	114.2	206.8	114.1	203.7	111.7	207.6	111.5	203.0	114.3	208.5	121.2	210.5	113.8
bm	181.1	123.0	194.6	106.5	194.3	106.5	203.2	101.5	195.7	104.1	199.5	101.6	199.5	101.6
bn	4.5	187.5	5.6	188.7	-0.9	181.3	*	*	*	*	*	*	*	*
bo	56.5	116.6	59.8	117.8	59.8	117.8	59.8	117.8	62.9	116.1	63.2	118.9	63.4	121.6
bp	74.5	179.9	71.8	178.9	71.8	178.9	71.8	178.9	74.5	179.9	74.5	179.9	77.3	180.7
bq	209.8	285.8	218.7	290.8	218.1	292.2	222.3	293.9	222.3	293.9	222.3	293.9	230.8	294.1
br	19.8	291.9	17.5	289.8	12.1	288.1	12.1	288.1	12.1	288.1	9.8	285.8	5.6	281.1
bs	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bt	85.6	359.2	82.4	364.0	81.5	360.7	79.5	360.1	77.3	362.0	77.3	362.0	77.3	362.0
bu	59.8	482.1	50.0	600.0	52.9	601.3	52.9	604.2	52.9	604.2	56.2	611.1	59.6	615.0
bv	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bw	159.6	515.0	180.3	504.8	166.3	517.2	174.2	524.3	178.0	537.1	176.7	526.9	176.7	526.9
bx	162.1	407.8	171.0	405.3	168.2	407.1	168.2	407.1	168.2	407.1	168.2	407.1	171.5	408.1

Annexe 3, suite...

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
by	130.6	604.8	130.6	604.8	130.6	604.8	130.6	604.8	130.6	604.8	189.9	652.4	187.4	651.8
bz	244.7	548.6	250.0	557.5	252.0	562.4	256.1	562.3	256.1	562.3	256.1	562.3	266.0	559.6
ca	4.0	571.0	4.0	571.0	4.0	571.0	6.5	565.7	6.5	565.7	6.5	565.7	9.4	565.4
cc	175.8	614.3	184.4	608.1	183.7	605.4	201.1	588.9	196.5	593.9	203.5	593.9	204.5	588.8
ce	442.8	750.3	443.8	747.7	444.5	752.2	444.7	748.6	444.7	748.6	444.7	748.6	442.8	750.3
cf	326.7	719.0	326.7	719.0	289.5	713.8	289.5	713.8	292.4	711.5	292.4	711.5	298.9	705.0
cg	365.9	790.3	393.0	793.7	393.0	793.7	393.0	793.7	393.0	793.7	393.0	793.7	393.0	793.7
ci	321.0	734.8	321.0	734.8	305.7	714.1	305.7	714.1	304.6	714.5	294.9	719.3	290.3	716.4
cm	55.5	697.0	47.3	695.6	36.3	694.9	36.6	692.0	31.7	688.5	31.7	688.5	31.7	688.5
cs	310.8	783.1	310.8	783.1	310.8	783.1	310.8	783.1	310.8	783.1	310.8	783.1	310.8	783.1
ct	150.0	767.3	150.0	767.3	150.0	767.3	105.4	750.5	105.4	750.5	105.4	750.5	98.0	748.2
cu	239.8	762.0	253.4	743.1	256.7	742.9	255.1	744.9	255.1	744.9	255.1	744.9	253.5	746.9
d	450.0	100.0	396.7	86.3	396.7	86.3	374.1	90.3	374.1	90.3	365.9	90.3	337.6	63.3
da	18.7	636.1	19.8	644.0	27.4	636.6	29.1	644.7	29.1	644.7	31.2	643.3	31.2	643.3
dc	432.6	701.6	432.6	701.6	415.9	695.2	409.4	696.1	415.2	697.9	415.2	697.9	416.7	692.5
dd	323.6	801.4	*	*	*	*	*	*	*	*	*	*	*	*
df	-0.8	714.3	-0.8	714.3	3.0	714.3	9.0	719.0	9.0	719.0	6.0	716.7	16.5	718.2
dj	31.7	788.5	31.7	788.5	43.5	788.5	31.7	788.5	31.7	788.5	31.7	788.5	31.7	788.5
dl	79.5	789.1	111.9	770.1	69.5	743.6	113.9	743.6	113.9	743.6	112.7	741.3	111.7	738.9
dln	79.4	778.6	58.3	763.7	14.4	766.9	58.5	766.9	56.3	765.5	58.5	766.9	58.5	766.9
dln	164.4	800.5	169.2	794.1	169.2	794.1	170.1	783.7	172.4	781.8	170.1	783.7	176.6	777.8
dln	119.0	784.2	108.1	788.5	108.1	788.5	108.1	788.5	108.1	788.5	105.6	788.7	108.1	788.5
dln	199.9	786.4	208.2	775.8	206.8	773.3	206.8	773.3	202.8	773.6	202.8	773.6	202.2	771.1
ds	258.5	724.7	271.0	605.3	275.3	695.9	291.2	665.4	291.2	665.4	326.1	677.0	304.2	681.2
dt	279.9	749.4	273.1	746.0	273.1	746.0	273.1	746.0	275.3	747.3	269.5	746.8	269.5	746.8
dv	235.8	761.5	228.1	768.1	228.1	768.1	228.1	768.1	226.2	766.1	226.2	766.1	221.9	765.0
dw	258.4	798.2	241.2	803.9	241.2	803.9	229.5	802.5	223.6	801.4	220.3	802.1	220.3	802.1
e	410.5	113.8	410.5	113.8	411.4	122.7	412.8	130.4	415.1	126.5	415.1	126.5	415.1	126.5
el	*	*	*	*	*	*	*	*	*	*	*	*	*	*
em	*	*	*	*	*	*	*	*	*	*	185.1	564.3	173.1	563.1

## Annexe 3, suite...

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
eo	*	*	*	*	*	*	*	*	*	*	271.2	589.4	274.1	590.3
es	*	*	*	*	*	*	*	*	*	*	330.5	546.8	330.5	546.8
et	*	*	*	*	*	*	*	*	*	*	347.5	587.0	375.2	672.0
eu	*	*	*	*	*	*	*	*	*	*	458.2	595.4	458.2	595.4
ex	*	*	*	*	*	*	*	*	*	*	458.5	524.7	458.5	524.7
ey	*	*	*	*	*	*	*	*	*	*	318.3	487.0	318.3	487.0
fa	*	*	*	*	*	*	*	*	*	*	378.7	512.3	378.7	512.3
fb	*	*	*	*	*	*	*	*	*	*	353.6	450.5	326.5	440.3
fc	*	*	*	*	*	*	*	*	*	*	469.2	494.1	461.1	496.6
ff	*	*	*	*	*	*	*	*	*	*	461.1	371.4	476.2	350.6
fh	*	*	*	*	*	*	*	*	*	*	258.6	301.1	258.6	301.1
fi	*	*	*	*	*	*	*	*	*	*	256.5	268.6	256.5	268.6
fj	*	*	*	*	*	*	*	*	*	*	271.9	268.1	271.9	268.1
fq	*	*	*	*	*	*	*	*	*	*	91.8	137.2	97.9	135.5
fr	*	*	*	*	*	*	*	*	*	*	109.0	134.4	109.0	134.4
fv	306.8	773.3	300.3	773.7	298.4	776.2	298.4	776.2	301.6	776.2	301.6	776.2	300.4	778.7
fw	323.4	745.1	318.7	736.1	316.8	731.3	316.8	731.3	315.9	728.9	298.4	776.2	319.0	730.0
fx	345.2	779.5	315.2	787.6	312.1	788.1	315.2	787.6	315.2	787.6	312.1	788.1	307.9	791.1
fy	322.1	772.9	313.5	793.0	311.2	790.8	311.2	790.8	311.2	790.8	311.2	790.8	314.4	790.3
fz	418.3	787.0	418.3	787.0	418.3	787.0	436.3	794.9	436.3	794.9	436.3	794.9	436.3	794.9
g	455.0	85.4	450.0	82.6	450.0	82.6	450.0	82.6	457.5	80.7	450.0	82.6	447.6	81.0
ga	406.7	778.5	396.1	768.5	396.1	768.5	380.5	757.8	383.2	755.9	373.2	754.8	361.6	756.8
gd	452.1	765.7	452.1	765.7	452.1	765.7	406.7	778.5	406.7	778.5	409.7	778.1	409.7	778.1
ge	462.0	744.3	452.6	746.0	453.6	750.5	450.0	750.6	451.8	748.8	451.8	748.8	451.8	748.8
gg	440.3	738.7	440.3	738.7	442.7	727.5	441.5	724.7	441.5	724.7	441.5	724.7	441.5	724.7
gh	222.1	731.0	231.4	733.2	231.1	738.8	234.5	733.7	241.1	729.9	255.4	718.5	257.1	730.3
gk	366.9	679.8	366.9	679.8	335.7	678.6	333.5	676.8	336.1	675.7	336.1	675.7	331.9	672.0
gl	353.7	654.0	354.1	664.0	352.0	662.4	352.0	662.4	355.9	659.0	358.0	660.5	358.0	660.5
gm	350.0	616.7	366.7	586.5	367.8	585.6	375.7	588.1	367.8	585.6	367.8	585.6	345.0	585.4
gn	403.2	655.8	394.6	670.9	393.2	673.3	393.2	673.3	394.1	673.4	388.4	675.3	366.9	679.8



Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
go	434.0	659.6	425.3	638.1	445.8	621.9	443.2	624.8	443.2	624.8	443.1	621.8	443.2	624.8
gr	162.4	548.0	163.9	546.0	162.4	548.0	173.9	549.4	173.9	549.4	183.7	548.1	183.7	548.1
gs	143.3	571.8	143.3	571.8	141.2	570.0	136.5	572.6	136.8	569.6	136.8	569.6	134.4	570.8
gt	297.4	609.2	294.6	606.5	295.4	609.1	294.6	606.5	294.6	606.5	294.6	606.5	294.6	606.5
gv	438.4	556.8	405.2	608.8	402.1	606.7	396.8	601.5	397.9	599.0	396.8	601.5	384.1	595.2
gx	202.6	409.2	202.6	409.2	202.6	409.2	202.6	409.2	202.6	409.2	202.6	409.2	202.6	409.2
gy	247.9	365.7	255.5	352.2	253.6	350.5	253.6	350.5	253.6	350.5	253.6	350.5	259.2	351.9
ha	310.5	413.8	310.5	413.8	308.5	408.9	307.6	411.5	311.3	411.2	307.6	411.5	304.8	409.1
hb	336.2	358.2	336.2	358.2	334.0	359.6	334.0	359.6	346.0	360.7	346.0	360.7	352.1	365.7
hc	413.3	362.1	403.2	358.3	398.9	353.3	398.9	353.3	398.9	353.3	370.2	344.2	388.1	341.5
hd	143.1	274.8	143.1	274.8	143.1	274.8	143.1	274.8	143.1	274.8	145.5	273.4	143.1	274.8
he	332.6	235.6	332.6	235.6	332.6	235.6	334.5	233.7	334.5	233.7	340.7	234.5	339.1	234.1
hf	460.7	278.3	458.2	277.0	465.4	277.7	464.3	278.6	464.3	278.6	465.4	277.7	482.3	279.3
hg	457.1	277.8	442.5	283.8	438.6	285.7	427.1	284.7	420.6	278.6	416.6	270.5	414.9	264.3
hh	102.8	188.9	102.8	188.9	101.1	188.9	99.9	186.4	101.1	188.9	101.1	188.9	95.5	183.7
hk	299.2	168.6	310.0	170.4	310.0	170.4	315.5	134.8	315.5	134.8	315.5	134.8	317.7	133.7
hl	216.3	105.4	216.3	105.4	216.3	105.4	216.3	105.4	212.5	116.0	212.7	95.7	174.8	61.0
hm	218.4	210.2	218.4	210.2	217.1	215.6	217.1	215.6	208.2	221.6	199.2	214.3	199.2	214.3
hn	345.1	182.5	352.5	187.0	355.2	188.3	357.8	189.6	357.8	189.6	357.8	189.6	357.8	189.6
hp	374.1	190.3	378.7	186.3	384.7	187.6	387.9	188.1	384.8	187.6	388.4	188.1	390.6	191.0
hq	483.5	137.2	483.5	137.2	481.3	136.1	480.2	138.4	479.0	134.8	478.9	130.4	478.0	137.1
hr	489.5	113.8	494.5	119.6	494.5	119.6	494.2	120.8	491.8	120.0	489.5	113.8	493.3	119.2
hs	266.3	93.1	258.2	95.4	242.2	89.6	242.2	89.6	234.4	70.8	235.3	64.6	237.2	66.5
ht	185.6	90.3	184.8	87.6	185.6	90.3	185.6	90.3	185.6	90.3	185.6	90.3	174.1	90.3
hu	176.5	88.4	181.7	87.0	179.5	89.1	179.5	89.1	179.5	89.1	179.5	89.1	178.3	90.1
hv	237.1	51.5	237.1	51.5	237.1	51.5	235.0	53.0	235.0	53.0	235.0	53.0	235.0	53.0
hw	174.0	57.9	167.7	57.6	170.0	58.8	170.0	58.8	166.0	59.6	170.0	58.8	168.3	60.8
hx	121.0	99.4	121.0	99.4	129.0	105.3	135.0	106.1	131.8	107.1	131.8	107.1	136.4	107.0
hy	236.3	11.6	236.3	11.6	236.3	11.6	236.3	11.6	234.5	8.6	234.5	8.6	235.0	11.5
i	322.9	53.7	317.6	50.3	321.1	46.2	318.7	47.2	320.1	49.4	318.7	47.2	316.3	42.7

Annexe 3, suite...

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
ia	243.8	34.7	246.9	34.8	245.3	36.9	245.3	36.9	245.3	36.9	246.9	34.8	243.8	34.7
ib	254.9	41.1	254.9	41.1	254.9	41.1	254.9	41.1	255.7	40.0	255.7	40.0	255.7	40.0
ic	253.9	35.9	254.7	36.9	254.7	36.9	254.5	32.5	254.5	32.5	251.5	27.7	250.0	30.2
id	336.2	58.2	336.2	58.2	337.3	57.5	336.2	58.2	336.2	58.2	336.2	58.2	336.2	58.2
ie	333.5	51.0	333.5	51.0	333.5	51.0	281.9	39.2	276.6	45.1	277.9	42.9	276.2	50.6
if	359.2	51.9	361.6	56.8	362.5	55.9	363.3	54.9	362.9	51.5	361.2	53.5	362.1	52.5
ig	367.0	65.9	367.0	65.9	368.5	68.0	371.0	69.1	371.9	68.1	371.9	68.1	371.3	65.1
ij	364.8	40.1	366.8	41.7	366.8	41.7	367.8	42.5	365.4	43.9	366.1	42.8	366.1	42.8
ik	463.9	75.7	470.6	62.0	479.1	40.6	477.9	42.9	479.1	40.6	480.2	38.4	492.1	18.7
il	476.4	59.0	477.3	62.0	478.9	67.9	478.9	67.9	478.0	69.0	478.0	69.0	475.2	72.0
ip	481.7	87.0	480.2	86.7	478.7	86.3	481.7	87.0	481.7	87.0	479.9	85.3	481.7	87.0
iq	505.4	70.9	505.4	70.9	505.4	70.9	505.4	70.9	505.4	70.9	505.4	70.9	505.4	70.9
ir	476.6	45.1	486.4	58.1	485.1	64.3	490.6	65.4	499.7	55.9	497.6	43.1	*	*
it	403.5	3.6	403.5	3.6	403.5	3.6	403.5	3.6	403.5	3.6	403.5	3.6	403.5	3.6
iu	408.2	20.0	403.0	20.1	405.5	19.6	400.2	19.0	400.0	17.8	397.4	17.6	395.0	17.1
iv	*	*	*	*	*	*	*	*	419.0	7.1	421.3	3.3	414.3	10.6
iy	8.2	68.1	8.2	68.1	8.2	68.1	11.1	67.7	11.1	67.7	10.0	70.4	10.0	70.4
j	279.7	26.0	284.1	28.9	284.1	28.9	291.1	31.8	291.1	31.8	291.9	29.4	291.1	31.8
jd	250.0	39.1	251.6	41.2	251.6	41.2	250.0	43.1	251.6	41.2	251.6	41.2	254.9	41.1
jf	50.0	100.0	52.8	98.5	50.0	100.0	52.8	98.5	52.9	101.3	52.9	101.3	52.8	98.5
ji	97.0	20.1	97.0	20.1	97.0	20.1	99.5	20.3	95.4	14.5	95.4	14.5	92.6	16.2
jü	136.2	58.2	136.2	58.2	136.2	58.2	136.2	58.2	136.2	58.2	138.0	60.1	132.9	60.2
jm	11.3	131.0	11.3	131.0	11.3	131.0	13.6	130.1	13.6	130.1	13.6	130.1	13.6	130.1
jn	67.4	135.6	84.2	120.9	84.2	120.9	84.2	120.9	84.2	120.9	84.2	120.9	84.2	120.9
jo	32.6	182.7	28.3	192.3	25.9	190.3	23.5	188.4	22.1	188.7	23.5	188.4	17.5	189.8
jq	19.1	194.6	39.2	193.7	39.2	193.7	44.7	191.2	44.7	191.2	52.8	198.5	52.8	198.5
jr	22.3	200.4	30.4	197.0	33.0	198.8	28.8	189.4	24.7	195.9	24.2	198.7	29.9	199.8
jt	51.5	227.7	41.1	229.9	41.1	229.9	38.9	236.5	38.9	236.5	38.9	236.8	40.7	234.5
ju	56.5	238.9	59.3	234.5	57.6	232.3	58.5	224.7	57.0	227.6	57.0	227.6	53.3	220.8
jv	8.7	280.8	7.8	275.8	5.9	273.4	8.9	273.1	8.9	273.1	5.9	273.4	8.9	273.1

Annexe 3, suite...

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
jx	11.3	249.5	11.3	249.5	6.0	250.4	3.3	250.7	3.3	250.7	3.3	250.7	3.3	250.7
iy	52.8	298.5	58.2	295.4	58.2	295.4	61.1	296.6	58.2	295.4	64.4	300.5	77.0	304.2
jz	66.9	279.8	66.9	279.8	68.1	272.0	64.7	281.6	64.7	281.6	64.3	278.6	67.5	268.9
k	324.0	229.0	324.0	229.0	324.2	229.4	325.3	225.0	325.3	225.0	325.3	225.0	325.3	225.0
kd	25.3	325.0	25.3	325.0	25.3	325.0	25.3	325.0	25.3	325.0	25.3	325.0	25.3	325.0
kg	42.4	386.7	45.0	385.4	45.0	385.4	44.8	388.3	47.6	381.0	47.6	381.0	47.6	381.0
kh	84.8	397.9	88.0	421.3	88.0	421.3	101.4	440.6	98.6	440.6	98.6	440.6	98.6	440.6
ki	100.5	401.6	89.5	413.8	110.8	444.4	129.2	520.3	129.2	520.3	163.1	489.2	160.6	490.9
kj	92.2	375.8	104.9	376.0	110.1	373.0	117.5	371.6	110.1	373.0	110.5	362.6	121.1	359.9
kl	91.3	450.1	85.9	438.1	83.2	431.3	83.2	431.3	71.7	431.6	73.7	427.6	72.7	430.1
km	103.3	486.3	103.3	486.3	103.3	486.3	103.3	486.3	101.1	488.9	103.3	486.3	105.6	488.7
ko	4.0	471.0	4.0	471.0	4.0	471.0	4.0	471.0	4.0	471.0	4.0	471.0	4.0	471.0
kp	19.4	473.7	22.1	472.9	24.8	472.0	27.4	471.1	27.4	471.1	33.0	465.9	30.5	467.0
kq	41.8	495.4	41.8	495.4	47.5	484.0	47.5	484.0	47.5	484.0	47.5	484.0	47.5	484.0
kr	35.0	453.0	36.7	454.9	37.1	451.5	39.2	450.0	35.0	453.0	35.0	453.0	34.5	456.3
ks	83.1	482.1	83.1	482.1	78.1	465.0	80.7	465.8	82.5	471.6	82.5	471.6	83.4	474.4
kt	197.7	488.9	199.9	494.0	199.9	494.0	195.0	498.9	196.0	501.5	196.0	501.5	196.0	501.5
ku	237.6	483.4	243.9	462.3	242.3	457.2	238.8	453.5	235.0	453.0	231.3	452.3	222.9	453.7
kv	473.7	503.4	466.2	503.9	464.7	503.4	458.4	498.2	458.4	498.2	458.4	498.2	455.7	499.8
kw	484.1	528.9	479.0	534.8	479.0	534.8	479.0	534.8	476.9	533.4	478.0	537.1	462.9	538.3
kx	480.2	538.4	476.9	533.4	473.7	534.3	471.1	533.8	471.7	532.6	470.5	535.0	464.8	529.2
ky	42.3	557.2	42.3	557.2	42.3	557.2	44.3	555.6	44.3	555.6	42.3	557.2	42.3	557.2
kz	88.8	590.8	88.8	590.8	91.1	588.5	91.1	588.5	90.2	585.8	91.1	588.5	87.9	588.1
la	11.3	611.2	11.3	611.2	6.2	610.3	8.5	608.9	8.5	608.9	8.5	608.9	7.6	611.5
lc	29.9	641.1	33.2	641.7	33.2	641.7	44.9	644.9	43.3	642.9	44.9	644.9	50.0	641.3
ld	4.6	653.1	4.6	653.1	11.7	659.8	11.7	659.8	11.7	659.8	13.9	667.2	13.9	667.2
lf	33.2	641.7	25.6	643.9	25.6	643.9	6.2	645.3	7.4	647.7	7.4	647.7	7.4	647.7
lg	31.4	633.2	32.6	635.6	34.5	633.7	35.5	632.5	39.3	631.4	34.5	633.7	35.5	632.5
lh	48.0	559.2	48.0	559.2	50.0	557.5	44.1	559.0	44.1	559.0	37.6	563.3	28.7	565.1
li	143.0	627.6	153.3	620.8	153.3	620.8	165.4	643.9	166.0	647.5	166.0	647.5	169.5	646.8

Annexe 3, suite...

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
lj	19.8	681.4	19.8	681.4	19.8	681.4	17.7	679.3	17.7	679.3	18.5	676.5	12.7	677.7
lk	14.8	679.9	17.5	671.6	17.5	671.6	17.5	671.6	17.5	671.6	17.5	671.6	20.2	670.8
m	447.6	181.0	439.7	188.0	425.9	190.3	428.3	192.3	428.3	192.3	415.2	187.6	415.2	187.6
n	496.5	165.9	496.5	165.9	481.5	160.7	472.4	160.0	470.6	162.0	471.6	156.8	465.0	153.0
o	504.2	181.2	506.2	178.5	506.2	178.5	506.2	178.5	506.2	178.5	506.2	178.5	506.2	178.5
p	429.9	99.8	433.0	98.8	432.6	101.6	432.6	101.6	432.6	101.6	435.0	106.1	435.0	106.1
pb	*	*	*	*	*	*	*	*	*	*	488.2	198.4	488.2	198.4
pc	*	*	*	*	*	*	*	*	*	*	461.2	53.5	461.2	53.5
pd	*	*	*	*	*	*	*	*	*	*	466.5	51.0	466.5	51.0
pe	*	*	*	*	*	*	*	*	*	*	478.9	46.2	486.1	43.6
pi	*	*	*	*	*	*	*	*	*	*	311.4	744.3	311.4	744.3
pj	*	*	*	*	*	*	*	*	*	*	350.0	730.4	350.0	730.4
pk	*	*	*	*	*	*	*	*	*	*	321.9	765.0	334.0	759.6
pl	*	*	*	*	*	*	*	*	*	*	334.5	756.3	326.0	757.9
pm	*	*	*	*	*	*	*	*	*	*	353.7	754.0	353.7	754.0
pn	*	*	*	*	*	*	*	*	*	*	345.7	767.2	345.7	767.2
pp	*	*	*	*	*	*	*	*	*	*	368.2	707.1	353.2	715.3
pr	*	*	*	*	*	*	*	*	*	*	391.8	721.6	391.8	721.6
q	450.0	114.0	447.1	104.2	450.0	105.6	450.0	105.6	447.1	101.3	447.2	98.5	447.2	98.5
qc	*	*	*	*	*	*	*	*	*	*	188.9	767.7	188.9	767.7
qd	*	*	*	*	*	*	*	*	*	*	54.4	770.3	54.4	770.3
qe	*	*	*	*	*	*	*	*	*	*	14.0	754.1	14.0	754.1
qf	*	*	*	*	*	*	*	*	*	*	170.2	750.3	171.7	748.2
qj	*	*	*	*	*	*	*	*	*	*	131.4	675.0	129.4	673.1
qk	*	*	*	*	*	*	*	*	*	*	67.8	685.6	65.1	684.5
ql	*	*	*	*	*	*	*	*	*	*	60.8	668.3	60.8	668.3
qm	*	*	*	*	*	*	*	*	*	*	0.1	694.0	0.1	694.0
qn	*	*	*	*	*	*	*	*	*	*	45.4	676.5	45.4	676.5
qo	*	*	*	*	*	*	*	*	*	*	*	686.1	*	686.1
qq	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Annexe 3, suite...

Moule	20 juillet 1989		27 juillet 1989		3 août 1989		10 août 1989		17 août 1989		24 août 1989		31 août 1989	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
qr	*	*	*	*	*	*	*	*	*	*	450.0	682.6	450.0	682.6
qs	*	*	*	*	*	*	*	*	*	*	471.7	692.3	442.2	689.6
qt	*	*	*	*	*	*	*	*	*	*	455.3	691.2	455.2	688.3
qx	*	*	*	*	*	*	*	*	*	*	-2.6	609.2	-1.7	611.7
qz	*	*	*	*	*	*	*	*	*	*	16.6	574.4	16.6	574.4
r	416.7	192.5	419.4	188.1	416.7	192.5	416.7	192.5	414.4	190.3	417.5	189.8	419.8	191.9
rb	*	*	*	*	*	*	*	*	*	*	0.5	566.0	3.5	565.9
rd	*	*	*	*	*	*	*	*	*	*	30.0	458.8	23.6	459.0
rf	*	*	*	*	*	*	*	*	*	*	28.6	438.9	28.6	438.9
rg	*	*	*	*	*	*	*	*	*	*	33.1	422.6	26.4	419.8
rh	*	*	*	*	*	*	*	*	*	*	222.4	348.4	224.7	347.3
ri	*	*	*	*	*	*	*	*	*	*	55.9	405.5	50.0	408.4
rk	*	*	*	*	*	*	*	*	*	*	62.9	251.5	62.9	251.5
rl	*	*	*	*	*	*	*	*	*	*	25.7	306.1	25.7	306.1
rm	*	*	*	*	*	*	*	*	*	*	17.7	300.0	17.7	300.0
ro	*	*	*	*	*	*	*	*	*	*	11.3	223.9	12.1	225.2
rp	*	*	*	*	*	*	*	*	*	*	31.3	191.3	52.4	181.0
rq	*	*	*	*	*	*	*	*	*	*	4.0	171.0	4.0	171.0
rs	*	*	*	*	*	*	*	*	*	*	58.2	140.8	48.4	141.2
rt	*	*	*	*	*	*	*	*	*	*	6.6	140.1	7.7	142.5
rx	*	*	*	*	*	*	*	*	*	*	97.2	73.6	98.4	76.2
ry	*	*	*	*	*	*	*	*	*	*	96.2	32.8	97.0	30.3
s	488.8	190.8	484.0	184.9	483.1	182.1	484.0	184.9	484.0	184.9	484.0	184.9	477.3	180.7
t	484.8	151.1	484.8	151.1	484.8	151.1	484.8	151.1	484.8	151.1	484.8	151.1	484.8	151.1
u	503.3	235.4	506.1	235.0	506.1	235.0	506.1	235.0	505.2	237.7	505.2	237.7	501.4	240.6
v	362.9	216.1	363.2	218.9	363.2	218.9	363.2	218.9	363.2	218.9	359.8	217.8	356.6	219.3
w	302.6	109.2	302.6	109.2	310.3	117.5	315.3	117.0	315.3	117.0	310.5	113.8	315.3	117.0
x	232.3	157.6	232.3	157.6	232.3	157.6	232.3	157.6	232.3	157.6	247.1	101.3	247.1	101.3
y	465.1	284.5	467.4	282.7	467.4	282.7	465.1	284.5	466.0	282.2	467.4	282.7	466.9	279.8
z	498.8	307.5	479.8	306.0	479.8	306.0	479.8	306.0	479.8	306.0	479.8	306.0	479.8	306.0

## Annexe 3, suite...

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
10	268.1	648.9	268.1	648.9	268.1	648.9	268.1	648.9	268.1	648.9	268.1	648.9	268.1	648.9
100	70.1	683.7	72.4	681.8	72.4	681.8	70.1	683.7	72.4	681.8	72.4	681.8	73.9	677.0
101	124.2	798.7	124.2	798.7	124.2	798.7	124.2	798.7	124.2	798.7	124.2	798.7	124.2	798.7
102	50.0	630.4	50.0	634.9	50.0	633.2	42.1	636.7	43.5	638.9	43.5	638.9	43.5	638.9
1021	18.4	625.7	11.4	622.7	15.8	620.9	15.8	620.9	15.8	620.9	15.8	620.9	13.7	621.4
104	96.7	760.9	97.3	760.9	95.2	763.3	95.2	763.3	95.2	763.3	95.2	763.3	101.1	763.5
105	81.0	707.5	81.0	707.5	81.0	707.5	84.4	708.1	84.4	708.1	84.4	708.1	87.2	705.9
106	80.5	620.3	80.5	620.3	80.5	620.3	80.5	620.3	80.5	620.3	80.5	620.3	90.2	614.9
109	-1.6	676.2	-3.5	673.6	-0.3	673.7	-3.5	673.6	-3.5	673.6	-3.5	673.6	8.9	673.1
11	7.9	224.2	7.9	224.2	7.9	224.2	7.9	224.2	7.9	224.2	7.9	224.2	7.9	224.2
110	101.6	776.2	98.4	776.2	102.9	778.7	102.9	778.7	102.9	778.7	102.9	778.7	102.9	778.7
111	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1118	33.1	779.8	20.2	762.9	21.1	759.9	21.1	759.9	21.1	759.9	21.1	759.9	21.1	759.9
113	494.7	568.4	474.5	569.1	471.9	568.1	472.6	571.1	472.6	571.1	472.6	571.1	468.3	560.8
1138	450.0	554.1	443.0	546.7	443.0	546.7	443.0	546.7	443.0	546.7	443.0	546.7	443.0	546.7
114	73.2	700.6	70.1	699.8	70.1	699.8	69.6	697.0	69.6	697.0	69.6	697.0	69.6	697.0
115	124.2	698.7	121.0	699.4	121.0	699.4	123.6	701.4	123.6	701.4	123.6	701.4	124.2	698.7
1164	161.4	99.4	158.4	98.2	158.8	103.9	158.8	103.9	158.8	103.9	158.8	103.9	158.8	103.9
1169	325.2	661.0	325.2	661.0	325.2	661.0	325.2	661.0	325.2	661.0	325.2	661.0	325.2	661.0
1172	188.3	538.9	188.3	538.9	188.3	538.9	188.3	538.9	188.3	538.9	188.3	538.9	188.3	538.9
118	471.3	528.9	470.8	528.2	470.8	528.2	471.3	528.9	471.3	528.9	471.3	528.9	471.3	528.9
1184	363.4	221.6	395.7	222.5	365.4	243.9	365.4	243.9	324.7	211.6	324.7	211.6	324.7	211.6
119	486.8	528.9	485.5	532.5	481.3	536.1	481.3	536.1	478.0	537.1	478.0	537.1	478.0	537.1
12	422.0	283.5	422.7	280.7	422.7	280.7	422.7	280.7	422.7	280.7	422.7	280.7	422.7	280.7
120	412.6	451.8	411.4	444.3	434.4	411.7	434.4	411.7	434.4	411.7	434.4	411.7	434.4	411.7
1214	308.5	608.9	308.5	608.9	308.5	608.9	308.5	608.9	308.5	608.9	308.5	608.9	304.8	609.1
122	36.8	769.6	36.8	769.6	34.4	770.8	36.5	772.6	34.4	770.8	34.4	770.8	36.8	769.6
123	58.8	703.9	55.9	705.5	55.9	705.5	59.0	706.7	59.0	706.7	59.0	706.7	62.1	707.8
1246	344.1	459.0	344.1	459.0	342.0	460.5	342.0	460.5	342.0	460.5	342.0	460.5	342.0	460.5
1254	188.1	141.5	195.3	135.2	195.3	135.2	195.3	135.2	195.3	135.2	195.3	135.2	195.3	135.2

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
126	167.7	457.6	166.0	459.6	167.7	457.6	167.7	457.6	167.7	457.6	162.4	463.3	164.2	461.5
1269	104.5	483.7	104.5	483.7	104.5	483.7	104.5	483.7	104.5	483.7	104.5	483.7	104.5	483.7
127	359.5	555.4	362.0	544.3	362.0	544.3	362.0	544.3	362.0	544.3	362.0	544.3	362.0	544.3
1270	201.2	791.4	201.2	791.4	201.2	791.4	201.2	791.4	201.2	791.4	201.2	791.4	201.2	791.4
1273	105.0	317.1	105.0	317.1	102.5	317.6	95.7	304.1	95.7	304.1	95.7	304.1	95.7	304.1
129	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1297	453.7	454.0	453.7	454.0	465.1	467.8	465.1	467.8	465.1	467.8	465.1	467.8	460.1	485.1
13	371.0	405.3	374.3	406.1	377.0	404.2	374.3	406.1	371.5	408.1	371.5	408.1	374.3	406.1
130	144.5	752.2	144.5	752.2	142.8	750.3	141.1	748.4	142.8	750.3	142.8	750.3	142.8	750.3
131	80.3	649.6	81.0	652.5	84.8	651.1	82.4	650.3	82.4	650.3	82.4	650.3	82.4	650.3
132	31.9	772.0	31.9	772.0	33.0	765.9	34.9	767.8	34.9	767.8	34.9	767.8	32.5	768.9
135	53.1	709.8	53.1	709.8	53.1	709.8	53.1	709.8	53.1	709.8	53.1	709.8	53.1	709.8
136	103.2	655.8	101.7	658.4	101.7	658.4	102.4	650.7	96.0	653.2	96.0	653.2	96.0	653.2
1365	310.2	403.6	311.8	398.4	311.8	398.4	307.5	401.3	307.5	401.3	307.5	401.3	308.5	398.7
137	4.0	740.4	4.0	740.4	4.0	740.4	4.0	740.4	4.0	740.4	4.0	740.4	4.0	740.4
138	20.6	778.6	22.7	780.7	22.7	780.7	22.7	780.7	20.6	778.6	20.6	778.6	21.4	775.8
139	90.6	691.0	90.6	691.0	95.4	691.3	88.8	690.8	88.8	690.8	88.8	690.8	88.8	690.8
14	52.2	171.9	54.5	173.4	54.5	173.4	52.3	175.0	52.3	175.0	52.3	175.0	54.5	173.4
140	341.1	29.9	339.8	27.2	339.8	27.2	339.8	27.2	339.8	27.2	338.1	29.6	338.1	29.6
1407	428.2	178.9	439.2	168.3	439.2	168.3	*	*	*	*	*	*	*	*
141	367.0	265.9	373.1	263.1	374.8	261.0	373.1	263.1	373.8	266.1	*	*	375.2	272.0
142	218.9	423.0	211.3	423.9	211.3	423.9	200.6	435.6	199.6	438.1	199.6	438.1	191.8	437.2
143	150.0	567.3	152.2	568.8	152.2	568.8	152.2	568.8	152.2	568.8	152.2	568.8	152.2	568.8
1438	191.1	260.3	187.8	264.9	187.8	264.9	187.8	264.9	187.8	264.9	187.8	264.9	189.5	262.6
144	256.2	311.1	256.2	301.1	253.1	309.8	253.1	309.8	253.1	309.8	253.1	309.8	253.0	307.0
145	396.5	593.9	396.5	593.9	396.5	593.9	396.5	593.9	396.5	593.9	396.5	593.9	396.5	593.9
1451	465.1	784.5	465.1	784.5	464.7	781.6	464.7	781.6	464.7	781.6	464.7	781.6	464.7	781.6
1459	462.1	180.4	460.3	188.0	460.3	188.0	460.3	188.0	460.3	188.0	460.3	188.0	460.3	188.0
146	452.8	598.5	452.8	598.5	452.8	598.5	452.8	598.5	452.8	598.5	452.8	598.5	450.0	597.1
147	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
1472	497.9	115.1	497.9	115.1	472.9	284.7	472.9	284.7	472.9	284.7	472.9	284.7	472.9	284.7
148	243.9	562.3	243.9	562.3	243.9	562.3	241.7	563.7	241.7	563.7	241.7	563.7	243.7	565.5
149	341.7	663.7	341.7	663.7	341.7	663.7	341.7	663.7	341.7	663.7	341.7	663.7	341.7	663.7
150	337.3	686.3	337.3	686.3	334.9	684.5	334.9	684.5	334.9	684.5	334.9	684.5	334.9	684.5
152	118.9	523.0	118.9	523.0	86.4	503.2	89.0	501.0	85.6	500.6	85.6	500.6	89.0	501.0
153	110.5	462.6	110.5	462.6	110.5	462.6	110.5	462.6	110.5	462.6	110.5	462.6	119.8	481.4
155	102.3	227.8	102.3	227.8	102.3	227.8	102.3	227.8	98.7	224.1	98.7	224.1	104.8	227.5
157	172.5	451.5	169.4	455.6	171.6	456.8	171.6	456.8	171.6	456.8	171.6	456.8	170.9	444.7
158	382.5	771.6	380.6	773.7	382.5	771.6	382.5	771.6	382.5	771.6	382.5	771.6	371.9	768.1
159	395.5	88.8	400.1	86.4	400.1	86.4	397.7	88.9	407.7	83.5	407.7	83.5	416.9	82.1
16	243.3	142.9	260.5	146.4	258.5	144.7	263.9	146.0	265.5	133.7	265.5	133.7	268.6	133.2
160	396.5	73.6	396.5	73.6	396.5	73.6	397.2	73.6	397.2	73.6	399.7	73.7	399.0	71.1
161	268.5	436.1	275.6	441.7	274.4	443.9	272.2	442.5	272.2	442.5	275.3	447.3	275.3	447.3
162	236.1	627.1	239.8	623.3	241.5	624.7	236.3	624.3	236.3	624.3	236.3	624.3	236.3	624.3
163	367.3	425.3	360.2	427.2	364.2	429.8	364.2	429.8	364.2	429.8	364.2	429.8	364.2	429.8
164	450.0	560.8	450.0	560.8	450.0	560.8	450.0	560.8	450.0	560.8	450.0	560.8	450.0	560.8
165	237.3	586.3	239.7	588.0	237.3	586.3	237.3	586.3	237.3	586.3	235.3	581.6	235.7	578.6
166	195.2	427.5	195.2	427.5	195.2	427.5	197.7	427.8	194.8	428.7	194.8	428.7	194.8	428.7
167	217.4	625.1	217.4	625.1	211.3	623.9	211.3	623.9	211.3	623.9	211.3	623.9	211.3	623.9
168	238.8	553.5	238.8	553.5	238.8	553.5	238.8	553.5	238.8	553.5	238.8	553.5	236.2	558.2
169	313.8	548.9	315.1	545.8	313.9	543.6	313.9	543.6	313.9	543.6	313.9	543.6	313.9	543.6
17	174.4	343.9	174.4	343.9	174.4	343.9	176.6	345.1	176.6	345.1	176.6	345.1	174.4	343.9
170	179.3	415.0	179.1	418.6	176.3	417.0	176.3	417.0	176.3	417.0	176.3	417.0	179.1	418.6
171	320.2	570.8	304.0	571.0	302.3	568.5	302.3	568.5	283.4	566.5	283.4	566.5	287.8	564.9
172	279.4	478.6	185.9	538.1	188.3	538.9	185.9	538.1	185.9	538.1	278.0	483.5	278.0	483.5
173	222.9	353.7	219.0	352.5	219.0	352.5	219.0	352.5	219.0	352.5	219.0	352.5	219.0	352.5
174	304.7	476.1	292.4	480.9	282.5	484.6	282.5	484.6	282.5	484.6	282.3	479.3	282.3	479.3
175	129.9	99.8	127.5	113.1	129.9	99.8	129.9	99.8	129.9	99.8	129.9	99.8	129.9	99.8
176	47.5	387.0	47.5	387.0	47.5	387.0	47.5	387.0	47.5	387.0	47.5	387.0	47.5	387.0
177	141.5	366.9	141.5	366.9	141.5	366.9	141.5	366.9	141.5	366.9	141.5	366.9	147.7	375.0



Annexe 3, suite...

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
178	194.0	596.3	194.0	596.3	194.0	596.3	194.0	596.3	194.0	596.3	194.0	596.3	194.0	596.3
179	354.4	670.3	347.9	665.7	347.9	665.7	347.9	665.7	347.9	665.7	347.9	665.7	347.9	665.7
18	340.2	717.8	343.4	719.3	340.2	717.8	343.5	716.6	343.5	716.6	343.5	716.6	340.4	715.0
180	92.2	245.0	88.6	244.3	72.6	236.6	72.6	236.6	72.6	236.6	89.7	241.9	89.7	241.9
181	33.4	119.9	33.7	117.7	33.7	117.7	33.7	117.2	33.7	117.2	33.7	117.2	33.7	117.2
182	82.6	121.9	82.6	121.9	84.9	126.5	84.9	126.5	84.9	126.5	84.9	126.5	85.6	124.0
183	58.8	70.0	58.8	70.0	58.8	70.0	58.8	70.0	58.8	70.0	61.1	71.4	61.1	71.4
184	217.1	761.2	217.1	761.2	217.1	761.2	217.1	761.2	217.1	761.2	217.1	761.2	217.1	761.2
186	175.6	241.7	175.6	241.7	175.6	241.7	175.6	241.7	175.6	241.7	175.6	241.7	175.6	241.7
187	155.7	299.8	155.7	299.8	155.7	299.8	155.5	297.0	155.5	297.0	155.5	297.0	155.5	297.0
188	75.8	98.7	75.8	98.7	76.4	101.4	76.4	101.4	76.4	101.4	76.4	101.4	75.8	98.7
19	379.9	717.7	376.8	719.7	379.9	717.7	379.9	717.7	379.9	717.7	379.9	717.7	379.9	717.7
191	57.0	146.7	57.0	146.7	57.0	146.7	57.0	146.7	55.1	144.9	57.0	146.7	57.0	146.7
192	70.2	145.8	70.9	144.7	69.5	146.8	69.5	146.8	69.5	146.8	69.5	146.8	69.5	146.8
193	90.4	247.3	88.7	249.5	91.2	244.9	91.2	244.9	93.8	245.3	93.8	245.3	93.4	247.8
194	79.9	117.7	76.4	119.2	77.1	116.0	68.6	109.9	68.6	109.9	68.6	109.9	68.6	109.9
195	112.1	25.2	110.8	20.1	110.8	20.1	113.1	18.7	113.1	18.7	113.1	18.7	113.1	18.7
197	84.7	59.0	88.3	59.8	88.3	59.8	88.3	59.8	85.6	59.2	85.6	59.2	88.3	59.8
198	358.8	803.9	358.8	803.9	358.8	803.9	358.8	803.9	358.8	803.9	358.8	803.9	355.8	802.7
199	5.6	30.0	12.7	41.3	15.2	40.4	10.0	47.2	10.0	47.2	10.0	47.2	10.0	47.2
2	329.5	402.5	333.0	398.8	336.0	397.7	335.3	403.4	335.3	403.4	335.3	403.4	335.3	403.4
20	186.9	535.8	189.3	536.6	189.3	536.6	186.9	535.8	186.9	535.8	189.3	536.6	186.9	535.8
200	11.4	644.3	11.4	644.3	11.4	644.3	11.4	644.3	11.4	644.3	11.4	644.3	11.4	644.3
201	76.9	433.4	76.9	433.4	76.9	433.4	74.8	431.9	74.8	431.9	75.8	429.4	77.9	431.0
202	355.9	659.0	358.0	660.5	356.1	662.3	356.3	665.5	356.3	665.5	356.3	665.5	356.3	665.5
203	*	*	*	*	*	*	*	*	*	*	*	*	*	*
204	474.7	238.1	474.7	238.1	474.7	238.1	473.5	240.3	474.7	238.1	474.7	238.1	474.4	243.9
205	47.4	389.9	47.4	389.9	47.4	389.9	47.4	389.9	47.4	389.9	47.4	389.9	47.3	392.8
206	145.1	382.5	145.4	376.5	145.4	376.5	145.4	376.5	145.4	376.5	145.4	376.5	143.5	368.6
207	432.6	482.7	432.6	482.7	432.6	482.7	432.6	482.7	432.6	482.7	432.6	482.7	427.1	484.7

## Annexe 3, suite...

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
208	67.6	228.0	67.6	228.0	55.4	218.5	53.3	220.8	53.3	220.8	54.0	214.5	55.2	208.9
209	302.8	173.6	302.8	173.6	305.9	173.4	305.9	173.4	305.9	173.4	305.9	173.4	305.9	173.4
21	366.6	719.9	366.6	719.9	366.6	719.9	366.6	719.9	366.6	719.9	366.6	719.9	363.2	718.9
210	439.4	90.9	439.4	90.9	439.2	93.7	439.2	93.7	439.2	93.7	439.2	93.7	439.2	93.7
211	485.6	159.2	485.6	159.2	485.6	159.2	470.6	173.1	470.6	173.1	470.6	173.1	470.6	173.1
212	117.5	571.6	123.2	539.4	123.2	539.4	123.2	539.4	123.2	539.4	123.2	539.4	141.5	566.9
213	271.3	528.9	271.3	528.9	271.3	528.9	267.9	530.7	267.9	530.7	268.6	533.2	266.7	531.3
214	61.9	405.1	55.8	402.7	61.6	402.3	61.9	405.1	61.9	405.1	61.9	405.1	59.0	406.7
215	395.8	163.4	394.4	165.8	394.4	165.8	394.4	165.8	394.4	165.8	395.8	163.4	395.8	163.4
216	182.3	300.0	184.8	297.9	182.3	300.0	182.3	300.0	182.3	300.0	182.3	300.0	182.3	300.0
217	173.2	454.8	170.0	458.8	170.6	462.0	164.7	464.6	164.7	464.6	158.3	463.7	160.2	462.0
218	16.0	484.9	19.0	484.2	19.0	484.2	15.2	487.6	15.2	487.6	16.0	484.9	16.0	484.9
219	285.6	590.3	285.6	590.3	285.6	590.3	285.6	590.3	285.6	590.3	284.8	587.6	284.8	587.6
22	35.2	529.2	36.4	531.7	35.8	529.8	35.2	529.2	39.3	531.4	39.3	531.4	36.4	531.7
220	141.2	170.0	141.2	170.0	141.2	170.0	141.2	170.0	143.3	171.8	143.3	171.8	143.3	171.8
221	46.9	312.6	46.9	312.6	46.9	312.6	43.8	311.1	46.9	312.6	46.9	312.6	46.9	312.6
222	278.7	612.3	281.6	610.2	282.3	612.9	282.3	612.9	282.3	612.9	282.3	612.9	285.1	610.8
223	211.0	501.0	205.0	498.9	202.3	491.4	203.4	493.9	203.4	493.9	203.4	493.9	195.4	491.3
224	104.7	448.0	104.7	448.0	104.7	448.0	100.8	448.3	100.8	448.3	100.8	448.3	99.2	445.7
225	13.5	493.0	13.5	493.0	13.5	493.0	13.5	493.0	13.5	493.0	13.5	493.0	13.5	493.0
226	63.7	194.9	63.7	194.9	63.7	194.9	66.6	196.0	66.6	196.0	66.6	196.0	66.6	196.0
227	146.5	229.0	154.4	227.6	146.5	229.0	146.5	229.0	153.0	230.2	153.0	230.2	153.0	230.2
228	212.7	177.7	212.7	177.7	213.7	175.0	213.7	175.0	213.7	175.0	212.7	177.7	215.7	177.2
23	46.0	560.7	46.0	560.7	39.9	542.6	39.9	542.6	39.9	542.6	39.9	542.6	39.9	542.6
230	70.1	183.7	62.4	183.4	62.1	180.4	62.4	183.4	62.4	183.4	59.8	182.1	59.8	182.1
231	143.4	219.3	147.3	218.6	140.2	217.8	140.2	217.8	140.2	217.8	140.2	217.8	145.8	221.9
232	94.6	350.5	91.3	350.1	90.0	347.2	90.0	347.2	90.0	347.2	90.0	347.2	90.0	347.2
233	129.8	650.3	129.8	650.3	129.8	650.3	129.8	650.3	129.8	650.3	129.8	650.3	129.1	653.6
234	130.5	446.8	130.5	446.8	130.5	446.8	135.3	481.6	133.1	479.8	133.1	479.8	133.1	479.8
235	51.7	445.0	51.7	445.0	50.0	446.9	50.0	446.9	50.0	446.9	50.0	446.9	51.7	445.0

Annexe 3, suite...

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
236	74.3	506.1	78.4	507.4	77.6	506.9	77.6	506.9	77.6	506.9	77.6	506.9	71.1	533.8
237	24.2	214.3	21.6	207.4	18.9	223.0	13.1	218.7	12.7	218.7	12.7	218.7	13.1	218.7
238	11.2	390.8	11.2	390.8	13.5	393.0	10.3	393.4	10.3	393.4	10.3	393.4	10.3	393.4
239	8.9	460.3	7.7	463.0	7.7	463.0	11.7	459.8	8.9	460.3	8.9	460.3	10.2	457.5
24	100.4	638.1	100.4	638.1	100.8	645.7	100.8	645.7	100.8	645.7	100.8	645.7	104.9	645.5
240	334.7	121.1	334.7	121.1	334.7	121.1	334.7	121.1	333.9	122.5	333.9	122.5	334.7	121.1
241	254.8	79.5	254.8	79.5	254.8	79.5	257.1	77.8	257.1	77.8	257.1	77.8	259.3	76.2
242	101.6	76.2	102.8	73.6	102.8	73.6	102.8	73.6	102.8	73.6	102.8	73.6	105.9	73.4
244	310.5	628.6	311.3	623.9	310.5	628.6	314.5	626.2	311.3	623.9	311.3	623.9	313.6	630.1
245	124.7	111.6	120.3	126.0	120.3	126.0	120.3	126.0	120.3	126.0	120.3	126.0	112.7	146.6
246	264.0	597.7	264.0	597.7	264.0	597.7	277.7	593.9	277.7	593.9	277.7	593.9	277.7	593.9
247	103.1	304.1	103.1	304.1	103.1	304.1	99.4	304.1	99.4	304.1	99.4	304.1	99.4	304.1
248	168.1	339.5	164.8	340.1	168.1	339.5	168.1	339.5	168.1	339.5	168.1	339.5	168.1	339.5
249	225.5	69.1	226.9	63.1	228.7	65.1	228.7	65.1	228.7	65.1	228.7	65.1	228.7	65.1
250	188.4	475.3	188.4	475.3	188.4	475.3	188.4	475.3	188.4	475.3	188.4	475.3	188.4	475.3
252	33.4	396.0	34.1	390.3	34.1	390.3	34.1	390.3	34.1	390.3	34.1	390.3	36.9	389.2
253	83.1	282.1	83.1	282.1	80.2	281.4	80.2	281.4	80.2	281.4	80.2	281.4	77.7	293.9
254	157.6	586.7	133.7	593.1	133.7	593.1	133.7	593.1	133.7	593.1	133.7	593.1	133.7	593.1
256	196.9	443.1	115.3	559.0	130.0	558.8	136.7	554.9	136.7	554.9	136.7	554.9	200.3	443.2
257	50.0	116.7	50.0	116.7	50.0	116.7	50.0	114.0	50.0	114.0	50.0	114.0	50.0	111.2
258	290.1	231.5	290.1	231.5	290.1	231.5	290.1	231.5	290.1	231.5	290.1	231.5	281.3	247.2
259	188.7	311.2	188.7	311.2	188.7	311.2	188.7	311.2	188.7	311.2	188.7	311.2	188.7	311.2
260	91.9	729.4	90.3	726.2	90.3	726.2	90.3	726.2	87.9	725.2	87.9	725.2	90.3	726.2
262	123.0	104.2	122.2	112.3	123.0	104.2	123.0	104.2	123.0	104.2	123.0	104.2	123.0	104.2
264	201.4	740.6	198.6	740.6	198.6	740.6	202.4	738.0	202.4	738.0	202.4	738.0	202.4	738.0
265	194.0	742.8	194.0	742.8	192.3	742.5	189.7	741.9	189.7	741.9	189.7	741.9	192.3	742.5
267	141.4	801.1	141.4	801.1	141.4	801.1	141.4	801.1	141.4	801.1	141.4	801.1	141.4	801.1
268	75.0	182.7	89.2	183.1	64.7	203.4	64.7	203.4	64.7	203.4	64.7	203.4	83.1	182.1
269	315.5	734.8	315.2	740.4	315.2	740.4	315.2	740.4	304.7	748.0	304.7	748.0	304.7	748.0
27	50.0	644.0	46.5	646.9	48.3	645.0	50.0	644.0	50.0	644.0	50.0	644.0	50.0	643.1

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
270	107.8	475.8	107.8	475.8	107.8	475.8	107.8	475.8	107.8	475.8	107.8	475.8	104.9	476.0
272	179.8	741.0	179.1	740.6	179.1	740.6	179.1	740.6	179.1	740.6	179.1	740.6	181.4	741.7
273	237.6	734.1	237.6	734.1	235.8	736.1	237.6	734.1	237.6	734.1	237.6	734.1	237.6	734.1
274	81.6	697.3	84.8	697.9	75.8	698.7	74.7	693.1	74.7	693.1	74.7	693.1	74.7	693.1
275	255.8	802.7	255.8	802.7	255.8	802.7	255.8	802.7	255.8	802.7	255.8	802.7	255.8	802.7
276	250.0	564.1	250.0	564.1	252.2	568.8	252.2	568.8	252.2	568.8	252.2	568.8	252.2	568.8
277	78.9	559.9	73.1	563.1	73.1	563.1	74.8	561.0	74.8	561.0	74.8	561.0	77.3	562.0
278	363.9	727.1	361.1	736.8	365.5	733.7	363.6	731.7	363.6	731.7	363.6	731.7	363.6	731.7
279	188.1	470.1	193.0	470.8	199.0	471.1	200.8	468.6	193.5	465.7	192.3	463.0	193.5	465.7
280	438.5	440.5	439.9	442.6	439.9	442.6	439.9	442.6	438.0	444.3	438.0	444.3	438.0	444.3
282	40.0	420.5	40.0	420.5	43.3	422.1	39.8	423.3	39.8	423.3	39.8	423.3	44.6	418.5
283	320.1	549.4	319.0	552.5	321.5	551.6	319.0	552.5	319.0	552.5	321.5	551.6	320.1	549.4
284	82.3	547.6	83.7	548.1	83.7	548.1	83.7	548.1	83.7	548.1	87.4	546.6	84.9	545.8
285	93.0	432.3	88.3	438.9	89.3	436.6	89.3	436.6	89.3	436.6	39.9	485.1	87.8	433.4
288	310.0	170.4	297.3	160.9	305.3	168.4	303.9	168.5	303.9	168.5	303.9	168.5	303.5	165.9
290	147.1	101.3	146.0	114.5	146.0	114.5	147.1	101.3	144.2	102.7	146.0	114.5	147.1	101.3
292	142.2	89.6	142.2	89.6	139.2	93.7	139.2	93.7	141.8	95.4	141.8	95.4	142.0	92.5
293	234.0	26.6	238.1	29.6	239.8	27.2	239.8	27.2	239.8	27.2	241.1	29.9	241.1	29.9
294	225.6	43.9	225.6	43.9	225.6	43.9	225.6	43.9	223.4	45.1	225.6	43.9	225.6	43.9
295	370.0	70.1	370.0	70.1	365.6	70.8	365.6	70.8	365.6	70.8	365.6	70.8	370.0	70.1
297	29.1	553.6	29.1	553.6	26.8	554.8	25.3	552.7	26.8	554.8	26.8	554.8	26.8	554.8
298	134.9	67.8	139.2	68.3	139.2	68.3	139.2	68.3	139.2	68.3	139.2	68.3	145.6	70.3
299	203.0	114.3	200.5	120.3	203.0	114.3	203.0	114.3	203.0	114.3	200.5	120.3	204.8	119.7
3	378.7	412.3	375.8	414.3	375.8	414.3	375.8	414.3	375.8	414.3	375.8	414.3	375.8	414.3
300	21.3	412.3	21.6	407.4	20.7	415.0	20.7	415.0	20.7	415.0	20.7	415.0	20.7	415.0
302	412.1	25.2	412.1	25.2	411.4	22.7	409.1	23.7	409.1	23.7	409.1	23.7	409.2	23.7
303	444.3	99.8	444.3	99.8	441.6	98.2	444.3	99.8	444.3	99.8	444.3	99.8	447.1	101.3
304	454.9	41.1	454.9	41.1	453.2	39.1	453.2	39.1	453.2	39.1	453.2	39.1	453.2	39.1
305	388.2	254.6	388.2	254.6	410.2	257.5	389.8	257.5	389.8	257.5	389.8	254.7	389.8	257.5
307	493.3	78.5	493.3	78.5	498.4	76.2	498.4	76.2	498.4	76.2	496.5	78.7	502.2	71.1

Annexe 3, suite...

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
308	418.8	3.2	418.8	3.2	483.3	92.5	484.1	95.2	480.9	94.6	480.9	94.6	480.9	94.6
309	484.1	95.2	483.3	92.5	163.9	575.7	163.9	575.7	166.0	573.8	163.9	575.7	166.0	573.8
31	166.0	573.8	166.0	573.8	430.0	58.8	430.0	58.8	428.4	56.8	428.4	56.8	428.4	56.8
310	431.7	60.8	427.6	60.0	*	*	*	*	*	*	*	*	*	*
311	*	*	*	*	450.0	185.5	450.0	185.5	450.0	185.5	450.0	185.5	447.5	187.0
312	450.0	185.5	452.5	187.0	499.0	71.1	499.0	71.1	499.0	71.1	499.0	71.1	499.0	71.1
313	499.0	71.1	499.0	71.1	*	*	*	*	*	*	*	*	*	*
314	*	*	*	*	486.9	35.8	485.9	38.1	484.8	40.4	484.8	40.4	489.3	36.6
317	482.5	45.0	484.5	34.8	72.4	381.8	70.1	383.7	70.1	383.7	70.1	383.7	67.4	382.7
318	78.8	383.7	74.5	379.9	64.2	724.1	56.8	724.8	56.8	724.8	56.8	724.8	56.7	722.1
32	65.3	721.1	66.0	726.6	363.3	54.9	361.2	53.5	361.2	53.5	363.3	54.9	363.3	54.9
320	363.3	54.9	361.6	56.8	267.4	35.6	265.5	33.7	265.5	33.7	265.5	33.7	268.6	33.2
322	266.1	37.9	266.1	37.9	*	*	*	*	*	*	*	*	*	*
323	*	*	*	*	264.7	281.6	262.1	280.4	263.8	258.2	263.8	258.2	255.5	297.0
324	272.4	281.8	266.9	279.8	456.1	608.3	456.1	608.3	456.1	608.3	456.1	608.3	456.1	608.3
326	456.1	608.3	456.1	608.3	295.8	63.4	295.8	63.4	295.8	63.4	295.2	63.3	295.2	63.3
327	299.7	61.0	295.8	63.4	496.5	322.6	499.0	322.8	499.0	322.8	499.0	322.8	501.0	325.4
328	498.4	325.3	498.4	325.3	296.3	125.1	296.3	125.1	296.3	125.1	296.3	125.1	296.3	125.1
330	295.8	125.1	295.8	125.1	189.8	57.5	189.8	57.5	189.8	57.5	189.5	62.6	189.5	62.6
331	191.1	60.3	191.1	60.3	387.0	90.5	387.0	90.5	384.8	87.6	384.8	87.6	384.8	87.6
336	387.0	90.5	385.6	90.3	126.9	63.1	124.5	64.1	124.5	64.1	124.5	64.1	124.5	64.1
337	129.4	62.0	129.4	62.0	417.6	63.7	417.6	63.7	413.3	62.1	417.6	63.7	407.3	63.1
338	417.6	63.7	417.6	63.7	335.8	661.5	335.8	661.5	333.0	665.9	333.0	665.9	357.1	677.8
34	337.6	663.3	337.6	663.3	256.6	14.4	256.6	14.4	256.6	14.4	256.6	14.4	259.3	14.3
341	257.4	16.5	256.6	14.4	424.7	511.6	408.2	521.6	408.2	521.6	408.2	521.6	411.4	522.7
343	437.4	513.4	424.7	501.6	450.0	570.4	447.8	568.8	450.0	570.4	450.0	567.3	450.0	567.3
344	447.8	568.8	447.8	568.8	344.9	244.9	346.5	246.9	341.5	244.7	341.5	244.7	344.9	244.9
346	343.0	246.7	343.0	246.7	372.6	271.1	372.6	271.1	370.6	273.1	370.6	273.1	372.9	284.7
347	370.0	270.1	372.6	271.1	441.5	66.9	441.5	66.9	441.5	66.9	441.5	66.9	428.2	78.9
348	441.2	70.0	439.2	68.3										

Annexe 3, suite...

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
349	309.3	206.3	309.3	206.3	311.3	211.2	311.3	211.2	311.3	211.2	311.3	211.2	312.1	208.6
35	390.4	478.2	390.4	478.2	384.3	477.2	384.3	477.2	384.3	477.2	384.3	477.2	379.4	478.6
350	153.5	129.0	151.6	137.0	151.7	145.0	151.7	145.0	151.7	145.0	151.7	145.0	148.4	141.2
352	463.1	126.9	463.1	126.9	464.8	129.2	463.2	118.9	463.2	118.9	463.2	118.9	463.2	118.9
353	270.1	99.8	270.1	99.8	270.1	99.8	270.1	99.8	270.1	99.8	270.1	99.8	270.1	99.8
354	406.1	160.7	406.1	160.7	406.1	160.7	406.1	160.7	404.6	158.2	404.6	158.2	404.6	158.2
358	457.0	46.7	457.0	46.7	457.0	46.7	457.0	46.7	457.0	46.7	457.0	46.7	457.0	46.7
359	9.4	12.0	9.4	12.0	9.4	12.0	9.4	12.0	9.4	12.0	9.4	12.0	9.4	12.0
36	309.7	634.2	309.7	634.2	308.2	637.2	308.2	637.2	308.2	637.2	308.2	637.2	308.2	637.2
361	374.8	631.9	394.9	619.3	391.8	621.6	394.9	619.3	391.5	621.2	391.5	621.2	392.1	618.7
364	344.6	394.1	344.6	394.1	347.3	392.8	347.3	392.8	347.3	392.8	347.3	392.8	347.3	392.8
365	327.9	734.3	325.4	727.0	325.4	727.0	322.1	725.1	307.5	700.0	308.5	699.0	309.7	726.2
366	214.4	290.3	214.4	290.3	211.2	290.8	211.2	290.8	211.2	290.8	211.2	290.8	211.2	290.8
367	50.0	243.1	46.6	243.1	48.3	245.0	50.0	243.1	50.0	243.1	53.4	243.1	53.4	243.1
368	439.8	527.2	439.8	527.2	441.1	529.9	439.3	531.4	439.3	531.4	439.3	531.4	438.1	529.6
369	448.2	548.8	450.0	550.6	450.0	550.6	448.2	552.3	448.2	552.3	448.2	552.3	448.2	552.3
37	4.0	571.0	4.0	571.0	4.0	571.0	4.0	571.0	2.3	568.5	2.3	568.5	4.0	571.0
370	353.6	450.5	358.5	444.7	358.5	444.7	358.5	444.7	358.5	444.7	358.5	444.7	363.4	442.2
371	356.5	738.9	356.5	738.9	353.4	743.1	353.4	743.1	353.4	743.1	353.4	743.1	356.7	742.9
372	462.4	448.0	463.9	446.0	466.0	447.5	462.4	448.0	464.5	449.5	464.5	449.5	466.5	451.0
373	455.1	644.9	451.6	637.0	451.6	637.0	450.0	638.6	450.0	638.6	450.0	638.6	451.6	637.0
374	325.2	708.9	325.7	706.1	325.7	706.1	325.7	706.1	322.4	706.9	322.4	706.9	322.4	706.9
375	393.5	709.0	393.5	709.0	391.5	708.9	391.5	708.9	391.5	708.9	391.5	708.9	394.3	706.5
378	302.1	606.7	302.1	606.7	303.1	604.1	302.1	606.7	302.1	606.7	302.1	606.7	299.4	604.1
379	90.0	239.4	88.3	238.9	86.9	235.8	86.9	235.8	86.9	235.8	86.9	235.8	86.9	235.8
380	364.7	764.6	364.7	764.6	367.0	765.9	367.0	765.9	367.0	765.9	367.0	765.9	367.0	765.9
381	424.2	714.3	424.2	714.3	424.2	714.3	424.2	714.3	424.2	714.3	424.2	714.3	424.2	714.3
382	480.2	644.0	481.4	641.7	481.4	641.7	481.4	641.7	481.4	641.7	481.4	641.7	481.4	641.7
383	262.1	580.4	262.4	583.4	257.5	583.8	259.8	582.1	262.4	583.4	262.4	583.4	259.5	579.2
384	437.1	651.5	440.8	651.9	440.8	651.9	437.1	651.5	438.8	653.5	438.8	653.5	438.8	653.5

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
385	252.1	665.7	252.1	665.7	252.1	665.7	252.1	665.7	188.6	622.7	188.6	622.7	190.9	623.7
386	406.9	693.7	406.0	696.3	403.5	693.9	403.5	693.9	406.0	696.3	406.0	696.3	406.0	696.3
387	390.3	616.4	390.3	616.4	390.3	616.4	390.3	616.4	390.3	616.4	390.3	616.4	386.5	616.1
388	447.6	581.0	447.6	581.0	447.5	587.0	434.9	584.5	437.3	586.3	437.3	586.3	434.9	584.5
389	427.3	730.1	428.3	732.6	428.3	732.6	428.3	732.6	427.3	730.1	427.3	730.1	427.3	730.1
39	283.5	618.2	280.5	620.3	284.2	620.9	283.4	622.5	280.5	620.3	280.5	620.3	283.5	618.2
390	425.3	693.1	428.3	692.3	425.3	693.1	425.3	693.1	425.3	693.1	425.3	693.1	427.3	697.9
391	443.5	738.9	443.5	738.9	443.5	738.9	442.1	736.7	442.1	736.7	442.1	736.7	442.1	736.7
392	448.4	641.2	451.6	641.2	448.4	641.2	450.0	641.3	448.4	641.2	448.4	641.2	448.4	641.2
393	462.1	707.8	459.0	706.7	458.8	703.9	458.8	703.9	458.8	703.9	458.8	703.9	458.8	703.9
394	475.8	735.8	475.8	735.8	472.6	736.6	471.7	732.6	468.5	736.1	468.5	736.1	478.8	728.6
396	462.7	586.3	462.7	586.3	492.4	611.5	*	*	*	*	*	*	*	*
397	115.2	723.5	124.5	722.2	118.9	723.0	118.4	725.7	115.2	723.5	115.2	723.5	126.4	719.8
398	466.7	631.3	466.7	631.3	465.5	633.7	468.9	626.1	467.4	635.6	467.4	635.6	467.4	635.6
399	370.6	473.1	370.6	473.1	370.6	473.1	361.5	474.4	361.5	474.4	363.9	475.7	366.0	473.8
4	301.0	271.1	301.0	271.1	301.0	271.1	297.2	273.6	298.1	272.4	298.1	272.4	298.1	272.4
400	186.9	335.8	186.9	335.8	189.3	336.6	186.9	335.8	186.9	335.8	186.9	335.8	189.3	336.6
400	473.3	619.0	473.3	619.0	476.8	619.7	473.7	621.7	473.7	621.7	473.7	621.7	477.1	616.0
401	499.1	724.0	488.7	711.2	488.7	711.2	488.7	711.2	488.7	711.2	488.7	711.2	488.7	711.2
402	433.1	579.8	447.1	604.2	421.6	596.7	422.3	593.9	422.3	593.9	422.3	593.9	419.1	594.6
403	433.7	693.1	430.8	694.1	433.7	693.1	433.7	693.1	433.4	696.0	433.4	696.0	433.4	696.0
404	414.5	532.5	416.5	537.2	413.6	530.1	413.6	530.1	413.6	530.1	413.6	530.1	415.9	528.9
406	241.0	606.7	241.2	603.9	241.2	603.9	241.2	603.9	241.2	603.9	241.2	603.9	241.2	603.9
407	491.0	709.0	490.3	716.4	490.3	716.4	490.3	716.4	490.3	716.4	490.3	716.4	490.3	716.4
408	370.6	573.1	369.1	577.9	369.1	577.9	369.1	577.9	366.5	576.8	366.5	576.8	371.8	578.9
409	470.1	699.8	464.7	703.4	464.7	703.4	464.7	703.4	464.7	703.4	464.7	703.4	464.7	703.4
41	286.1	382.7	282.5	384.6	284.0	384.9	284.0	384.9	284.0	384.9	284.0	384.9	287.0	385.4
410	409.7	678.1	409.7	678.1	409.7	678.1	409.7	678.1	409.7	678.1	409.7	678.1	412.7	677.7
411	328.1	510.8	321.8	509.6	313.6	503.2	319.7	504.8	319.7	504.8	319.7	504.8	319.7	504.8
412	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Annexe 3, suite...

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
414	390.3	716.4	390.3	716.4	390.3	716.4	390.3	716.4	390.3	716.4	390.3	716.4	395.8	712.0
416	416.6	274.4	421.4	275.8	419.4	273.7	418.5	273.9	419.4	273.7	421.4	275.8	424.1	275.0
417	288.7	523.9	287.9	525.2	288.7	523.9	288.7	523.9	290.3	526.2	290.3	526.2	290.3	526.2
418	451.9	655.8	453.7	654.0	453.7	654.0	453.7	654.0	453.7	654.0	453.7	654.0	453.7	654.0
419	408.9	688.5	405.6	688.7	405.6	688.7	405.6	688.7	405.6	688.7	405.6	688.7	405.6	688.7
42	180.3	604.8	180.4	611.8	180.4	611.8	180.4	611.8	180.4	611.8	180.4	611.8	116.9	582.1
420	502.3	330.4	502.3	330.4	502.3	330.4	502.3	330.4	502.3	330.4	502.3	330.4	503.0	327.8
421	316.3	142.7	318.6	141.7	316.3	142.7	316.3	142.7	316.3	142.7	314.0	143.6	314.0	143.6
422	303.0	514.3	302.1	516.8	303.0	520.1	298.4	522.8	298.4	522.8	302.5	517.6	302.5	517.6
423	371.3	265.1	369.5	267.0	370.4	266.1	369.5	267.0	369.5	267.0	369.5	267.0	375.5	264.1
425	422.6	322.4	422.6	322.4	422.6	322.4	422.6	322.4	418.8	320.7	418.8	320.7	418.8	320.7
426	480.3	304.8	482.9	315.6	482.9	315.6	485.8	313.4	485.8	313.4	485.8	313.4	485.8	313.4
428	393.4	347.8	383.0	342.4	383.0	342.4	390.8	339.6	390.8	339.6	390.8	339.6	390.8	339.6
43	398.4	376.2	382.9	366.4	372.6	371.1	372.6	371.1	372.6	371.1	372.6	371.1	393.6	432.4
431	390.1	231.5	390.1	231.5	392.2	229.5	393.6	232.4	393.6	232.4	393.6	232.4	393.6	232.4
432	363.9	246.0	353.2	239.1	346.9	234.8	345.3	236.9	338.7	239.5	338.7	239.5	345.3	236.9
434	465.1	484.5	465.1	484.5	464.7	481.6	465.1	484.5	465.1	484.5	465.1	484.5	467.4	482.7
435	348.4	237.0	350.0	239.1	351.6	237.0	351.6	237.0	351.6	237.0	351.6	237.0	351.6	237.0
437	387.4	6.1	388.7	5.8	388.7	5.8	388.7	5.8	388.7	5.8	388.7	5.8	388.7	5.8
438	322.7	380.7	312.7	377.7	312.7	377.7	312.7	377.7	312.7	377.7	312.7	377.7	312.7	377.7
439	271.7	531.6	267.9	530.7	268.2	533.4	267.4	535.6	266.8	536.7	266.8	536.7	270.5	535.0
44	132.2	285.6	134.1	290.3	134.1	290.3	134.1	290.3	131.7	288.5	129.9	283.7	129.9	283.7
441	238.1	705.1	235.0	706.1	232.2	704.4	221.4	675.8	221.4	675.8	221.4	675.8	226.8	674.0
442	220.2	762.9	204.8	763.3	204.8	763.3	204.8	763.3	204.8	763.3	204.8	763.3	209.4	765.4
444	201.8	753.3	191.3	755.2	178.0	756.9	178.0	756.9	178.0	756.9	178.0	756.9	170.9	753.6
446	263.3	754.9	263.3	754.9	265.5	756.3	265.5	756.3	265.5	756.3	265.5	756.3	265.0	753.0
450	380.5	720.3	381.1	723.0	381.1	723.0	381.1	723.0	381.1	723.0	381.1	723.0	380.5	720.3
451	203.5	165.9	203.5	165.9	226.8	154.8	226.8	154.8	226.8	154.8	226.8	154.8	226.8	154.8
452	270.0	758.8	266.0	759.6	270.6	762.0	270.6	762.0	270.6	762.0	270.6	762.0	268.3	760.8
454	239.8	727.2	238.1	729.6	236.9	726.9	236.9	726.9	236.9	726.9	236.9	726.9	256.2	711.1



Annexe 3, suite...

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
455	103.0	114.3	103.0	114.3	103.0	114.3	103.0	114.3	103.0	114.3	103.0	114.3	100.8	114.3
457	258.8	703.9	259.0	706.7	258.8	703.9	255.9	705.5	259.0	706.7	259.0	706.7	259.0	706.7
459	160.5	746.4	156.5	738.9	156.5	738.9	156.5	738.9	156.5	738.9	156.5	738.9	157.9	736.7
46	280.5	420.3	280.5	420.3	276.8	419.7	276.8	419.7	276.8	419.7	276.8	419.7	276.8	419.7
460	404.6	14.5	404.6	14.5	404.6	14.5	404.6	14.5	404.6	14.5	404.6	14.5	404.6	14.5
461	375.1	12.7	377.8	12.3	377.1	16.0	377.1	16.0	378.1	10.1	378.1	10.1	380.4	11.8
462	430.2	13.4	430.2	13.4	430.2	13.4	430.2	13.4	430.2	13.4	430.2	13.4	430.2	13.4
463	436.1	46.0	436.1	46.0	436.1	46.0	434.6	43.9	434.6	43.9	434.6	43.9	436.9	26.9
464	489.8	457.5	489.8	457.5	489.8	457.5	489.8	457.5	489.8	457.5	489.8	457.5	489.8	457.5
465	469.2	94.1	469.2	94.1	461.1	96.6	461.1	96.6	461.1	96.6	461.1	96.6	463.7	94.9
466	496.2	432.8	496.2	432.8	496.2	432.8	496.2	432.8	496.2	432.8	496.2	432.8	496.2	432.8
467	245.6	270.3	247.8	271.9	247.8	271.9	245.6	270.3	247.8	271.9	247.8	271.9	245.6	270.3
468	494.1	473.4	463.9	475.7	463.9	475.7	463.9	475.7	463.9	475.7	463.9	475.7	463.9	475.7
47	405.1	319.3	405.1	319.3	401.0	322.8	405.1	319.3	405.1	319.3	405.1	319.3	405.5	319.6
470	372.4	213.5	369.4	215.4	372.4	213.5	372.4	213.5	372.4	213.5	372.4	213.5	372.4	213.5
471	402.8	73.6	402.8	73.6	402.8	73.6	402.8	73.6	402.8	73.6	402.8	73.6	402.8	73.6
472	421.3	312.3	421.3	312.3	421.3	312.3	421.3	312.3	421.3	312.3	421.3	312.3	421.3	312.3
473	406.5	65.7	406.5	65.7	415.2	51.1	415.2	51.1	415.2	51.1	410.0	52.4	411.4	49.5
475	325.2	631.9	325.2	631.9	325.2	631.9	325.2	631.9	325.2	631.9	325.2	631.9	325.2	631.9
476	439.2	293.7	447.3	295.6	447.3	295.6	452.7	295.6	455.5	297.0	455.5	297.0	452.7	295.6
477	421.9	365.0	419.5	357.8	421.1	359.9	421.1	359.9	421.1	359.9	421.1	359.9	421.1	359.9
479	368.3	88.5	375.8	98.7	375.8	98.7	375.8	98.7	372.7	97.9	373.2	100.6	373.2	100.6
48	196.3	511.7	195.0	517.1	195.0	517.1	195.0	517.1	189.5	513.8	189.5	513.8	195.0	517.1
480	54.3	367.2	54.3	367.2	54.3	367.2	56.5	368.6	56.5	368.6	56.5	368.6	56.5	368.6
481	299.5	215.2	299.2	214.3	302.1	216.8	297.9	216.8	297.9	216.8	297.9	216.8	303.1	214.9
482	458.9	229.9	419.5	223.4	419.5	223.4	419.5	223.4	419.5	223.4	419.5	223.4	419.0	230.0
483	288.6	454.7	287.4	451.8	283.6	450.8	288.7	449.5	288.7	449.5	288.7	449.5	296.0	440.4
484	156.3	465.5	156.1	462.3	156.1	462.3	156.1	462.3	156.1	462.3	156.1	462.3	155.9	459.0
485	93.9	435.0	87.8	433.4	87.8	433.4	90.3	434.2	90.3	434.2	42.4	486.7	91.1	431.8
486	277.3	162.0	279.8	162.9	279.8	162.9	279.8	162.9	279.8	162.9	279.8	162.9	279.8	162.9

Annexe 3, suite...

Moule	7 septembre 1989		16 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
487	107.0	70.8	107.0	70.8	107.0	70.8	108.2	68.1	107.0	70.8	105.3	68.4	108.2	68.1
488	89.5	262.6	88.3	259.8	88.3	259.8	88.3	259.8	88.3	259.8	88.3	259.8	83.4	266.5
489	161.8	477.4	161.8	477.4	161.8	477.4	161.8	477.4	161.8	477.4	161.8	477.4	161.8	477.4
490	29.4	273.1	30.0	270.1	27.4	271.1	29.4	273.1	29.4	273.1	31.9	272.0	38.2	277.4
492	61.8	277.4	61.8	277.4	61.8	277.4	61.8	277.4	61.8	277.4	64.3	278.6	64.3	278.6
493	*	*	*	*	*	*	*	*	*	*	*	*	*	*
494	91.9	188.5	93.4	186.1	93.4	186.1	90.2	185.8	90.2	185.8	90.2	185.8	93.4	186.1
495	500.8	168.6	500.8	168.6	500.8	168.6	497.7	168.5	497.7	168.5	497.7	168.5	497.7	168.5
496	189.5	428.6	192.7	427.0	192.7	427.0	192.7	427.0	190.3	426.2	190.3	426.2	190.9	423.7
497	128.8	289.4	128.8	289.4	129.4	286.6	126.5	287.5	126.5	287.5	126.5	287.5	126.5	287.5
498	208.2	175.8	207.8	175.8	207.8	175.8	207.8	175.8	211.6	175.3	211.6	175.3	211.6	175.3
499	102.8	473.6	102.8	473.6	100.3	473.7	100.3	473.7	100.3	473.7	97.8	471.1	99.0	471.1
5	384.7	387.6	387.0	390.5	384.7	387.6	389.2	383.1	389.2	383.1	390.2	385.8	392.3	383.5
50	330.6	237.3	329.5	235.0	329.5	235.0	329.8	250.3	329.8	250.3	329.8	250.3	330.5	246.8
500	282.5	139.5	282.5	139.5	281.4	141.7	278.9	146.2	276.2	150.6	276.2	150.6	276.2	150.6
504	182.3	512.9	177.8	512.3	173.2	500.6	173.2	500.6	173.2	500.6	173.2	500.6	163.7	494.9
505	325.2	708.9	334.0	714.4	334.0	714.4	334.0	714.4	334.0	714.4	334.0	714.4	334.0	714.4
507	496.5	78.7	498.4	76.2	498.4	76.2	498.4	76.2	498.4	76.2	498.4	76.2	499.6	78.7
508	468.7	152.3	468.7	152.3	468.7	152.3	468.7	152.3	468.7	152.3	468.7	152.3	470.2	150.3
509	404.0	71.0	407.0	70.8	404.0	71.0	404.0	71.0	404.0	71.0	404.0	71.0	405.4	70.9
510	61.1	636.8	61.6	656.8	61.6	656.8	61.6	656.8	63.3	654.9	63.3	654.9	63.3	654.9
511	373.1	563.1	371.3	565.1	371.3	565.1	371.3	565.1	368.9	563.9	370.6	562.0	370.6	562.0
514	413.7	2.8	413.7	2.8	413.7	2.8	413.7	2.8	413.7	2.8	413.7	2.8	413.7	2.8
515	198.6	40.6	196.0	40.4	192.9	40.0	199.6	38.1	196.7	35.4	200.6	35.6	200.6	35.6
516	292.7	727.0	292.7	727.0	292.7	727.0	292.7	727.0	292.7	727.0	292.7	727.0	292.7	727.0
52	259.6	615.0	227.8	595.1	225.3	593.1	225.3	593.1	225.3	593.1	227.8	595.1	230.8	594.1
520	*	*	*	*	*	*	*	*	*	*	*	*	*	*
522	189.0	101.0	190.6	112.0	191.5	98.7	191.5	98.7	192.5	101.3	192.5	101.3	194.0	96.3
524	404.0	701.5	404.0	701.5	404.0	701.5	403.2	701.5	403.2	701.5	403.2	701.5	403.2	701.5
525	194.0	116.7	194.0	116.7	194.0	116.7	194.0	116.7	194.0	116.7	194.0	116.7	191.8	121.6

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
526	182.5	239.5	182.5	239.5	182.5	239.5	168.5	236.1	168.5	236.1	168.5	236.1	168.5	236.1
527	91.0	125.4	91.9	129.4	95.2	127.5	95.2	127.5	95.2	127.5	95.2	127.5	95.2	127.5
528	23.4	45.1	23.4	45.1	23.4	45.1	13.9	43.6	13.9	43.6	16.3	42.7	16.3	42.7
529	102.3	27.8	102.3	27.8	102.3	27.8	102.3	27.8	102.3	27.8	102.3	27.8	101.0	25.4
53	314.1	238.1	317.5	239.5	312.7	241.3	312.7	241.3	312.7	241.3	312.7	241.3	312.7	241.3
54	295.1	276.0	292.2	275.8	295.1	276.0	292.2	275.8	292.2	275.8	292.2	275.8	294.1	273.4
55	180.6	273.7	189.2	275.4	186.3	275.0	184.3	277.2	184.3	277.2	184.3	277.2	186.3	275.0
57	163.8	358.2	164.2	361.5	162.0	360.1	162.0	360.1	164.2	361.5	164.2	361.5	166.5	362.7
59	405.1	642.9	399.7	643.2	396.9	643.1	396.9	643.1	393.8	645.3	393.8	645.3	393.8	645.3
60	221.5	651.6	221.5	651.6	221.5	651.6	221.5	651.6	221.5	651.6	221.5	651.6	208.4	650.1
600	480.6	608.0	480.6	608.0	480.6	608.0	480.6	608.0	480.6	608.0	480.6	608.0	480.6	608.0
601	493.4	486.1	488.2	472.7	488.2	472.7	486.3	475.0	489.2	475.4	489.2	475.4	489.2	475.4
602	440.0	620.5	443.4	614.4	443.4	619.3	443.4	619.3	443.4	619.3	443.4	619.3	447.3	618.6
603	417.7	712.9	417.1	715.6	417.1	715.6	417.1	715.6	417.1	715.6	417.1	715.6	417.1	715.6
605	452.3	675.0	452.3	675.0	454.5	673.4	454.5	673.4	454.5	673.4	454.5	673.4	454.5	673.4
607	454.8	679.5	462.4	683.4	462.4	683.4	462.4	683.4	462.4	683.4	462.4	683.4	462.4	683.4
608	418.4	697.3	411.8	698.4	412.7	695.7	415.2	697.9	415.2	697.9	415.2	697.9	415.2	697.9
609	444.6	694.1	437.6	710.6	437.6	710.6	437.6	710.6	437.6	710.6	437.6	710.6	437.6	710.6
61	394.3	660.7	435.0	653.0	421.1	630.4	417.8	628.3	417.8	628.3	417.8	628.3	415.9	628.9
610	372.8	716.2	372.8	716.2	372.8	716.2	372.8	716.2	372.8	716.2	372.8	716.2	363.4	721.6
611	441.1	648.4	441.1	648.4	435.0	653.0	435.0	653.0	435.0	653.0	435.0	653.0	435.0	653.0
612	448.2	752.3	441.5	744.7	443.3	742.9	443.3	742.9	443.3	742.9	443.3	742.9	443.3	742.9
613	264.2	761.5	264.2	761.5	266.0	759.6	266.0	759.6	266.0	759.6	266.0	759.6	262.0	760.1
616	331.1	663.9	328.7	665.1	329.4	662.0	331.1	663.9	331.1	663.9	331.1	663.9	331.1	663.9
618	267.0	798.8	267.0	798.8	267.0	798.8	267.0	798.8	267.0	798.8	267.0	798.8	267.0	798.8
619	267.8	704.4	267.8	704.4	267.8	704.4	267.8	704.4	267.8	704.4	267.8	704.4	273.7	703.4
620	193.2	773.3	194.1	773.4	194.1	773.4	194.1	773.4	194.1	773.4	194.1	773.4	196.0	771.0
621	188.2	754.6	188.2	754.6	180.5	757.8	178.0	756.9	180.5	757.8	180.5	757.8	180.5	757.8
624	177.9	725.1	189.7	717.5	181.1	723.0	189.7	717.5	189.7	717.5	189.7	717.5	190.0	716.2
625	171.8	778.9	171.8	778.9	178.0	783.5	178.0	783.5	178.0	783.5	178.0	783.5	156.9	774.8

Annexe 3, suite...

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
626	269.4	715.4	269.4	715.4	259.2	709.5	259.2	709.5	259.2	709.5	259.2	709.5	255.9	705.5
627	141.0	706.7	144.2	702.7	141.4	701.1	141.4	701.1	141.4	701.1	141.4	701.1	141.6	698.2
628	169.5	746.8	169.5	746.8	169.5	746.8	167.4	745.4	167.4	745.4	167.4	745.4	170.9	744.7
630	*	*	*	*	*	*	*	*	*	*	*	*	*	*
64	363.5	672.6	363.5	672.6	363.5	672.6	363.5	672.6	363.5	672.6	363.5	672.6	363.5	672.6
640	130.9	777.9	137.3	786.3	130.4	780.8	130.4	780.8	130.4	780.8	130.4	780.8	130.4	780.8
641	179.0	746.3	184.9	745.8	182.5	745.0	183.7	748.1	183.7	748.1	183.7	748.1	186.2	748.9
642	-0.9	781.3	*	773.3	*	773.3	*	773.3	*	773.3	*	773.3	*	773.3
644	295.2	709.1	294.3	706.5	294.3	706.5	294.3	706.5	290.7	706.3	290.7	706.3	290.7	706.3
645	48.0	759.2	46.1	757.4	46.1	757.4	46.1	757.4	46.1	757.4	46.1	757.4	46.1	757.4
646	35.0	753.0	35.0	753.0	35.0	753.0	35.0	753.0	35.0	753.0	35.0	753.0	35.0	753.0
647	156.5	738.9	158.5	744.7	156.7	742.9	158.5	744.7	156.7	742.9	156.7	742.9	160.1	742.6
648	23.2	739.4	16.8	731.3	8.1	729.4	8.1	729.4	8.1	729.4	8.1	729.4	12.8	727.6
65	305.1	719.3	305.1	719.3	296.1	711.7	296.1	711.7	296.1	711.7	296.1	711.7	296.1	711.7
650	145.9	764.0	150.0	767.3	147.9	765.7	150.0	767.3	147.8	768.8	147.8	768.8	147.8	768.8
652	461.9	629.6	461.9	629.6	461.9	629.6	461.9	629.6	461.9	629.6	461.9	629.6	493.3	578.5
653	*	*	*	*	*	*	*	*	*	*	*	*	*	*
654	404.0	771.0	408.9	773.1	405.9	773.4	404.0	771.0	404.0	771.0	404.0	771.0	405.9	773.4
655	413.6	703.2	441.4	701.1	441.4	701.1	434.9	667.8	434.9	667.8	434.9	667.8	434.9	667.8
68	192.3	683.5	196.6	686.3	200.1	686.4	195.5	683.7	195.5	683.7	195.5	683.7	195.5	683.7
700	58.9	29.9	51.4	22.0	51.4	22.0	51.4	22.0	51.4	22.0	51.4	22.0	51.4	22.0
702	4.5	83.7	14.4	90.3	10.3	93.4	10.3	93.4	10.3	93.4	10.3	93.4	10.3	93.4
703	203.0	27.8	203.0	27.8	199.0	25.4	199.0	25.4	199.0	25.4	199.0	25.4	199.0	25.4
704	297.6	250.7	298.0	248.2	297.6	250.7	297.6	250.7	297.6	250.7	296.7	250.7	296.7	250.7
705	255.1	44.9	260.1	42.6	260.1	42.6	259.7	38.7	258.2	40.8	258.2	40.8	259.7	38.7
707	415.1	45.8	416.3	48.1	413.8	48.9	447.9	65.7	445.7	67.2	447.9	65.7	454.1	64.0
708	464.2	36.1	464.2	36.1	464.2	36.1	465.5	33.7	466.1	37.9	467.4	35.6	467.4	35.6
709	396.8	101.5	393.1	101.4	393.1	101.4	392.5	101.3	392.5	101.3	393.4	103.9	393.4	103.9
71	166.9	779.8	163.5	772.6	163.5	772.6	163.5	772.6	163.5	772.6	163.5	772.6	161.5	774.4
711	463.7	94.9	463.7	94.9	463.7	94.9	463.7	94.9	463.7	94.9	463.7	94.9	463.7	94.9

Annexe 3, suite...

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
712	402.3	227.8	402.3	227.8	402.3	227.8	402.3	227.8	402.3	227.8	402.3	227.8	402.3	227.8
715	438.6	524.4	438.6	524.4	438.6	524.4	438.6	524.4	438.6	524.4	438.6	524.4	438.6	524.4
717	105.7	560.7	105.7	560.7	99.7	561.0	99.7	561.0	99.7	561.0	99.7	561.0	99.7	561.0
72	179.5	689.1	194.5	683.6	202.4	681.2	202.4	681.2	202.4	681.2	202.4	681.2	206.7	678.5
721	431.7	388.5	431.7	388.5	421.4	375.8	421.4	375.8	421.4	375.8	421.4	375.8	421.4	375.8
722	315.2	397.9	315.2	397.9	318.4	397.3	315.2	397.9	315.2	397.9	315.9	395.2	315.9	395.2
723	305.1	542.9	315.2	551.1	322.4	548.4	328.4	556.8	328.4	556.8	326.0	557.9	330.0	558.8
725	212.6	551.8	212.6	551.8	212.6	551.8	212.6	551.8	212.6	551.8	212.6	551.8	212.6	551.8
726	121.0	434.8	121.0	434.8	121.0	434.8	124.7	447.3	124.7	447.3	124.7	447.3	126.9	446.0
727	439.2	350.0	440.5	355.4	432.9	354.3	432.9	354.3	432.9	354.3	433.5	351.0	435.0	353.0
729	312.1	208.6	312.1	208.6	312.1	208.6	312.1	208.6	312.1	208.6	312.1	208.6	312.1	208.6
73	220.3	326.0	220.3	326.0	218.2	327.6	214.5	326.2	214.5	326.2	214.5	326.2	218.2	327.6
730	144.7	348.6	148.2	348.8	137.1	351.5	137.1	351.5	137.1	351.5	137.1	351.5	138.8	353.5
731	91.8	396.2	88.2	398.4	103.1	404.1	103.1	404.1	103.1	404.1	103.1	404.1	103.0	414.3
732	270.6	186.6	270.6	186.6	270.6	186.6	270.6	186.6	256.3	165.5	256.3	165.5	256.3	165.5
733	*	*	*	*	*	*	*	*	*	*	*	*	*	*
734	489.7	293.4	488.8	290.8	486.5	293.0	486.5	293.0	489.7	293.4	489.7	293.4	352.6	189.9
735	378.4	227.7	378.4	227.7	378.4	227.7	379.7	226.0	379.7	226.0	379.7	226.0	381.8	227.6
736	467.4	282.7	467.4	282.7	463.2	269.6	463.2	269.6	463.2	269.6	463.2	269.6	438.6	224.4
740	463.2	169.6	445.4	176.5	442.9	177.8	442.9	177.8	437.3	186.3	437.3	186.3	437.3	186.3
741	412.8	257.0	414.0	254.1	398.5	233.0	416.1	237.3	416.1	237.3	416.1	237.3	416.1	237.3
742	475.9	175.0	475.9	175.0	475.9	175.0	475.9	175.0	475.9	175.0	475.9	175.0	475.9	175.0
744	201.0	96.5	201.0	96.5	198.8	91.4	199.9	94.0	199.9	94.0	201.1	88.9	196.6	86.3
745	206.4	332.4	208.9	331.8	208.1	329.4	208.1	329.4	208.1	329.4	208.1	329.4	206.4	332.4
76	403.4	663.4	403.4	663.4	389.5	662.6	389.5	662.6	389.5	662.6	389.5	662.6	382.4	663.7
77	300.3	161.0	300.3	161.0	300.3	161.0	300.3	161.0	299.7	161.0	299.7	161.0	303.3	160.9
78	88.7	123.9	89.5	128.6	89.5	128.6	89.5	128.6	89.5	128.6	89.5	128.6	89.5	128.6
79	377.2	185.9	377.2	185.9	381.7	187.0	381.7	187.0	360.3	188.0	360.3	188.0	345.1	182.5
8	277.4	422.4	266.9	422.6	266.9	422.6	266.9	422.6	266.9	422.6	266.9	422.6	269.9	423.3
80	126.2	266.1	123.7	267.1	126.2	266.1	123.7	267.1	123.7	267.1	123.7	267.1	124.5	264.1

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
801	407.7	663.0	412.2	664.9	409.4	665.4	390.3	678.1	390.3	678.1	390.3	678.1	390.3	678.1
802	497.9	480.0	497.9	480.0	467.4	401.6	440.7	376.2	440.7	376.2	440.7	376.2	440.7	376.2
804	406.6	503.9	409.3	506.3	409.3	506.3	409.2	506.3	405.7	506.5	405.7	506.5	405.7	506.5
805	370.1	520.8	369.7	518.1	370.1	520.8	370.1	520.8	370.1	520.8	370.1	520.8	369.9	523.3
807	466.9	579.8	464.3	578.6	464.3	578.6	464.3	578.6	464.3	578.6	464.3	578.6	464.3	578.6
81	174.8	331.9	182.6	325.1	185.6	324.0	176.8	319.7	180.5	320.3	180.5	320.3	179.9	317.7
810	11.3	649.5	8.7	650.1	8.7	650.1	8.7	650.1	6.0	650.4	6.0	650.4	11.3	649.5
811	345.7	667.2	345.7	667.2	345.7	667.2	345.7	667.2	345.7	667.2	345.7	667.2	345.7	667.2
812	299.0	625.4	292.4	618.9	293.2	614.1	291.5	608.9	291.5	608.9	291.5	608.9	294.3	606.5
813	436.3	624.3	438.6	624.4	436.3	624.3	436.3	624.3	436.3	624.3	436.3	624.3	435.8	624.1
815	385.8	613.4	388.7	611.2	385.8	613.4	385.8	613.4	385.8	613.4	387.9	608.6	387.2	627.6
816	227.3	622.8	223.2	619.7	223.2	619.7	223.2	619.7	223.2	619.7	223.2	619.7	230.1	623.3
817	256.5	638.9	253.7	637.2	253.7	637.2	253.7	637.2	256.5	638.9	256.5	638.9	256.5	638.9
818	196.3	648.1	194.0	650.4	197.6	650.7	194.0	650.4	191.3	650.1	191.3	650.1	192.6	647.7
819	157.5	683.8	160.1	685.1	160.1	685.1	160.1	685.1	160.1	685.1	160.1	685.1	176.5	688.4
82	91.9	388.5	91.9	388.5	86.5	393.0	86.5	393.0	88.8	390.8	88.8	390.8	86.5	393.0
820	159.0	606.7	150.0	602.8	166.5	625.2	150.0	630.4	150.0	630.4	150.0	630.4	151.5	632.6
825	468.5	536.1	469.7	530.8	469.7	530.8	469.7	530.8	469.7	530.8	469.7	530.8	469.7	530.8
83	*	*	*	*	*	*	*	*	*	*	*	*	*	*
834	146.9	709.8	119.8	691.9	146.9	709.8	146.9	709.8	146.9	709.8	146.9	709.8	146.9	709.8
835	199.2	745.7	198.0	745.7	198.0	745.7	199.2	745.7	199.2	745.7	199.2	745.7	199.2	745.7
836	39.2	750.0	39.2	750.0	39.2	750.0	39.2	750.0	39.2	750.0	39.2	750.0	39.2	750.0
837	107.4	747.7	107.3	752.8	107.3	752.8	107.3	752.8	108.4	750.1	108.4	750.1	112.7	746.6
838	38.6	724.4	38.6	724.4	38.6	724.4	29.1	726.2	38.6	724.4	38.6	724.4	39.8	727.2
839	88.3	738.9	88.3	738.9	88.3	738.9	88.3	738.9	88.3	738.9	88.3	738.9	87.3	741.3
84	80.5	120.3	78.4	121.5	78.4	121.5	72.8	116.2	75.8	114.3	77.1	116.0	72.8	116.2
840	86.2	785.8	86.2	785.8	86.2	785.8	86.2	785.8	86.2	785.8	86.2	785.8	-2.1	783.8
843	477.3	662.0	473.8	666.1	473.8	666.1	473.8	666.1	473.8	666.1	473.8	666.1	473.8	666.1
844	438.2	677.4	440.7	676.2	438.5	674.4	438.5	674.4	438.5	674.4	438.5	674.4	438.5	674.4
845	276.5	688.4	276.5	688.4	276.5	688.4	276.5	688.4	276.5	688.4	276.5	688.4	269.2	694.1

Annexe 3, suite...

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
846	472.5	651.5	472.5	651.5	473.9	649.4	473.9	649.4	473.9	649.4	473.9	649.4	455.8	702.7
847	406.1	660.7	406.1	660.7	432.9	654.3	407.7	663.0	405.6	665.8	405.6	665.8	405.6	665.8
848	479.9	617.7	479.9	617.7	479.9	617.7	479.9	617.7	479.9	617.7	*	*	*	*
849	414.4	690.3	416.7	692.5	406.6	686.1	404.5	683.7	404.5	683.7	404.5	683.7	404.5	683.7
85	139.2	468.3	139.2	468.3	139.2	468.3	138.0	460.1	136.2	458.2	136.2	458.2	138.0	460.1
850	384.2	620.9	382.3	612.9	381.6	610.2	381.6	610.2	381.6	610.2	381.6	610.2	381.6	610.2
87	231.7	588.5	226.5	587.5	226.5	587.5	226.5	587.5	190.6	596.1	190.6	596.1	190.6	596.1
88	108.9	388.5	108.9	388.5	108.9	388.5	108.9	388.5	108.9	388.5	108.9	388.5	108.9	388.5
89	61.1	436.5	62.9	438.3	62.4	434.1	57.5	438.4	57.5	438.4	57.5	438.4	57.5	438.4
90	74.3	406.1	74.3	406.1	74.8	408.9	78.2	409.6	78.2	409.6	78.2	409.6	78.2	409.6
91	356.3	365.5	356.3	365.5	356.3	365.5	358.5	366.9	358.5	366.9	358.5	366.9	362.8	366.5
92	35.2	129.2	50.0	150.6	33.3	131.3	35.2	129.2	33.3	131.3	32.2	128.8	33.3	131.3
93	88.1	595.8	79.5	589.1	81.7	587.0	81.7	587.0	81.7	587.0	87.9	588.1	67.8	585.6
94	65.5	187.4	65.5	187.4	65.9	190.3	65.9	190.3	63.1	189.2	65.5	187.4	65.5	187.4
96	99.1	681.3	99.1	681.3	99.1	681.3	99.1	681.3	99.1	681.3	99.1	681.3	99.1	681.3
97	92.4	180.9	93.3	178.5	93.3	178.5	93.3	178.5	93.3	178.5	93.3	178.5	90.3	178.1
98	31.2	143.3	31.2	143.3	26.5	140.3	26.5	140.3	27.8	142.5	24.4	141.7	24.4	141.7
99	46.6	443.1	46.6	443.1	50.0	443.1	48.3	445.0	48.3	445.0	48.3	445.0	48.4	441.2
aa	478.4	196.7	478.4	196.7	478.4	196.7	478.4	196.7	478.4	196.7	478.4	196.7	478.4	196.7
ab	393.0	252.9	393.0	252.9	393.0	252.9	394.0	255.6	394.0	255.6	394.0	255.6	394.0	255.6
ac	391.9	237.2	391.9	237.2	391.0	234.4	391.8	237.2	391.8	237.2	391.8	237.2	391.8	237.2
ae	417.6	250.3	417.6	250.3	416.3	248.1	416.3	248.1	416.3	248.1	416.3	248.1	416.3	248.1
af	358.0	392.5	357.8	389.6	355.2	388.3	355.2	388.3	355.2	388.3	355.2	388.3	355.2	388.3
ah	408.2	621.6	403.0	620.1	405.1	619.3	405.1	619.3	405.1	619.3	405.1	619.3	405.1	619.3
ai	412.0	621.3	408.5	621.2	408.2	621.6	427.6	581.8	427.1	584.7	427.1	584.7	427.1	584.7
aj	278.9	746.2	276.6	745.1	276.6	745.1	276.6	745.1	274.4	743.9	274.4	743.9	274.4	743.9
al	311.0	701.0	311.0	701.0	311.0	701.0	312.2	733.4	312.2	733.4	312.2	733.4	311.3	731.0
am	202.0	648.2	200.8	648.3	199.2	648.3	200.8	648.3	196.7	650.7	196.7	650.7	199.5	650.8
ao	395.7	704.1	393.1	701.4	393.4	703.9	396.0	701.5	389.8	703.6	389.8	703.6	392.5	701.3
aq	477.7	693.9	458.8	703.9	462.1	707.8	462.1	707.8	462.1	707.8	462.1	707.8	462.1	707.8

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
ar	384.1	628.9	374.8	631.9	353.3	618.1	353.3	618.1	353.3	618.1	353.3	618.1	353.3	618.1
as	392.3	583.5	380.9	594.6	*	*	*	*	*	*	*	*	*	*
au	407.6	511.5	408.5	508.9	408.5	508.9	408.5	508.9	408.5	508.9	408.5	508.9	408.5	508.9
av	423.4	545.1	423.4	545.1	424.7	547.3	422.4	548.4	424.7	547.3	424.7	547.3	423.4	545.1
aw	400.5	550.8	392.3	542.5	396.9	543.1	392.3	542.5	392.3	542.5	389.7	541.9	392.3	542.5
ax	269.7	518.1	266.3	517.2	266.3	517.2	262.5	521.4	262.5	521.4	262.5	521.4	260.2	527.2
ay	281.0	407.5	278.2	409.6	281.0	407.5	278.2	409.6	278.2	409.6	278.2	409.6	281.6	410.2
b	418.2	27.6	418.2	27.6	418.2	27.6	415.9	28.9	418.2	27.6	418.2	27.6	418.9	27.1
ba	389.7	541.9	389.7	541.9	395.8	540.4	381.4	541.7	378.0	537.1	378.0	537.1	381.3	536.1
bb	483.7	448.1	483.7	448.1	487.4	446.6	487.4	446.6	487.4	446.6	487.4	446.6	487.4	446.6
bc	307.4	457.9	303.3	450.7	302.0	448.2	302.0	448.2	300.5	450.8	310.1	452.4	310.1	452.4
bd	479.3	515.0	489.5	528.6	487.2	527.6	489.5	528.6	489.5	528.6	489.5	528.6	489.5	528.6
be	379.9	449.4	377.6	448.4	365.5	456.3	365.5	456.3	334.0	473.8	334.0	473.8	334.0	473.8
bf	404.5	383.7	399.1	381.3	397.1	378.7	397.1	378.7	397.1	378.7	397.1	378.7	397.1	378.7
bg	391.3	355.2	391.3	355.2	*	*	*	*	*	*	*	*	*	*
bi	175.3	95.9	172.5	113.1	172.2	95.1	175.3	95.9	172.2	95.1	172.2	95.1	167.4	101.6
bj	141.8	95.4	141.8	95.4	138.9	96.6	138.9	96.6	138.9	96.6	138.9	96.6	136.6	92.0
bl	210.5	113.8	208.5	121.2	210.5	113.8	210.5	113.8	210.8	120.1	211.4	122.7	210.5	113.8
bm	201.1	109.2	199.2	112.7	198.4	106.7	201.6	106.7	201.6	106.7	196.6	112.2	192.7	134.8
bn	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bo	60.0	120.5	60.8	118.2	60.8	118.2	63.2	118.9	60.0	120.5	60.8	118.2	60.0	120.5
bp	75.2	182.7	73.5	187.5	70.6	186.6	70.6	186.6	71.2	189.4	71.2	189.4	73.5	187.5
bq	230.8	294.1	244.5	297.0	*	*	*	*	*	*	*	*	*	*
br	5.6	281.1	5.6	281.1	5.6	281.1	5.6	281.1	5.6	281.1	5.6	281.1	5.6	281.1
bs	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bt	81.2	363.3	81.2	363.3	81.2	363.3	81.2	363.3	81.2	363.3	81.2	363.3	81.2	363.3
bu	59.6	615.0	64.2	624.1	50.0	614.0	40.4	615.0	40.4	615.0	40.4	615.0	40.4	615.0
bv	*	*	*	*	*	*	*	*	*	*	*	*	*	*
bw	176.7	526.9	176.7	526.9	176.7	526.9	176.7	526.9	176.7	526.9	176.7	526.9	179.7	526.0
bx	170.5	402.5	173.2	408.0	173.2	408.0	173.2	408.0	173.2	408.0	173.2	408.0	173.2	408.0



Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
by	189.9	652.4	184.8	651.1	186.8	651.7	180.2	644.0	180.2	644.0	180.2	644.0	183.7	648.1
bz	269.4	555.6	269.4	555.6	273.1	546.0	273.1	546.0	273.1	546.0	273.1	546.0	273.1	546.0
ca	8.2	568.1	8.2	568.1	8.2	568.1	8.2	568.1	6.5	565.7	8.2	568.1	5.3	568.4
cc	204.6	591.3	204.6	591.3	204.6	591.3	206.6	586.1	206.6	586.1	206.6	586.1	207.7	583.5
ce	442.8	750.3	441.1	748.4	440.8	751.9	442.8	750.3	441.1	748.4	441.1	748.4	441.1	748.4
cf	292.4	711.5	292.4	711.5	295.2	709.1	285.1	710.8	285.1	710.8	285.1	710.8	291.5	708.9
cg	393.0	793.7	393.0	793.7	393.0	793.7	393.0	793.7	393.0	793.7	393.0	793.7	393.0	793.7
ci	272.4	713.5	257.2	750.3	275.8	714.3	272.4	713.5	272.4	713.5	272.4	713.5	272.4	713.5
cm	27.6	681.8	27.6	681.8	25.5	679.9	12.7	677.7	12.7	677.7	12.7	677.7	12.7	677.7
cs	310.8	783.1	307.7	783.5	305.5	783.6	305.5	783.6	305.5	783.6	305.5	783.6	307.7	783.5
ct	98.0	748.2	89.3	736.6	89.3	736.6	89.3	736.6	89.3	736.6	89.3	736.6	89.3	736.6
cu	253.5	746.9	253.5	746.9	250.0	746.9	253.5	746.9	250.0	746.9	250.0	746.9	250.0	746.9
d	331.9	48.9	331.9	48.9	329.8	50.3	333.5	51.0	333.5	51.0	333.5	51.0	328.3	48.2
da	29.1	644.7	27.5	651.5	27.5	651.5	27.5	651.5	27.5	651.5	27.5	651.5	27.5	651.5
dc	416.7	692.5	413.0	685.4	409.8	685.8	409.8	685.8	409.8	685.8	409.8	685.8	405.3	668.4
dd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
df	22.9	716.0	22.9	716.0	26.4	719.8	15.8	720.9	15.8	720.9	15.8	720.9	26.4	719.8
dj	31.7	788.5	31.7	788.5	31.7	788.5	31.7	788.5	31.7	788.5	31.7	788.5	31.7	788.5
dl	112.2	733.4	112.2	733.4	112.2	733.4	107.3	734.8	107.3	734.8	107.3	734.8	111.9	733.5
dm	56.3	765.5	56.3	765.5	56.3	765.5	56.3	765.5	56.3	765.5	56.3	765.5	57.5	767.8
dn	176.6	777.8	176.6	777.8	181.5	776.5	178.6	775.8	178.6	775.8	178.6	775.8	178.6	775.8
dq	108.9	788.5	95.4	796.4	97.5	796.5	97.5	796.5	97.5	796.5	97.5	796.5	122.0	783.5
dr	199.7	773.7	197.8	771.1	201.0	771.1	201.0	771.1	201.0	771.1	201.0	771.1	201.0	771.1
ds	302.4	681.2	219.1	694.6	201.6	676.2	201.6	676.2	201.6	676.2	201.6	676.2	193.5	665.7
dt	269.5	746.8	269.5	746.8	269.5	746.8	*	*	*	*	*	*	*	*
dv	221.9	765.0	220.2	762.9	220.2	762.9	221.9	765.0	220.2	762.9	220.2	762.9	220.2	762.9
dw	220.3	802.1	220.3	802.1	220.3	802.1	220.3	802.1	220.3	802.1	220.3	802.1	220.3	802.1
e	415.9	128.9	415.9	128.9	408.5	121.2	408.5	121.2	408.5	121.2	408.5	121.2	408.5	121.2
el	454.5	632.5	454.5	632.5	454.5	632.5	454.5	632.5	454.5	632.5	454.5	632.5	454.5	632.5
em	160.1	542.6	162.0	544.3	160.1	542.6	160.1	542.6	160.1	542.6	160.1	542.6	146.6	543.1

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
eo	274.1	590.3	274.1	590.3	269.6	597.0	269.6	597.0	269.6	597.0	269.6	597.0	269.6	597.0
es	322.1	542.9	322.1	542.9	322.1	542.9	322.1	542.9	322.1	542.9	322.1	542.9	322.1	542.9
et	387.9	708.6	393.2	714.1	424.2	735.8	*	*	*	*	*	*	*	*
eu	458.2	595.4	458.2	595.4	458.2	595.4	458.2	595.4	458.2	595.4	458.2	595.4	458.2	595.4
ex	456.8	524.8	458.5	524.7	458.5	524.7	458.5	524.7	458.5	524.7	458.5	524.7	458.5	524.7
ey	321.3	486.3	321.3	486.3	309.8	485.8	309.8	485.8	309.8	485.8	317.5	484.6	309.8	485.8
fa	375.3	511.6	371.7	517.0	375.3	511.6	375.3	511.6	375.3	511.6	375.3	511.6	375.3	511.6
fb	326.5	440.3	326.5	440.3	305.7	406.5	305.7	406.5	305.7	406.5	305.7	406.5	305.7	406.5
fc	461.1	496.6	458.4	498.2	450.0	500.0	450.0	502.8	450.0	502.8	452.9	501.3	450.0	502.8
ff	476.2	350.6	476.2	350.6	476.2	350.6	476.2	350.6	476.2	350.6	476.2	350.6	477.6	348.4
fh	258.6	301.1	258.6	301.1	258.6	301.1	258.6	301.1	258.6	301.1	258.6	301.1	258.6	301.1
fi	256.5	268.6	256.5	268.6	256.5	268.6	256.5	268.6	256.5	268.6	256.5	268.6	256.5	268.6
fj	263.2	269.6	261.1	271.4	263.2	269.6	263.2	269.6	263.2	269.6	263.2	269.6	263.2	269.6
fq	97.9	135.5	104.0	140.4	104.0	140.4	103.0	138.0	103.0	138.0	103.0	138.0	105.2	137.7
fr	118.4	125.7	118.4	125.7	118.4	125.7	118.4	125.7	118.4	125.7	118.4	125.7	116.0	184.9
fv	290.4	778.2	289.0	780.5	291.3	780.8	293.3	778.5	293.3	778.5	293.3	778.5	306.0	778.5
fw	316.8	731.3	314.5	732.5	316.8	731.3	317.7	733.7	317.7	733.7	317.7	733.7	318.7	736.1
fx	311.2	790.8	311.2	790.8	311.2	790.8	311.2	790.8	311.2	790.8	311.2	790.8	311.2	790.8
fy	314.4	790.3	314.4	790.3	314.4	790.3	314.4	790.3	314.4	790.3	314.4	790.3	314.4	790.3
fz	436.3	794.9	436.3	794.9	436.3	794.9	436.3	794.9	436.3	794.9	436.3	794.9	430.8	794.1
g	450.0	82.6	447.6	81.0	450.0	82.6	450.0	82.6	450.0	82.6	450.0	82.6	450.0	82.6
ga	363.3	754.9	361.6	756.8	361.6	756.8	361.6	756.8	361.6	756.8	361.6	756.8	361.6	756.8
gd	407.8	775.8	412.7	777.7	409.7	778.1	409.7	778.1	407.8	775.8	407.8	775.8	399.2	768.6
ge	451.8	748.8	444.3	755.6	446.3	754.0	442.0	760.5	439.8	762.0	439.8	762.0	439.8	762.0
gg	441.5	724.7	464.7	681.6	*	*	*	*	*	*	*	*	*	*
gh	267.9	730.7	261.9	705.1	250.0	697.1	250.0	697.1	250.0	697.1	250.0	697.1	250.0	697.1
gk	331.9	672.0	331.9	672.0	330.0	670.1	330.0	670.1	330.0	670.1	330.0	670.1	330.0	670.1
gl	358.0	660.5	358.0	660.5	358.0	660.5	358.0	660.5	358.0	660.5	358.0	660.5	358.0	660.5
gm	345.0	585.4	342.4	586.7	342.4	586.7	342.4	586.7	342.4	586.7	342.4	586.7	345.0	585.4
gn	357.3	680.8	352.5	684.0	357.3	680.8	340.5	679.2	340.5	679.2	340.5	679.2	342.9	677.8

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
go	443.2	624.8	447.2	624.9	450.0	634.9	450.0	634.9	450.0	634.9	450.0	634.9	450.0	634.9
gr	186.2	548.9	188.7	549.5	187.4	551.8	188.7	549.5	187.4	551.8	191.3	550.1	188.7	549.5
gs	134.4	570.8	134.0	573.8	134.0	573.8	128.2	578.9	128.2	578.9	128.8	576.0	130.4	597.0
gt	299.5	615.2	299.2	614.3	299.2	614.3	299.2	614.3	299.2	614.3	299.2	614.3	299.2	614.3
gv	377.1	591.1	377.1	591.1	377.1	591.1	377.1	591.1	377.1	591.1	377.1	591.1	379.5	589.1
gx	201.1	409.2	201.1	409.2	197.4	409.2	197.4	409.2	197.4	409.2	197.4	409.2	197.4	409.2
gy	265.0	353.0	265.0	353.0	270.9	353.6	270.9	353.6	270.9	353.6	270.9	353.6	270.9	353.6
ha	302.1	406.7	302.1	406.7	309.3	406.3	304.8	409.1	303.9	406.6	303.9	406.6	303.9	406.6
hb	352.1	365.7	352.1	365.7	347.9	365.7	347.9	365.7	347.9	365.7	347.9	365.7	347.9	365.7
hc	388.1	341.5	386.1	343.6	388.1	341.5	393.8	345.3	394.9	342.9	394.9	342.9	396.5	345.6
hd	145.4	276.5	143.1	274.8	145.5	273.4	145.5	273.4	145.5	273.4	145.5	273.4	145.5	273.4
he	339.1	234.1	346.8	239.1	346.8	239.1	346.8	239.1	*	*	*	*	*	*
hf	482.3	279.3	*	*	*	*	*	*	*	*	*	*	*	*
hg	410.0	252.4	407.3	252.8	407.3	252.8	401.4	240.6	401.4	240.6	401.4	240.6	401.6	225.3
hh	89.7	185.7	89.7	185.7	89.7	185.7	89.7	185.7	88.2	172.7	88.2	172.7	86.7	162.1
hk	317.7	133.7	317.7	133.7	317.7	133.7	*	*	*	*	*	*	*	*
hl	170.8	57.8	177.1	16.0	173.2	8.0	173.2	8.0	177.8	12.3	177.8	12.3	177.8	12.3
hm	187.9	208.6	184.7	217.0	187.5	216.0	187.5	216.0	187.5	216.0	187.5	216.0	187.5	216.0
hn	354.9	182.5	357.3	180.8	350.0	182.6	*	*	*	*	*	*	*	*
hp	395.5	188.8	395.5	188.8	394.2	191.3	395.4	191.3	395.4	191.3	395.4	191.3	395.4	191.3
hq	478.0	137.1	480.2	138.4	479.0	134.8	478.0	137.1	478.0	137.1	478.0	137.1	478.0	137.1
hr	494.5	119.6	494.5	119.6	494.2	120.8	493.2	114.1	493.2	114.1	493.2	114.1	493.2	114.1
hs	237.2	66.5	233.5	62.7	231.7	60.8	231.7	60.8	231.7	60.8	231.7	60.8	231.7	60.8
ht	171.7	92.3	171.2	89.4	174.1	90.3	174.1	90.3	174.1	90.3	174.1	90.3	174.1	90.3
hu	181.7	87.0	181.7	87.0	181.7	87.0	166.9	79.8	159.5	79.2	159.5	79.2	201.1	88.9
hv	240.8	51.9	240.8	51.9	240.8	51.9	240.8	51.9	240.8	51.9	240.8	51.9	240.8	51.9
hw	168.3	60.8	166.0	59.6	166.0	59.6	166.0	59.6	166.0	59.6	166.0	59.6	166.0	59.6
hx	144.1	105.5	144.1	105.5	144.1	105.5	158.8	103.9	158.8	103.9	158.8	103.9	158.8	103.9
hy	235.0	11.5	235.0	11.5	235.0	11.5	235.0	11.5	235.0	11.5	235.0	11.5	235.0	11.5
i	315.2	40.4	315.2	40.4	316.3	42.7	316.3	42.7	316.3	42.7	316.3	42.7	316.3	42.7

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
ia	245.3	36.9	243.8	34.7	243.5	38.9	243.5	38.9	242.1	36.7	243.5	38.9	243.5	38.9
ib	255.7	40.0	254.9	41.1	258.5	44.7	255.1	44.9	255.1	44.9	266.0	47.5	266.0	47.5
ic	250.0	30.2	*	*	*	*	*	*	*	*	*	*	*	*
id	320.2	62.9	321.9	65.0	321.9	65.0	321.9	65.0	321.9	65.0	325.2	61.0	325.2	61.0
ie	276.2	50.6	271.3	65.1	271.3	65.1	271.3	65.1	271.3	65.1	271.3	65.1	271.3	65.1
if	362.1	52.5	362.1	52.5	362.1	52.5	362.1	52.5	362.1	52.5	362.1	52.5	362.1	52.5
ig	369.5	67.0	371.3	65.1	371.9	68.1	370.0	70.1	370.0	70.1	371.9	68.1	371.9	68.1
ij	365.4	43.9	366.8	41.7	366.8	41.7	368.8	43.3	368.8	43.3	368.8	43.3	368.8	43.3
ik	489.7	17.5	489.7	17.5	489.7	17.5	492.6	16.2	489.7	17.5	489.7	17.5	492.6	16.2
il	474.5	69.1	474.5	69.1	477.1	70.0	477.1	70.0	474.5	69.1	474.5	69.1	474.5	69.1
ip	481.7	87.0	481.7	86.3	478.7	86.3	478.7	86.3	481.7	87.0	481.7	87.0	481.7	87.0
iq	505.4	70.9	505.4	70.9	502.2	71.1	502.2	71.1	502.2	71.1	502.2	71.1	500.8	68.6
ir	*	*	*	*	*	*	*	*	*	*	*	*	*	*
it	403.5	3.6	403.5	3.6	403.5	3.6	403.5	3.6	403.5	3.6	403.5	3.6	403.5	3.6
iu	395.4	14.5	395.4	14.5	395.4	14.5	395.4	14.5	395.4	14.5	388.4	9.8	388.4	9.8
iv	414.3	10.6	414.3	10.6	414.3	10.6	414.3	10.6	414.3	10.6	414.3	10.6	414.3	10.6
iy	10.0	70.4	8.2	68.1	9.4	65.4	9.4	65.4	9.4	68.1	8.2	68.1	8.2	68.1
j	296.2	32.8	296.2	35.2	295.3	35.2	295.3	35.2	295.3	35.2	295.3	35.2	295.3	35.2
jd	254.9	41.1	254.9	39.1	253.2	39.1	253.2	39.1	253.2	39.1	251.6	37.0	251.6	37.0
jf	50.0	97.1	50.4	106.3	50.4	106.3	50.4	106.3	50.4	106.3	50.4	106.3	50.0	105.6
ji	92.6	16.2	92.6	16.2	90.2	14.9	90.2	14.9	90.2	14.9	90.2	14.9	90.2	14.9
jj	131.7	60.8	130.0	60.0	127.6	60.0	127.6	60.0	127.6	60.0	127.6	60.0	131.1	63.9
jm	15.2	123.5	15.2	123.5	15.2	123.5	15.2	123.5	15.2	123.5	15.2	123.5	15.2	123.5
jn	92.4	118.9	92.4	118.9	92.4	118.9	92.4	118.9	92.4	117.1	94.5	119.6	94.5	119.6
jo	17.5	189.8	9.4	196.1	9.4	196.1	9.4	196.1	9.4	196.1	10.3	193.4	10.3	193.4
jq	52.9	204.2	52.9	204.2	52.9	204.2	52.9	204.2	52.9	204.2	52.9	204.2	52.9	204.2
jr	29.9	199.8	29.9	199.8	23.6	201.4	23.6	201.4	23.6	201.4	23.6	201.4	30.4	197.0
jt	40.7	234.5	43.8	234.7	38.5	240.5	38.5	240.5	38.5	240.5	38.5	240.5	38.5	240.5
ju	54.0	214.5	54.0	214.5	54.0	214.5	54.0	214.5	54.0	214.5	54.0	214.5	54.0	214.5
jv	7.8	275.8	7.8	273.4	5.9	273.4	5.9	273.4	5.9	273.4	5.9	273.4	16.6	274.4

Annexe 3, suite...

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
jx	3.3	250.7	2.0	248.2	2.0	248.2	2.0	248.2	2.0	248.2	2.0	248.2	2.0	248.2
jy	83.7	305.4	83.7	305.4	81.6	297.3	84.1	295.2	84.1	295.2	84.1	295.2	84.8	297.9
jz	65.6	270.8	67.5	268.9	67.5	268.9	67.5	268.9	67.5	268.9	67.5	268.9	67.5	268.9
k	325.3	225.0	325.3	225.0	321.6	227.7	321.6	227.7	321.6	227.7	321.6	227.7	321.6	227.7
kd	25.3	325.0	25.3	325.0	25.3	325.0	25.3	325.0	25.3	325.0	25.3	325.0	25.3	325.0
kg	47.6	381.0	50.0	376.6	50.0	376.6	50.0	376.6	50.0	376.6	47.7	375.0	47.7	375.0
kh	102.4	443.1	102.4	443.1	102.4	443.1	100.3	443.2	100.3	443.2	100.3	443.2	103.1	443.1
ki	160.6	490.9	178.0	437.1	178.0	437.1	178.0	437.1	178.0	437.1	178.0	437.1	178.0	437.1
kj	121.1	359.9	122.0	356.9	122.0	356.9	122.0	356.9	122.0	356.9	122.0	356.9	122.0	356.9
kl	67.8	428.8	67.8	428.8	67.8	428.8	67.8	428.8	67.8	428.8	67.8	428.8	67.8	428.8
km	105.6	488.7	105.6	488.7	105.6	488.7	105.6	488.7	105.6	488.7	105.6	488.7	104.5	488.8
ko	4.0	471.0	4.0	471.0	4.0	471.0	4.0	471.0	4.0	471.0	4.0	471.0	4.0	471.0
kp	33.5	462.7	31.7	460.8	31.7	460.8	31.7	460.8	31.7	460.8	31.7	460.8	31.7	460.8
kq	47.5	484.0	47.5	484.0	47.5	484.0	50.0	485.5	47.5	484.0	47.5	484.0	50.0	482.6
kr	39.8	462.0	39.5	465.2	39.5	465.2	39.5	465.2	39.5	465.2	39.5	465.2	39.8	462.0
ks	83.4	474.4	81.5	476.5	82.3	479.3	82.3	479.3	80.2	481.4	82.3	479.3	82.3	479.3
kt	290.8	506.3	190.8	506.3	190.8	506.3	190.8	506.3	190.8	506.3	190.8	506.3	190.8	506.3
ku	220.0	449.4	220.1	449.4	220.1	449.4	220.1	449.4	220.1	449.4	220.1	449.4	222.1	442.9
kv	452.8	498.5	450.0	497.1	452.8	498.5	452.8	498.5	452.8	498.5	452.8	498.5	452.8	498.5
kx	448.4	541.2	443.3	542.9	443.3	542.9	443.3	542.9	443.3	542.9	443.3	542.9	446.6	543.1
ky	458.5	524.7	451.5	532.6	448.3	545.0	448.3	545.0	448.3	545.0	448.3	545.0	448.3	545.0
ky	42.3	557.2	44.3	555.6	44.3	555.6	44.3	555.6	44.3	555.6	44.3	555.6	44.3	555.6
kz	85.5	580.0	85.5	580.0	88.2	580.4	88.2	580.4	88.2	580.4	88.2	580.4	85.2	579.9
la	7.6	611.5	4.2	612.0	7.6	611.5	7.6	611.5	7.6	611.5	7.6	611.5	7.6	611.5
lc	50.0	635.9	50.0	635.9	50.0	639.1	50.0	639.1	50.0	639.1	50.0	639.1	50.0	639.1
ld	12.2	664.9	12.2	664.9	9.4	665.4	9.4	665.4	9.4	665.4	9.4	665.4	10.5	662.6
lf	7.4	647.7	7.4	647.7	7.4	647.7	7.4	647.7	7.4	647.7	7.4	647.7	0.5	650.8
lg	35.5	632.5	32.6	635.6	31.4	633.2	35.5	632.5	35.5	632.5	35.5	632.5	34.5	633.7
lh	28.7	565.1	28.7	565.1	28.7	565.1	28.7	565.1	28.7	565.1	28.7	565.1	22.9	570.0
li	169.5	646.8	177.6	648.4	178.9	646.2	179.9	649.4	179.9	649.4	179.9	649.4	178.9	646.2

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
lj	13.7	675.0	13.7	675.0	13.7	675.0	8.9	673.1	13.7	675.0	13.7	675.0	8.9	673.1
lk	18.4	668.7	43.3	671.8	43.3	671.8	43.3	671.8	43.3	671.8	43.3	671.8	26.2	666.1
m	415.2	187.6	415.2	187.6	415.2	187.6	415.2	187.6	415.2	187.6	415.2	187.6	417.5	189.8
n	462.9	151.5	462.9	151.5	462.9	151.5	462.9	151.5	462.9	151.5	462.9	151.5	462.9	151.5
o	506.2	178.5	506.2	178.5	506.2	178.5	506.2	178.5	506.2	178.5	506.2	178.5	506.2	178.5
p	435.0	106.1	435.0	106.1	435.0	106.1	435.0	106.1	435.0	106.1	435.0	106.1	431.8	107.1
pb	488.2	198.4	488.2	198.4	485.6	200.6	485.6	200.6	485.6	200.6	485.6	200.6	485.6	200.6
pc	461.2	53.5	461.2	53.5	446.4	50.5	446.4	50.5	453.1	34.8	453.1	34.8	453.1	34.8
pd	467.3	49.9	466.5	51.0	465.0	53.0	465.0	53.0	465.0	53.0	465.0	53.0	465.0	53.0
pe	486.1	43.6	486.1	43.6	486.1	43.6	486.1	43.6	484.9	45.8	486.1	43.6	487.3	41.3
pi	329.1	753.6	322.1	731.0	273.7	734.3	273.7	734.3	273.7	734.3	273.7	734.3	282.0	755.6
pj	374.1	690.3	369.2	694.1	369.2	694.1	369.2	694.1	369.2	694.1	369.2	694.1	376.5	688.4
pk	334.0	759.6	332.9	754.3	332.9	754.3	332.9	754.3	332.9	754.3	332.9	754.3	332.9	754.3
pl	326.0	757.9	326.0	757.9	326.0	757.9	326.0	757.9	326.0	757.9	326.0	757.9	326.0	757.9
pm	351.8	752.3	351.8	752.3	348.3	745.0	348.3	745.0	348.3	745.0	348.3	745.0	348.3	745.0
pn	345.7	767.2	357.7	757.2	357.7	757.2	357.7	757.2	357.7	757.2	357.7	757.2	357.7	757.2
pq	335.0	737.9	335.0	737.9	297.0	738.0	297.0	738.0	297.0	738.0	297.0	738.0	297.0	738.0
pr	383.5	718.2	383.5	718.2	382.9	715.6	382.9	715.6	379.9	717.7	379.9	717.7	378.7	712.3
q	447.3	95.6	444.6	94.1	444.6	94.1	444.6	94.1	444.6	94.1	444.6	94.1	444.6	94.1
qc	186.3	767.2	182.4	763.7	182.4	763.7	182.4	763.7	182.4	763.7	182.4	763.7	183.5	737.2
qd	54.4	770.3	54.4	770.3	54.4	770.3	54.4	770.3	54.4	770.3	54.4	770.3	52.2	768.8
qe	14.0	754.1	10.2	757.5	12.8	757.0	12.8	757.0	12.8	757.0	12.8	757.0	12.8	757.0
qf	171.7	748.2	168.1	748.9	166.5	751.0	168.7	752.3	168.7	752.3	168.7	752.3	166.5	751.0
qj	131.4	675.0	131.4	675.0	131.4	675.0	131.4	675.0	131.4	675.0	131.4	675.0	131.4	675.0
qk	65.5	687.4	67.4	682.7	67.4	682.7	67.4	682.7	67.4	682.7	67.4	682.7	67.4	682.7
ql	60.8	668.3	60.8	668.3	60.8	668.3	60.8	668.3	60.8	668.3	60.8	668.3	60.8	668.3
qm	0.1	694.0	0.1	694.0	2.5	696.5	2.5	696.5	6.0	696.3	6.0	696.3	9.4	696.1
qn	53.5	626.3	15.2	651.1	*	673.3	*	673.3	*	686.1	*	686.1	*	686.1
qo	*	686.1	*	686.1	*	686.1	*	686.1	*	686.1	*	686.1	*	686.1
qq	*	666.0	400.5	666.0	404.8	663.3	404.8	663.3	404.8	663.3	404.8	663.3	404.8	663.3

Annexe 3, suite...

Moule	7 septembre 1989		18 septembre 1989		25 septembre 1989		16 octobre 1989		30 octobre 1989		4 mai 1990		18 mai 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
qr	473.1	646.0	473.1	646.0	487.2	627.6	391.1	731.8	391.1	731.8	391.1	731.8	391.1	731.8
qs	442.2	689.6	435.7	678.6	404.6	691.3	455.2	688.3	455.2	688.3	455.2	688.3	455.2	688.3
qt	455.0	685.4	452.5	687.0	455.2	688.3	3.0	614.3	3.0	614.3	3.0	614.3	5.0	617.1
qx	-0.8	614.3	2.5	617.6	2.5	617.6	21.4	575.8	21.4	575.8	21.4	575.8	21.4	575.8
qz	16.6	574.4	18.5	576.5	21.4	575.8	419.8	191.9	419.8	191.9	419.8	191.9	447.6	178.0
r	419.8	191.9	419.8	191.9	419.8	191.9	4.8	563.3	4.8	563.3	4.8	563.3	7.7	563.0
rb	4.8	563.3	4.8	563.3	6.5	565.7	14.4	459.2	14.4	459.2	14.4	459.2	14.4	459.2
rd	15.5	456.3	14.4	459.2	14.4	459.2	32.6	435.6	32.6	435.6	32.6	435.6	32.6	435.6
rf	32.6	435.6	32.6	435.6	32.6	435.6	22.6	422.4	22.6	422.4	22.6	422.4	26.4	419.8
rg	22.6	422.4	24.5	422.2	24.5	422.2	230.5	346.8	230.5	346.8	230.5	346.8	230.5	346.8
rh	224.7	347.3	224.7	347.3	230.5	346.8	44.5	397.0	44.5	397.0	44.5	397.0	44.5	397.0
ri	52.9	401.3	52.9	401.3	63.3	397.0	70.2	250.3	72.5	251.5	72.5	251.5	73.2	254.8
rk	62.9	251.5	61.6	256.8	63.3	254.9	28.1	310.8	28.1	310.8	28.1	310.8	28.1	310.8
rl	28.5	308.1	28.5	308.1	28.1	310.8	17.7	300.0	17.7	300.0	17.7	300.0	17.7	300.0
rm	14.4	300.6	14.4	300.6	17.7	300.0	12.1	225.2	9.7	226.2	9.7	226.2	12.1	225.2
ro	12.1	225.2	7.0	170.8	7.0	170.8	52.4	181.0	52.4	181.0	52.4	181.0	52.4	181.0
rp	52.4	181.0	52.4	181.0	4.0	171.0	4.0	171.0	4.0	171.0	4.0	171.0	4.0	171.0
rq	4.0	171.0	4.0	171.0	40.3	138.7	40.3	138.7	40.3	138.7	40.3	138.7	28.6	138.9
rs	48.4	141.2	43.5	136.9	40.3	138.7	23.1	133.4	22.1	131.0	22.1	131.0	24.2	129.4
rt	7.7	142.5	21.0	134.8	21.0	134.8	89.2	75.4	89.2	75.4	89.2	75.4	89.2	75.4
rx	95.1	76.0	95.3	76.1	89.2	75.4	98.5	33.0	98.5	33.0	98.5	33.0	98.5	33.0
ry	98.5	33.0	98.5	33.0	98.5	33.0	471.8	178.9	471.8	178.9	471.8	178.9	474.5	179.9
s	477.3	180.7	471.8	178.9	471.8	178.9	484.8	151.1	484.8	151.1	484.8	151.1	484.8	151.1
t	484.8	151.1	484.8	151.1	484.8	151.1	500.3	243.2	503.1	243.1	503.1	243.1	504.2	240.4
u	501.4	240.6	501.4	240.6	501.4	240.6	356.6	219.3	356.6	219.3	356.6	219.3	356.6	219.3
v	356.6	219.3	356.6	219.3	356.6	219.3	315.6	116.7	315.6	116.7	315.6	116.7	314.2	113.4
w	315.6	116.7	315.6	116.7	315.6	116.7	247.1	101.3	247.1	101.3	247.1	101.3	247.1	101.3
x	247.1	101.3	247.1	101.3	247.1	101.3	462.1	280.4	462.1	280.4	462.1	280.4	462.1	280.4
y	464.3	278.6	464.3	278.6	464.3	278.6	485.2	314.0	482.5	314.7	487.2	305.9	487.2	305.9
z	494.0	316.7	488.7	301.2	485.2	314.0								

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
10	268.1	648.9	279.5	654.7	279.5	654.7	279.5	654.7	279.5	654.7
100	71.7	692.3	60.2	703.1	50.0	708.4	56.7	722.1	77.6	748.4
101	127.3	797.9	126.8	800.6	126.8	800.6	126.8	800.6	126.8	800.6
102	46.9	634.8	46.9	634.8	50.0	634.9	48.4	637.0	45.3	636.9
1021	13.7	621.4	15.8	620.9	19.2	614.0	6.8	614.1	10.5	613.8
104	96.7	760.9	96.7	760.9	95.2	763.3	93.9	760.7	95.2	763.3
105	87.2	705.9	65.6	711.7	65.6	711.7	65.0	706.1	52.5	684.0
106	88.7	611.2	96.9	604.1	96.0	601.5	107.5	601.3	115.6	608.1
109	19.8	681.4	19.8	681.4	47.2	698.5	22.7	680.7	22.7	680.7
11	7.9	224.2	54.8	279.5	54.8	279.5	54.8	279.5	52.4	278.0
110	103.5	778.7	102.9	778.7	102.9	778.7	99.6	778.7	97.6	781.2
111	*	*	*	*	*	*	*	*	*	*
1118	21.1	759.9	20.1	749.4	21.5	751.6	15.1	745.8	15.1	745.8
113	468.3	560.8	468.3	560.8	468.3	560.8	476.2	550.6	476.6	545.1
1138	435.5	549.5	429.4	562.0	429.4	562.0	429.4	562.0	429.4	562.0
114	72.7	697.9	69.6	697.0	71.7	692.3	71.7	692.3	83.1	682.1
115	123.6	701.4	112.7	677.7	117.1	666.4	115.2	651.1	121.0	746.3
1164	158.8	103.9	158.6	101.1	158.6	101.1	158.6	101.1	164.4	100.5
1169	325.2	661.0	325.2	661.0	325.2	661.0	325.2	661.0	325.2	661.0
1172	188.3	538.9	185.9	538.1	189.3	536.6	189.3	536.6	191.9	529.4
118	462.5	521.4	447.1	501.3	450.0	500.0	450.0	502.8	450.0	500.0
1184	324.7	211.6	324.7	211.6	324.7	211.6	324.7	211.6	324.7	211.6
119	481.3	536.1	481.3	536.1	478.0	537.1	480.2	538.4	458.5	544.7
12	424.8	282.7	436.8	269.6	436.8	269.6	445.6	270.3	465.4	243.9
120	450.0	408.4	433.9	437.9	434.5	433.7	434.5	433.7	434.5	433.7
1214	302.1	606.7	303.0	630.3	205.7	627.3	311.3	631.0	312.8	630.4
122	43.7	765.5	24.8	782.7	24.8	782.7	22.7	780.7	22.7	780.7
123	62.1	707.8	59.2	709.5	59.0	706.7	61.9	705.1	61.9	705.1
1246	342.0	460.5	347.8	471.9	347.8	471.9	359.0	473.1	380.6	473.7
1254	206.4	124.6	224.0	132.8	217.7	133.7	260.8	168.3	265.1	167.8



Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
126	164.2	461.5	152.0	459.2	152.0	459.2	146.3	454.0	148.3	445.0
1269	100.9	481.3	105.6	481.1	105.6	481.1	105.6	481.1	105.6	481.1
127	370.9	544.7	380.2	538.4	374.4	543.9	374.0	557.9	375.6	555.9
1270	201.2	791.4	201.2	791.4	201.2	791.4	208.7	780.8	197.8	771.1
1273	92.6	316.2	92.6	316.2	92.6	316.2	92.6	316.2	92.6	316.2
129	*	*	*	*	*	*	*	*	*	*
1297	472.4	481.8	444.3	499.8	444.3	499.8	444.3	499.8	437.4	513.4
13	371.5	408.1	356.1	408.3	353.1	412.6	353.1	409.8	353.0	407.0
130	143.0	746.7	143.0	746.7	143.0	746.7	150.0	794.2	152.7	792.8
131	82.4	650.3	91.2	644.9	90.0	647.2	91.2	644.9	87.4	646.6
132	32.5	768.9	34.4	770.8	34.4	770.8	34.4	770.8	34.4	770.8
135	56.1	708.3	53.1	709.8	53.1	709.8	62.1	707.8	62.1	707.8
136	101.1	653.3	102.3	627.8	90.6	596.1	90.6	596.1	94.3	606.5
1365	302.5	396.5	302.5	396.5	295.5	383.7	288.8	390.8	283.1	382.1
137	2.4	743.1	2.4	743.1	3.5	745.6	12.0	721.3	10.9	718.9
138	21.4	775.8	21.4	775.8	21.4	775.8	21.4	775.8	21.4	775.8
139	91.1	688.5	91.1	688.5	96.5	678.7	97.7	691.4	98.8	691.4
14	54.5	173.4	52.5	184.0	52.5	184.0	52.7	192.8	58.2	195.4
140	338.1	29.6	369.0	17.4	370.8	20.3	370.8	20.3	372.7	30.1
1407	*	*	*	*	*	*	*	*	*	*
141	373.2	274.0	372.6	271.1	372.6	271.1	368.7	291.3	370.6	286.6
142	193.4	440.1	192.7	452.8	195.3	448.0	192.6	447.7	192.6	447.7
143	154.3	567.2	154.3	567.2	173.2	574.0	182.4	563.7	199.5	566.0
1438	189.5	262.6	187.8	264.9	188.2	298.4	172.9	284.7	173.1	263.1
144	256.1	308.3	255.7	299.8	264.0	297.7	264.0	297.7	273.7	303.4
145	396.5	593.9	396.5	593.9	385.5	626.2	384.1	628.9	383.5	618.2
1451	464.7	781.6	464.7	781.6	464.7	781.6	444.1	759.0	442.5	738.4
1459	460.3	188.0	459.5	179.2	459.5	179.2	461.8	177.4	462.1	180.4
146	452.9	601.3	450.0	600.0	450.0	600.0	450.0	600.0	379.7	426.0
147	*	*	*	*	*	*	*	*	*	*

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
1472	472.9	284.7	497.9	106.7	498.9	109.2	491.9	129.4	491.9	129.4
148	243.7	565.5	241.7	563.7	241.7	563.7	250.0	564.1	258.0	560.5
149	341.7	663.7	341.5	644.7	341.5	644.7	343.0	646.7	351.6	641.2
150	334.9	684.5	350.0	646.9	351.7	645.0	372.2	642.5	388.2	654.6
152	89.0	501.0	89.0	501.0	89.0	501.0	89.0	501.0	81.0	484.2
153	116.9	482.1	128.8	476.0	128.8	476.0	121.6	496.7	104.5	488.8
155	97.0	220.1	96.2	217.4	96.2	217.4	96.2	217.4	103.3	235.4
157	172.2	442.5	177.9	442.9	177.9	442.9	187.8	433.4	183.2	431.3
158	371.9	768.1	376.4	759.0	370.2	750.3	368.1	739.5	362.4	734.1
159	417.5	114.7	419.0	107.5	419.0	107.5	438.4	102.3	438.6	99.4
16	281.0	130.0	277.9	131.0	277.9	131.0	277.9	131.0	277.9	131.0
160	399.7	73.7	397.8	71.1	396.5	73.6	397.8	71.1	401.0	71.1
161	278.9	446.2	282.5	439.5	284.8	440.4	284.8	440.4	289.3	436.6
162	236.3	624.3	218.1	617.8	217.1	615.6	212.1	608.6	208.5	608.9
163	361.5	440.5	361.5	440.5	357.7	457.2	385.6	490.3	412.7	477.7
164	450.0	560.8	458.9	548.4	458.9	548.4	471.7	548.2	471.7	548.2
165	235.7	578.6	247.6	578.0	247.6	578.0	255.2	588.3	250.0	582.6
166	186.9	418.7	212.8	427.6	212.8	427.6	212.8	427.6	212.8	427.6
167	212.1	625.2	197.0	630.3	195.0	630.1	181.3	636.1	181.3	636.1
168	236.2	558.2	230.0	570.1	230.0	570.1	218.4	568.7	222.3	567.5
169	313.9	543.6	313.9	543.6	315.1	526.5	315.1	526.5	320.7	515.0
17	175.6	341.7	188.3	359.8	195.2	363.3	195.2	363.3	196.0	365.9
170	181.2	420.7	166.6	419.9	169.7	418.1	169.7	418.1	159.3	434.5
171	287.8	564.9	279.4	578.6	279.4	578.6	279.4	578.6	278.4	621.5
172	295.5	483.7	295.5	483.7	295.5	483.7	295.5	483.7	295.8	458.3
173	217.7	347.6	198.5	333.0	203.3	335.4	203.3	335.4	201.4	340.6
174	278.0	456.9	250.0	464.1	254.1	464.0	245.4	476.5	239.9	485.1
175	129.9	99.8	129.9	99.8	129.9	99.8	124.7	95.9	124.7	95.9
176	50.0	388.4	39.7	388.0	39.7	388.0	39.9	385.1	37.6	383.4
177	171.0	405.3	170.5	435.0	171.7	432.6	171.7	448.2	162.9	451.5

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
178	194.0	596.3	182.5	589.8	194.1	573.4	196.0	571.0	196.0	571.0
179	347.9	665.7	340.2	658.7	328.4	656.8	307.7	642.5	307.7	642.5
18	343.5	716.6	343.5	716.6	318.4	710.2	325.2	708.9	309.7	716.4
180	89.7	241.9	86.2	248.9	86.2	248.9	82.5	245.0	81.3	247.2
181	37.1	116.1	37.1	116.1	34.4	111.7	31.0	112.6	38.4	102.3
182	84.8	123.5	84.8	123.5	89.8	103.6	103.4	93.9	103.3	86.3
183	58.8	70.0	96.6	82.5	97.6	81.2	102.5	66.0	102.2	71.1
184	217.1	761.2	217.1	761.2	217.1	761.2	217.1	761.2	217.1	761.2
186	176.8	239.4	176.8	239.4	176.8	239.4	170.9	244.7	170.9	244.7
187	158.2	295.4	178.4	296.7	178.4	296.7	178.4	296.7	186.4	303.2
188	75.8	98.7	76.4	101.4	76.4	101.4	75.8	129.4	75.1	129.7
19	382.9	715.6	373.3	719.0	369.7	718.1	372.8	716.2	362.6	713.4
191	58.5	144.7	48.4	137.0	48.5	132.6	47.0	130.2	45.5	132.5
192	68.8	143.3	68.8	143.3	70.9	144.7	73.2	154.8	80.5	157.8
193	90.3	234.2	74.4	216.5	74.4	216.5	74.2	224.3	73.6	219.8
194	68.6	109.9	71.9	110.8	78.2	109.6	68.9	126.1	70.9	126.2
195	113.1	18.7	107.8	17.4	109.8	14.9	107.6	18.9	107.6	18.9
197	96.7	60.9	96.7	60.9	96.7	60.9	112.1	64.9	130.9	77.9
198	355.8	802.7	352.9	804.2	352.9	804.2	335.3	803.4	335.3	803.4
199	10.0	47.2	10.0	47.2	12.6	46.6	24.7	47.3	31.9	48.9
2	338.1	405.1	343.7	413.8	343.5	416.6	359.2	409.5	359.5	379.2
20	186.9	535.8	175.6	541.7	172.2	542.5	191.1	573.1	191.1	573.1
200	11.4	644.3	11.4	644.3	11.4	644.3	11.4	644.3	78.9	659.9
201	73.6	419.8	77.1	416.0	77.1	416.0	88.6	444.3	88.6	444.3
202	356.3	665.5	360.6	690.9	337.4	713.4	337.4	713.4	337.4	713.4
203	*	*	*	*	*	*	*	*	*	*
204	472.2	242.5	475.3	295.9	475.8	314.3	486.9	335.8	487.8	333.4
205	44.7	391.2	47.4	389.9	47.4	389.9	47.4	389.9	50.0	391.4
206	143.5	368.6	150.0	319.5	150.0	316.7	169.2	294.1	174.7	293.1
207	427.1	484.7	427.1	484.7	427.1	484.7	429.9	483.7	427.6	481.8

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
208	53.1	209.8	56.3	213.8	56.3	213.8	68.9	226.1	83.4	222.5
209	302.8	173.6	320.2	162.9	340.8	151.9	334.0	126.6	358.9	129.9
21	363.2	718.9	366.6	719.9	356.1	708.3	355.5	697.0	350.0	702.8
210	439.2	93.7	444.1	105.5	450.0	122.3	461.5	140.5	473.5	140.3
211	476.4	159.0	463.8	158.2	465.6	170.8	469.2	194.1	468.7	191.3
212	152.2	571.9	140.5	579.2	144.8	588.3	147.5	587.0	147.5	587.0
213	266.7	531.3	266.7	531.3	261.9	529.6	261.9	529.6	260.2	523.3
214	59.0	406.7	67.4	401.6	75.8	398.7	90.3	378.1	90.0	370.4
215	395.8	163.4	385.0	174.7	386.3	175.0	367.8	204.4	367.8	204.4
216	182.3	300.0	181.0	307.5	177.6	306.9	164.4	300.5	167.4	301.6
217	160.2	462.0	148.0	459.2	148.0	459.2	144.1	459.0	144.3	455.6
218	16.0	484.9	16.9	482.1	19.0	484.2	16.9	482.1	14.8	479.9
219	284.8	587.6	284.8	587.6	272.2	595.1	272.2	595.1	272.2	595.1
22	36.4	531.7	38.1	529.6	38.1	529.6	36.9	526.9	36.9	526.9
220	143.3	171.8	159.3	176.2	157.5	183.8	159.8	182.1	154.6	176.5
221	46.9	312.6	46.9	312.6	46.9	312.6	46.9	312.6	46.9	312.6
222	281.6	610.2	296.2	632.8	294.0	632.4	294.0	632.4	284.8	640.4
223	195.4	491.3	190.2	485.8	190.2	485.8	164.0	497.7	166.9	479.8
224	99.2	445.7	112.7	441.3	107.1	440.0	107.1	440.0	106.0	442.8
225	13.5	493.0	13.5	493.0	13.5	493.0	2.3	488.9	8.9	488.5
226	66.6	196.0	69.2	194.1	66.3	193.1	73.2	208.0	69.0	212.6
227	154.4	227.6	151.5	227.7	155.9	230.1	155.9	230.1	155.9	230.1
228	215.7	177.2	197.2	173.6	194.6	170.9	196.0	171.0	196.0	171.0
23	39.9	542.6	39.9	542.6	56.3	513.8	79.7	526.0	82.6	525.1
230	75.2	182.7	97.7	188.9	95.4	191.3	94.4	188.7	91.1	188.5
231	145.6	227.6	135.8	261.5	138.0	260.1	123.4	277.8	116.6	266.5
232	92.6	347.7	91.2	344.9	92.6	347.7	101.1	363.5	101.1	363.5
233	127.5	651.5	145.9	664.0	145.9	664.0	123.7	667.1	162.8	666.5
234	130.4	480.8	135.7	478.6	133.5	476.8	152.4	478.0	152.4	478.0
235	51.7	445.0	51.7	445.0	44.1	459.0	45.6	470.3	54.3	467.2

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
236	71.1	533.8	80.3	504.8	80.3	504.8	77.1	491.1	85.6	490.3
237	12.5	216.0	20.2	215.4	16.5	218.2	13.7	221.4	18.1	217.8
238	10.3	393.4	8.9	388.5	8.9	388.5	3.5	393.9	6.9	393.7
239	10.2	457.5	11.7	459.8	29.9	499.8	31.4	533.2	29.8	550.3
24	103.7	648.1	108.9	660.3	108.9	660.3	108.9	660.3	108.9	660.3
240	338.6	124.4	338.6	124.4	338.9	136.5	336.6	142.2	335.2	140.1
241	259.3	76.2	257.1	77.8	247.6	78.0	244.6	94.1	247.3	92.8
242	115.9	61.5	88.6	44.3	87.3	41.3	84.8	40.4	87.3	41.3
244	313.6	630.1	314.1	638.1	213.0	638.5	312.7	641.3	307.7	642.5
245	120.9	140.6	120.9	140.6	162.1	180.4	175.3	195.9	172.2	195.1
246	277.7	593.9	277.1	591.1	277.1	591.1	277.1	591.1	266.6	596.0
247	121.0	299.4	121.0	299.4	108.5	308.9	108.5	308.9	108.5	308.9
248	156.3	313.8	143.7	313.8	146.8	315.3	140.0	320.5	136.6	321.6
249	225.3	52.7	227.0	51.8	224.4	55.9	224.4	55.9	213.6	56.8
250	183.4	466.5	183.4	466.5	183.4	466.5	190.6	465.4	190.6	465.4
252	34.5	387.4	34.1	390.3	34.1	390.3	36.6	392.0	36.6	392.0
253	77.7	293.9	76.4	301.4	79.7	302.1	101.6	322.8	99.0	322.8
254	114.7	572.2	110.0	570.4	113.7	567.2	105.6	565.8	97.6	581.2
256	202.4	438.0	203.3	435.4	203.3	435.4	203.3	435.4	202.4	438.0
257	50.0	114.0	50.0	111.2	50.0	111.2	63.7	124.3	67.3	125.3
258	284.7	217.0	263.4	221.6	263.4	221.6	265.3	208.9	265.3	208.9
259	195.2	309.1	215.6	308.1	215.6	308.1	206.0	316.7	203.0	314.3
260	90.3	726.2	78.4	696.7	72.2	695.1	71.7	692.3	74.7	693.1
262	120.3	102.1	125.9	90.3	119.0	84.2	125.9	90.3	125.3	93.1
264	202.4	738.0	201.4	740.6	202.4	738.0	201.4	740.6	205.7	727.3
265	193.4	740.1	189.7	741.9	183.7	742.7	183.7	742.7	184.8	740.4
267	141.4	801.1	141.4	801.1	141.4	801.1	141.4	801.1	141.4	801.1
268	83.1	182.1	83.1	182.1	70.6	186.6	90.2	185.8	96.6	186.3
269	298.0	748.2	298.0	748.2	294.0	742.8	294.0	742.8	301.4	740.6
27	50.0	643.1	66.5	651.0	77.1	653.7	74.7	652.7	74.7	652.7

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
270	107.0	470.8	107.0	470.8	107.0	470.8	98.1	463.5	98.1	463.5
272	181.4	741.7	181.4	741.7	181.4	741.7	180.2	738.4	184.5	734.8
273	239.4	732.1	237.6	734.1	239.4	732.1	239.4	732.1	239.4	732.1
274	74.7	693.1	65.0	706.1	65.0	706.1	38.6	699.4	53.0	707.0
275	261.6	802.3	261.6	802.3	261.6	802.3	261.6	802.3	261.6	802.3
276	254.4	570.3	256.9	574.8	256.9	574.8	256.9	574.8	259.5	579.2
277	70.2	550.3	70.2	550.3	70.2	550.3	70.0	558.8	70.6	562.0
278	363.6	731.7	372.1	734.3	372.1	734.3	372.1	734.3	379.7	726.0
279	177.1	453.7	177.1	453.7	177.1	453.7	177.1	453.7	170.9	444.7
280	438.0	444.3	460.6	432.1	460.6	432.1	482.4	450.3	499.7	455.9
282	44.6	418.5	43.5	416.6	43.5	416.6	52.7	418.6	50.0	418.6
283	338.9	596.6	347.3	592.8	347.3	592.8	361.8	577.4	354.8	579.5
284	84.9	545.8	83.7	548.1	83.7	548.1	86.2	548.9	86.2	548.9
285	87.8	433.4	97.6	443.1	97.6	443.1	102.6	455.8	101.1	463.5
288	302.5	166.0	308.7	155.2	307.3	152.8	308.7	150.1	308.4	150.1
290	144.3	99.8	147.1	101.3	147.1	101.3	144.6	94.1	144.6	94.1
292	139.2	93.7	135.6	100.5	135.6	100.5	131.4	109.9	131.4	109.9
293	239.8	27.2	241.1	29.9	238.1	29.6	248.7	14.5	248.7	14.5
294	225.6	43.9	225.6	43.9	221.0	34.8	236.1	46.0	254.5	73.4
295	368.1	72.0	368.1	72.0	368.1	72.0	368.1	72.0	368.1	72.0
297	29.1	553.6	26.8	554.8	29.1	553.6	29.1	553.6	16.3	542.7
298	139.5	65.2	152.0	59.2	152.0	62.4	150.0	60.8	152.0	59.2
299	195.7	130.2	199.5	150.8	199.5	150.8	198.0	148.2	204.2	140.4
3	368.6	409.9	368.6	409.9	417.4	425.1	400.5	420.3	389.8	403.6
300	21.6	407.4	20.7	415.0	20.7	415.0	47.1	401.3	15.6	408.1
302	409.1	23.7	409.1	23.7	409.7	26.2	409.7	26.2	409.1	23.7
303	439.2	118.2	441.4	101.1	441.4	101.1	441.4	101.1	467.0	98.8
304	454.7	36.9	457.2	50.3	457.2	50.3	465.5	56.3	466.0	59.6
305	389.8	257.5	397.5	266.0	398.9	263.5	403.5	265.9	400.5	266.0
307	500.3	73.7	499.7	61.0	498.1	63.5	498.1	63.5	498.1	63.5

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
308	*	*	*	*	*	*	*	*	*	*
309	490.6	96.1	490.6	96.1	495.2	127.5	495.2	127.5	495.2	127.5
31	163.9	575.7	165.5	587.4	165.5	587.4	212.7	677.7	213.1	677.6
310	432.3	57.6	428.4	56.8	428.4	56.8	430.6	55.6	430.0	58.8
311	*	*	*	*	*	*	*	*	*	*
312	450.0	185.5	468.7	191.3	471.7	192.3	471.7	192.3	471.7	192.3
313	504.0	53.2	504.0	53.2	504.0	53.2	506.6	47.8	498.1	63.5
314	*	*	*	*	*	*	*	*	*	*
317	457.6	32.3	453.1	34.8	453.2	39.1	453.2	39.1	454.7	36.9
318	67.4	382.7	71.2	376.0	71.2	376.0	79.8	362.9	87.8	364.9
32	65.3	721.1	56.7	722.1	56.7	722.1	53.4	723.6	60.5	728.7
320	361.2	53.5	362.9	51.5	362.9	51.5	339.5	46.4	339.5	46.4
322	286.2	48.9	310.5	28.6	313.1	18.7	328.3	32.6	340.7	34.5
323	*	*	*	*	*	*	*	*	*	*
324	255.5	297.0	252.7	295.6	255.7	299.8	247.3	295.6	236.6	292.0
326	456.1	608.3	475.2	572.0	474.1	590.3	474.1	590.3	474.1	590.3
327	295.2	63.3	295.2	63.3	299.7	55.9	299.7	55.9	300.5	50.8
328	499.0	322.8	491.8	321.6	491.8	321.6	486.4	330.1	479.0	334.8
330	295.8	125.1	295.8	125.1	295.8	125.1	309.1	123.7	309.1	123.7
331	188.3	59.8	206.1	35.0	194.0	50.4	186.4	103.2	190.3	116.4
336	384.8	87.6	388.4	75.3	386.3	75.0	389.9	73.0	389.9	73.0
337	124.5	64.1	124.5	64.1	93.7	121.8	93.4	124.5	91.8	121.6
338	407.7	63.0	407.7	63.0	406.5	65.7	421.6	96.7	421.6	96.7
34	338.0	660.1	334.0	659.6	331.7	660.8	338.5	674.4	338.5	674.4
341	276.6	45.1	301.2	83.8	306.6	103.9	307.7	142.5	307.7	142.5
343	411.4	522.7	411.4	522.7	411.4	522.7	410.5	528.6	411.7	538.9
344	452.2	568.8	439.7	588.0	442.4	586.7	442.4	586.7	455.2	588.3
346	344.9	244.9	357.0	246.7	358.9	248.4	352.4	278.0	362.8	266.5
347	375.2	282.7	381.6	325.7	388.7	331.0	397.6	350.7	398.0	348.2
348	428.2	78.9	411.3	123.9	428.7	128.9	441.1	129.9	433.7	93.1

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
349	313.9	206.3	295.3	214.2	293.2	214.1	306.6	210.8	305.7	198.9
35	371.2	476.0	368.6	475.0	362.1	480.4	364.7	481.6	364.7	481.6
350	148.4	141.2	151.6	141.2	151.6	141.2	150.0	150.6	142.5	153.8
352	466.0	126.6	460.0	120.5	463.4	121.6	460.2	127.2	461.4	124.4
353	273.5	87.5	300.9	81.3	300.9	81.3	316.6	74.4	367.5	68.9
354	408.9	160.3	407.4	147.7	407.4	147.7	423.4	145.1	392.4	180.9
358	453.9	35.9	457.9	36.7	461.1	36.5	461.1	36.5	463.4	42.2
359	9.4	12.0	9.4	12.0	9.4	12.0	56.6	14.4	54.0	14.5
36	308.2	637.2	309.7	634.2	211.9	633.5	312.8	630.4	317.7	633.7
361	390.3	616.4	384.2	620.9	383.5	618.2	395.2	627.5	399.0	625.4
364	347.3	392.8	363.4	492.0	365.9	490.3	366.9	479.8	369.1	477.9
365	312.1	725.2	312.1	725.2	299.0	725.4	302.5	717.6	312.7	718.7
366	213.5	293.0	213.5	316.1	213.5	316.1	211.3	311.2	211.3	311.2
367	41.1	248.4	35.8	261.5	35.8	261.5	50.0	273.5	47.8	271.9
368	438.1	529.6	435.2	529.2	432.4	528.0	439.4	532.1	444.1	530.1
369	450.0	550.6	438.5	540.5	436.6	542.2	436.6	542.2	438.5	540.5
37	4.0	571.0	8.9	560.3	8.9	560.3	43.5	568.6	41.5	566.9
370	365.4	443.9	360.6	432.1	359.3	434.5	360.7	431.4	363.9	427.1
371	356.7	742.9	357.2	750.3	358.9	748.4	359.2	751.9	358.3	763.7
372	466.5	451.0	462.9	451.5	462.9	451.5	462.9	451.5	462.9	451.5
373	451.6	637.0	451.6	637.0	462.9	651.5	463.1	689.2	463.1	689.2
374	325.7	706.1	347.0	707.0	347.0	707.0	347.0	707.0	346.9	709.8
375	392.4	711.5	401.5	699.0	401.5	699.0	403.1	704.1	400.5	701.6
378	297.9	606.7	297.9	606.7	297.9	606.7	297.9	606.7	288.6	622.7
379	86.9	235.8	77.6	224.2	77.6	224.2	78.4	221.5	78.4	221.5
380	367.0	765.9	367.0	765.9	367.0	765.9	367.0	765.9	367.0	765.9
381	424.2	714.3	421.3	712.3	421.3	712.3	421.3	712.3	424.7	711.6
382	481.4	641.7	444.9	644.9	446.5	646.9	446.5	646.9	440.2	658.7
383	252.3	575.0	252.3	575.0	257.3	580.8	259.8	582.1	257.5	583.8
384	440.8	651.9	438.8	653.5	433.5	651.0	438.4	656.8	438.8	653.5



Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
385	188.0	621.3	197.0	614.3	194.0	616.7	196.1	611.7	198.9	609.2
386	406.0	696.3	406.0	696.3	406.0	696.3	406.0	696.3	423.6	701.4
387	386.5	616.1	386.5	616.1	390.3	616.4	389.7	617.5	386.5	616.1
388	434.9	584.5	437.3	586.3	437.3	586.3	437.3	586.3	450.0	585.5
389	328.3	732.6	427.3	730.1	426.3	727.6	429.2	728.2	440.3	721.6
39	283.5	618.2	287.2	627.6	287.2	627.6	287.2	627.6	287.9	625.2
390	424.2	685.5	426.5	687.5	428.8	689.4	427.1	684.7	428.2	678.9
391	445.0	736.9	446.3	754.0	444.1	759.0	446.1	757.4	446.0	760.7
392	448.4	641.2	446.8	639.1	448.4	637.0	448.4	637.0	450.0	639.1
393	459.0	706.7	458.8	703.9	458.8	703.9	455.8	702.7	455.8	702.7
394	478.8	728.6	456.1	708.3	456.1	708.3	470.6	708.2	466.0	714.4
396	*	*	*	*	*	*	*	*	*	*
397	126.4	719.8	126.4	719.8	113.6	703.2	101.5	699.0	103.2	701.5
398	467.4	635.6	467.4	635.6	448.2	652.3	448.2	652.3	448.2	652.3
399	366.5	476.8	363.9	475.7	366.5	476.8	366.0	473.8	368.6	475.0
4	309.4	265.4	309.4	265.4	308.8	265.4	308.8	265.4	308.8	265.4
40	183.7	342.7	158.8	403.9	161.9	405.1	157.3	427.5	157.3	427.5
400	476.3	617.0	473.6	619.8	473.7	621.7	473.7	621.7	470.1	620.8
401	397.0	720.1	470.6	708.2	466.3	717.2	456.1	708.3	456.2	711.1
402	421.6	596.7	421.6	596.7	422.6	622.4	424.5	622.2	426.3	621.7
403	430.4	697.0	434.1	690.3	434.1	690.3	440.5	679.2	440.5	679.2
404	414.5	532.5	404.2	525.1	407.6	511.5	411.6	509.8	415.2	497.9
406	247.1	604.2	256.1	608.3	255.9	605.5	255.9	605.5	255.9	605.5
407	490.3	716.4	490.3	716.4	490.3	716.4	490.3	716.4	490.3	716.4
408	359.8	582.1	375.8	598.7	375.8	598.7	375.8	598.7	359.4	612.3
409	461.4	699.4	474.5	679.9	474.5	679.9	475.2	682.7	475.2	682.7
41	286.1	382.7	257.1	377.8	257.1	377.8	259.3	376.2	257.1	377.8
410	414.8	679.9	404.8	663.3	397.5	666.0	403.5	665.9	416.3	705.4
411	317.0	502.7	331.0	512.6	328.1	510.8	331.4	509.9	333.7	517.2
412	*	*	*	*	*	*	*	*	*	*

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
414	395.8	712.0	390.1	729.2	390.1	729.2	400.3	743.2	390.0	739.4
416	421.4	275.8	422.1	272.9	426.8	274.0	424.1	275.0	424.1	275.0
417	290.3	526.2	285.6	524.0	285.6	524.0	285.6	524.0	293.4	524.5
418	455.7	655.6	455.7	655.6	457.5	653.8	457.5	653.8	421.1	659.9
419	403.4	686.3	401.9	663.5	398.9	663.5	401.9	663.5	400.3	655.9
42	156.3	613.8	159.2	609.5	162.1	607.8	159.0	606.7	158.8	603.9
420	503.0	327.8	503.0	327.8	481.1	323.0	473.1	346.0	463.9	346.0
421	317.6	150.3	317.6	150.3	317.6	150.3	344.9	144.9	344.9	144.9
422	301.5	533.0	266.1	537.9	266.1	537.9	264.2	536.1	264.2	536.1
423	371.3	265.1	387.3	295.7	387.3	295.7	397.5	296.5	398.5	299.0
425	418.8	320.7	418.8	320.7	418.8	320.7	425.2	331.9	434.0	326.6
426	485.8	313.4	485.8	313.4	485.8	313.4	485.8	313.4	485.8	313.4
428	390.8	339.6	384.8	323.5	384.9	326.5	384.9	326.5	384.9	326.5
43	393.6	432.4	405.6	437.7	436.1	446.0	436.1	446.0	436.1	446.0
431	397.7	230.4	397.7	230.4	397.7	230.4	399.4	235.6	398.5	233.0
432	345.3	236.9	338.5	240.5	338.5	240.5	318.6	241.7	314.5	232.5
434	465.1	484.5	465.1	484.5	465.1	484.5	465.1	484.5	465.1	484.5
435	351.6	237.0	333.9	237.9	345.5	232.5	353.4	243.1	351.7	245.0
437	388.7	5.8	386.1	6.3	387.2	8.3	388.4	9.8	388.4	9.8
438	347.1	401.3	384.1	361.5	384.1	361.5	384.1	361.5	398.4	376.2
439	270.5	535.0	270.5	535.0	269.7	530.8	269.7	530.8	268.6	533.2
44	133.5	276.8	133.5	276.8	130.8	294.1	130.8	294.1	144.5	297.0
441	224.8	672.0	220.2	662.9	218.8	663.3	218.3	652.8	211.9	641.5
442	208.9	773.1	205.9	773.4	210.8	775.4	211.8	772.7	218.4	768.7
444	155.1	744.9	157.0	746.7	157.3	780.8	150.0	776.6	158.9	748.4
446	263.3	754.9	263.3	754.9	263.9	746.0	267.4	745.4	267.4	745.4
450	386.5	716.1	371.3	728.9	364.2	729.8	350.0	734.9	362.9	751.5
451	226.8	154.8	226.8	154.8	226.8	154.8	221.2	128.6	219.0	130.0
452	270.0	758.8	270.0	758.8	270.0	758.8	261.6	756.8	263.3	754.9
454	256.2	711.1	260.3	708.8	253.0	704.2	253.0	704.2	253.1	712.6

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
455	100.0	117.8	108.4	108.9	108.4	108.9	108.4	108.9	103.7	111.7
457	259.0	706.7	259.2	709.5	259.2	709.5	259.2	709.5	274.1	690.3
459	166.8	741.7	168.8	743.3	167.4	745.4	169.5	746.8	167.4	745.4
46	282.6	425.1	281.1	423.0	281.1	423.0	277.9	425.1	277.9	425.1
460	404.6	14.5	404.6	14.5	404.6	14.5	359.7	21.6	360.8	18.2
461	383.1	11.2	378.4	7.4	378.4	7.4	397.5	17.6	402.3	27.8
462	430.2	13.4	430.2	13.4	491.3	5.2	491.3	5.2	491.3	5.2
463	436.9	26.9	458.5	44.7	458.5	44.7	458.5	44.7	473.9	49.4
464	499.6	438.1	491.9	429.4	491.9	429.4	472.7	397.9	472.7	397.9
465	463.7	94.9	462.1	107.8	459.0	106.7	473.7	103.4	468.2	107.1
466	496.2	432.8	496.2	432.8	496.2	432.8	496.2	432.8	493.5	465.7
467	245.6	270.3	271.3	265.1	269.5	267.0	271.3	265.1	286.1	267.2
468	463.9	475.7	475.8	514.3	490.3	534.2	490.3	534.2	490.3	534.2
47	409.7	316.4	412.0	321.3	412.0	321.3	407.3	327.0	427.4	336.6
470	377.8	212.3	382.6	221.9	381.6	225.7	395.7	222.5	396.6	212.2
471	402.8	73.6	378.5	51.6	378.5	51.6	378.5	51.6	382.5	45.0
472	424.2	314.3	421.3	312.3	421.3	312.3	437.6	310.6	433.7	317.7
473	408.7	50.1	422.4	48.4	423.8	50.6	440.5	55.4	440.5	55.4
475	325.2	631.9	325.2	631.9	325.8	624.3	311.9	633.5	323.1	633.4
476	455.5	297.0	452.7	295.6	452.7	295.6	452.7	295.6	452.7	295.6
477	424.5	364.1	426.9	363.1	426.9	363.1	430.0	370.1	419.3	365.8
479	388.4	109.8	371.0	105.3	385.1	110.8	395.3	148.0	394.0	150.4
48	189.7	517.5	189.7	517.5	189.7	517.5	189.5	513.8	189.5	513.8
480	54.3	367.2	54.3	367.2	47.9	365.7	47.9	365.7	48.1	355.8
481	305.0	217.1	302.1	216.8	305.0	217.1	297.5	217.6	287.9	208.6
482	422.1	231.0	426.4	219.8	420.7	215.0	420.7	215.0	429.5	235.0
483	309.2	439.6	336.7	454.9	336.7	454.9	343.5	468.6	347.8	471.9
484	153.9	457.4	153.9	457.4	153.9	457.4	153.9	457.4	168.6	433.2
485	91.1	431.8	91.1	431.8	91.1	431.8	72.1	434.3	184.9	445.8
486	279.8	162.9	277.3	162.0	277.3	162.0	301.9	163.5	301.1	163.5

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
487	105.6	65.8	103.9	68.5	109.4	65.4	92.6	47.7	86.2	48.9
488	84.4	269.4	114.4	300.6	120.3	302.1	128.1	310.8	128.1	310.8
489	155.9	459.0	155.9	459.0	155.9	459.0	144.3	455.6	132.6	445.4
490	40.7	276.2	52.5	287.0	52.5	287.0	52.6	289.9	52.5	287.0
492	64.3	278.6	50.0	279.6	50.0	279.6	39.9	285.1	40.2	282.1
493	*	*	*	*	*	*	*	*	*	*
494	93.4	186.1	93.4	186.1	103.9	168.5	99.5	166.0	99.5	166.0
495	497.7	168.5	497.7	168.5	494.0	196.3	498.5	199.0	495.0	198.9
496	190.9	423.7	183.0	402.7	183.0	402.7	182.0	400.0	192.5	401.3
497	123.5	288.4	125.9	290.3	126.5	287.5	127.1	284.7	124.7	295.9
498	208.2	175.8	202.2	171.1	201.0	171.1	205.4	170.9	202.2	171.1
499	99.0	471.1	105.9	473.4	98.1	463.5	99.7	461.0	96.7	460.9
5	392.3	383.5	394.0	396.3	356.1	408.3	393.6	432.4	380.5	420.3
50	331.9	248.9	336.5	272.6	336.3	294.9	336.0	297.7	344.2	302.7
500	276.2	150.6	276.2	150.6	292.3	183.5	292.3	183.5	292.3	183.5
504	163.7	494.9	158.1	518.4	158.1	518.4	173.3	519.0	179.7	526.0
505	343.8	711.1	361.9	705.1	361.9	705.1	370.1	699.8	374.6	727.0
507	499.6	78.7	499.6	78.7	500.9	81.3	495.3	76.1	498.4	76.2
508	470.2	150.3	470.0	158.8	468.3	160.8	470.0	158.8	462.4	163.3
509	407.0	70.8	405.9	73.4	423.7	67.1	417.6	63.7	441.2	70.0
510	65.0	653.0	59.5	655.4	63.3	654.9	61.2	653.5	61.2	653.5
511	354.8	579.5	450.0	657.5	450.0	657.5	457.3	627.5	457.0	627.6
514	413.7	2.8	413.7	2.8	413.7	2.8	413.9	6.3	413.9	6.3
515	200.6	35.6	204.0	53.2	205.4	50.5	203.3	50.7	205.4	50.5
516	292.7	727.0	282.6	725.1	282.6	725.1	287.9	725.2	274.2	724.3
52	219.0	584.2	210.8	583.1	210.8	583.1	219.8	581.4	222.0	591.4
520	*	*	*	*	*	*	*	*	*	*
522	191.5	98.7	187.2	105.9	189.8	103.6	180.5	120.3	176.8	119.7
524	403.2	701.5	364.7	735.2	340.3	738.7	314.9	764.3	266.6	796.0
525	189.5	128.6	189.5	128.6	189.3	136.6	189.7	141.9	188.6	144.3

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
526	168.5	236.1	175.8	235.8	175.8	235.8	166.8	241.7	158.9	248.4
527	92.7	127.0	92.7	127.0	89.5	128.6	89.5	128.6	88.7	111.2
528	16.3	42.7	16.3	42.7	16.3	42.7	23.1	33.4	23.1	33.4
529	101.0	25.4	101.0	25.4	100.3	27.9	100.3	27.9	102.6	55.8
53	312.7	241.3	312.7	241.3	297.6	243.1	297.6	243.1	297.6	243.1
54	294.1	273.4	272.6	271.1	295.3	276.1	269.6	280.8	275.3	295.9
55	186.3	275.0	189.2	275.4	219.8	291.9	220.5	289.1	236.3	294.9
57	166.5	362.7	166.5	362.7	166.5	362.7	68.3	360.8	166.5	362.7
59	393.8	645.3	393.8	645.3	393.8	645.3	368.1	648.9	366.0	647.5
60	208.7	650.1	195.4	653.1	202.6	617.6	194.9	642.9	202.4	638.0
600	480.6	608.0	480.6	608.0	479.4	633.0	479.4	633.0	479.4	633.0
601	491.1	473.1	489.2	475.4	489.2	475.4	487.2	470.0	495.2	427.5
602	435.8	624.1	425.6	616.5	426.7	619.0	428.3	617.0	427.2	616.2
603	417.1	715.6	417.1	715.6	417.1	715.6	417.1	715.6	403.9	711.7
605	454.6	676.5	452.6	689.9	452.6	689.9	452.6	689.9	452.6	689.9
607	462.4	683.4	468.6	675.0	467.0	665.9	467.0	665.9	450.0	657.5
608	411.8	698.4	415.2	697.9	411.8	698.4	406.6	703.9	406.6	703.9
609	437.0	718.9	427.2	716.2	420.3	702.1	414.4	700.6	403.5	693.9
61	416.8	631.3	426.3	634.3	427.9	634.3	419.0	607.5	452.9	604.2
610	363.4	721.6	363.4	721.6	363.4	721.6	363.4	721.6	307.3	727.0
611	436.7	654.9	434.5	656.3	434.5	656.3	436.1	646.0	436.1	646.0
612	443.3	742.9	442.1	736.7	442.1	736.7	453.0	730.2	453.6	731.8
613	262.0	760.1	262.0	760.1	260.5	746.4	260.5	746.4	260.5	746.4
616	333.0	665.9	333.0	665.9	333.0	665.9	307.0	652.9	289.7	693.4
618	267.0	798.8	267.0	798.8	267.0	798.8	257.7	757.2	257.7	757.2
619	273.7	703.4	273.7	703.4	273.7	703.4	273.7	703.4	271.5	708.1
620	193.0	770.8	193.0	770.8	196.0	771.0	179.8	770.8	184.1	761.5
621	183.0	758.6	158.2	740.8	197.7	727.8	197.0	727.8	197.0	724.5
624	192.6	716.2	181.1	723.0	181.1	723.0	195.2	727.5	195.2	727.5
625	184.0	784.9	188.2	780.4	185.2	779.9	179.4	778.6	179.4	778.6

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
626	253.0	707.0	275.1	712.7	275.1	712.7	313.7	721.4	316.3	705.4
627	141.6	698.2	141.6	698.2	144.3	699.8	137.9	707.8	131.4	709.9
628	170.9	744.7	170.9	744.7	170.9	744.7	170.1	741.1	172.2	742.5
630	*	*	*	*	*	*	*	*	*	*
64	363.5	672.6	361.1	671.4	361.1	671.4	361.1	671.4	362.8	666.5
640	126.1	777.0	126.1	777.0	126.1	777.0	120.2	770.8	113.9	743.6
641	183.7	748.1	196.2	732.8	195.3	735.2	197.9	735.5	197.9	735.5
642	*	773.3	-4.9	776.0	*	773.3	*	770.9	*	770.9
644	291.5	708.9	291.5	708.9	184.2	720.9	184.2	720.9	184.2	720.9
645	41.1	748.4	46.6	743.1	46.6	743.1	46.9	734.8	46.5	726.3
646	35.0	753.0	36.7	754.9	35.0	753.0	3.9	711.7	30.0	758.8
647	160.1	742.6	162.0	744.3	162.0	744.3	164.2	736.1	164.2	736.1
648	12.8	727.6	12.8	727.6	1.0	722.8	1.0	722.8	9.0	719.0
65	289.0	701.0	291.5	698.7	291.5	698.7	297.4	709.2	275.8	698.7
650	156.5	768.6	182.3	800.0	182.3	800.0	182.3	800.0	182.3	800.0
652	484.8	587.6	480.5	623.4	484.2	620.9	484.2	620.9	485.8	613.4
653	*	*	*	*	*	*	*	*	*	*
654	405.9	773.4	405.9	773.4	405.9	773.4	408.9	773.1	405.9	773.4
655	434.9	667.8	432.5	668.9	434.9	667.8	434.9	667.8	432.9	654.3
68	195.5	683.7	202.9	678.7	204.9	676.0	208.8	665.4	207.3	658.0
700	60.6	32.1	82.4	63.7	84.4	69.4	84.4	69.4	84.4	69.4
702	10.3	93.4	10.3	93.4	10.3	93.4	6.6	103.9	2.3	116.3
703	199.0	25.4	199.0	25.4	199.0	25.4	201.0	25.4	201.0	25.4
704	297.7	268.5	297.7	268.5	297.7	268.5	294.7	268.4	294.7	268.4
705	261.5	40.5	294.0	50.4	292.7	52.8	292.7	52.8	292.7	52.8
707	443.9	62.3	441.7	63.7	441.5	66.9	443.7	65.5	445.7	67.2
708	466.1	37.9	453.5	46.9	453.5	46.9	455.1	44.9	451.7	45.0
709	393.4	103.9	376.8	119.7	373.7	121.7	371.7	132.6	374.8	161.0
71	161.5	774.4	161.5	774.4	154.0	760.7	155.5	752.2	146.5	746.9
711	463.7	94.9	461.9	105.1	470.1	99.8	470.1	99.8	470.5	102.5

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
712	402.3	227.8	402.3	227.8	399.0	225.4	401.6	225.3	401.6	225.3
715	436.9	526.9	434.0	526.6	434.0	526.6	439.8	527.2	445.6	527.6
717	96.8	555.8	55.4	594.1	103.3	535.4	103.3	535.4	103.3	535.4
72	206.7	678.5	227.1	684.7	227.1	684.7	219.5	657.8	216.8	655.9
721	421.4	375.8	421.4	375.8	477.1	370.0	467.4	382.7	490.3	378.1
722	315.9	395.2	315.9	395.2	315.9	395.2	297.3	360.9	302.7	360.9
723	330.0	558.8	328.3	532.6	328.3	532.6	328.3	532.6	322.6	522.4
725	212.6	551.8	212.6	551.8	221.3	537.5	221.3	537.5	221.3	537.5
726	120.5	454.7	120.5	454.7	107.0	452.9	107.0	452.9	107.0	452.9
727	435.0	353.0	432.9	354.3	429.1	353.6	443.0	346.7	443.0	346.7
729	312.1	208.6	321.8	209.6	321.8	209.6	321.8	209.6	321.8	209.6
73	218.2	327.6	218.2	327.6	228.9	346.0	228.3	348.2	261.5	374.4
730	137.1	351.5	123.8	350.6	132.3	357.6	132.3	357.6	130.6	355.6
731	103.0	414.3	121.3	412.3	121.3	412.3	124.9	412.7	121.3	412.3
732	256.3	165.5	256.3	165.5	277.3	162.0	277.3	162.0	275.3	147.3
733	*	*	*	*	*	*	*	*	*	*
734	352.6	189.9	365.0	206.1	365.0	206.1	365.3	208.9	365.3	208.9
735	364.5	214.0	356.2	211.1	356.3	213.8	356.3	213.8	356.2	211.1
736	437.6	210.6	422.0	183.5	414.4	190.3	414.4	190.3	411.4	222.7
740	467.1	154.3	471.7	148.2	471.7	148.2	471.7	148.2	462.0	144.3
741	416.1	237.3	416.1	237.3	416.1	237.3	422.0	283.5	457.8	289.6
742	475.9	175.0	475.9	175.0	475.9	175.0	492.3	163.0	492.3	163.0
744	197.7	88.9	195.4	91.3	195.4	91.3	194.4	88.7	196.6	86.3
745	213.6	327.3	205.1	342.9	205.1	342.9	204.0	340.4	204.0	340.4
76	387.3	641.3	387.3	641.3	404.0	640.4	388.7	649.5	398.0	645.7
77	296.7	150.7	296.7	150.7	296.7	150.7	301.4	140.6	297.0	138.0
78	87.9	125.2	88.7	123.9	80.0	132.4	78.9	130.4	78.9	130.4
79	350.0	200.0	350.0	197.1	361.1	196.6	371.0	205.3	372.7	197.9
8	270.1	420.8	264.2	429.8	250.0	454.1	241.7	463.7	218.8	463.3
80	121.9	265.0	123.7	267.1	123.7	267.1	135.5	249.5	135.5	249.5

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
801	392.2	675.8	391.8	675.8	391.8	675.8	392.2	675.8	391.8	675.8
802	442.9	377.8	422.7	362.0	422.7	362.0	404.8	363.3	407.7	363.0
804	405.7	506.5	396.8	501.5	396.9	504.1	399.5	501.6	399.5	501.6
805	369.9	523.3	370.1	520.8	370.1	520.8	370.1	520.8	370.1	520.8
807	464.3	578.6	462.1	580.4	462.1	580.4	464.7	581.6	464.3	578.6
81	186.3	321.4	171.5	308.1	171.5	308.1	162.4	310.6	162.4	310.6
810	11.3	649.5	11.3	649.5	8.7	650.1	8.7	650.1	8.7	650.1
811	345.7	667.2	328.1	668.1	326.2	666.1	321.1	659.9	335.8	636.1
812	294.3	606.5	294.3	606.5	284.4	608.1	272.7	597.9	272.7	597.9
813	435.8	624.1	443.1	621.8	443.2	624.8	443.2	624.8	443.2	624.8
815	387.2	627.6	373.7	621.7	370.9	626.2	377.9	631.0	371.3	628.9
816	229.2	620.3	221.8	609.6	218.4	610.2	219.0	607.5	218.4	610.2
817	253.7	637.2	256.5	638.9	256.5	638.9	256.5	638.9	254.7	636.9
818	192.6	647.7	195.3	648.0	195.3	648.0	195.3	648.0	195.3	648.0
819	173.5	687.5	181.6	697.3	178.4	696.7	178.4	696.7	182.6	725.1
82	91.1	388.5	72.9	384.7	72.4	381.8	73.9	377.0	87.3	377.7
820	150.0	619.5	158.6	601.1	158.6	601.1	155.9	605.5	159.2	609.5
825	469.7	530.8	469.7	530.8	471.7	532.6	471.7	532.6	473.7	527.6
83	*	*	*	*	*	*	*	*	*	*
834	146.9	709.8	171.8	678.9	155.4	694.1	177.9	725.1	175.8	729.4
835	201.4	740.6	201.4	740.6	190.3	778.1	190.3	778.1	190.3	778.1
836	35.5	749.5	37.6	748.0	35.5	749.5	39.9	742.6	37.6	748.0
837	91.1	773.1	109.6	747.3	104.7	748.0	106.6	747.8	106.6	747.8
838	38.6	724.4	32.4	728.0	29.1	726.2	38.6	724.4	29.1	726.2
839	85.9	738.1	85.9	738.1	91.8	737.2	98.8	733.0	99.6	730.5
84	75.1	112.7	76.3	117.0	77.1	116.0	75.8	114.3	75.8	114.3
840	-2.1	783.8	0.1	786.4	0.1	786.4	0.1	786.4	0.1	786.4
843	474.5	669.1	479.4	678.6	479.4	678.6	479.4	678.6	476.6	677.8
844	438.5	674.4	441.0	673.1	441.0	673.1	441.0	673.1	441.0	673.1
845	247.5	687.0	254.4	670.3	254.4	670.3	254.4	670.3	269.6	680.8



Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
846	455.8	702.7	455.8	702.7	455.8	702.7	455.8	702.7	487.3	641.3
847	406.5	665.7	404.0	671.0	402.3	668.5	402.3	668.5	388.6	649.5
848	*	*	*	*	*	*	*	*	*	*
849	404.5	683.7	408.9	660.3	412.8	670.0	402.3	688.9	421.6	696.7
85	138.0	460.1	136.2	458.2	138.0	460.1	128.3	448.2	105.4	450.5
850	381.6	610.2	381.0	607.5	381.0	607.5	361.4	624.4	364.4	600.5
87	190.6	596.1	190.6	596.1	184.4	608.1	206.5	609.0	206.5	609.0
88	108.9	388.5	113.0	385.4	109.8	385.8	106.8	386.1	103.3	386.3
89	62.4	434.1	70.1	441.1	70.1	441.1	70.9	444.7	66.8	441.7
90	78.2	409.6	69.0	412.6	69.0	412.6	71.7	417.0	72.7	422.8
91	360.5	365.2	347.9	365.7	347.9	365.7	359.5	355.4	363.3	354.9
92	35.2	129.2	35.2	129.2	35.2	129.2	35.2	129.2	32.2	128.8
93	63.1	589.2	95.0	598.9	103.7	611.7	117.5	645.0	117.5	645.0
94	65.5	187.4	65.5	187.4	65.5	187.4	65.5	187.4	65.5	187.4
96	99.1	681.3	130.4	680.8	140.2	682.1	140.2	682.1	147.8	671.9
97	90.3	178.1	90.3	178.1	103.5	173.6	103.5	173.6	101.6	176.2
98	26.5	140.3	26.5	140.3	24.4	141.7	46.8	139.1	45.3	136.9
99	50.0	443.1	48.4	441.2	50.0	443.1	48.4	441.2	43.8	434.7
aa	495.4	191.3	479.0	199.4	479.0	199.4	486.5	193.0	483.3	192.5
ab	394.0	255.6	398.8	258.4	397.4	255.8	398.8	258.4	398.8	258.4
ac	393.4	240.1	389.0	236.5	389.0	236.5	393.4	240.1	391.8	237.2
ae	421.5	251.6	417.6	250.3	417.6	250.3	419.0	252.5	417.6	250.3
af	355.2	388.3	355.2	388.3	352.9	404.2	352.9	401.3	352.9	404.2
ah	405.1	619.3	390.3	616.4	391.0	619.0	392.1	618.7	290.3	616.4
ai	428.8	576.0	433.1	579.8	433.1	579.8	427.1	584.7	427.6	581.8
aj	269.4	737.3	256.2	734.7	241.5	744.7	244.9	744.9	244.9	744.9
al	312.2	733.4	321.1	746.2	321.1	746.2	321.1	746.2	322.7	762.0
am	198.0	648.2	195.5	683.7	198.8	683.8	197.6	681.2	206.2	678.5
ao	381.7	687.0	371.7	692.3	374.7	693.1	375.3	695.9	377.7	693.9
aq	467.8	704.4	464.7	703.4	464.7	703.4	464.7	703.4	465.6	711.7

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
ar	350.0	605.6	356.1	608.3	358.8	603.9	352.4	578.0	347.2	598.5
as	*	*	*	*	*	*	*	*	*	*
au	399.5	501.6	391.5	498.7	377.4	522.4	376.8	519.7	371.9	510.8
av	423.8	550.6	426.1	549.4	421.5	551.6	422.1	542.9	424.4	541.7
aw	391.2	544.9	391.2	544.9	378.5	551.6	366.0	559.6	379.5	554.7
ax	260.2	527.2	260.2	527.2	260.2	527.2	260.2	527.2	271.8	525.6
ay	279.3	415.0	279.9	417.7	281.2	420.7	284.8	423.5	284.8	423.5
b	418.9	27.1	418.2	27.6	418.2	27.6	418.2	27.6	418.2	27.6
ba	383.5	537.2	379.0	534.8	378.9	530.4	380.0	532.4	379.0	534.8
bb	411.3	449.5	474.0	457.9	472.4	460.0	474.8	461.0	476.2	450.6
bc	301.8	453.3	300.5	450.8	301.8	453.3	300.3	455.9	293.0	452.9
bd	489.5	528.6	489.5	528.6	489.5	528.6	481.0	484.2	463.1	489.2
be	334.0	473.8	334.0	473.8	352.5	487.0	352.5	487.0	301.4	440.6
bf	365.1	367.8	365.1	367.8	379.8	362.9	379.8	362.9	379.8	362.9
bg	*	*	*	*	*	*	*	*	*	*
bi	164.7	103.4	168.6	109.9	175.5	122.2	180.0	132.4	177.9	125.1
bj	133.7	93.1	146.9	112.6	139.8	127.2	131.9	172.0	131.9	172.0
bl	212.7	119.0	212.7	119.0	208.5	121.2	214.9	132.3	211.9	133.5
bm	184.8	140.4	184.8	140.4	183.7	142.7	184.8	140.4	200.6	135.6
bn	*	*	*	*	*	*	*	*	*	*
bo	63.2	118.9	63.4	121.6	60.0	120.5	56.5	116.6	60.0	120.5
bp	73.5	187.5	73.5	187.5	73.5	187.5	72.2	195.1	72.2	195.1
bq	*	*	*	*	*	*	*	*	*	*
br	6.7	278.5	5.7	277.3	6.3	275.9	6.3	275.9	6.3	275.9
bs	*	*	*	*	*	*	*	*	*	*
bt	81.2	363.3	78.0	356.9	68.1	348.9	68.1	348.9	66.1	337.9
bu	40.4	615.0	37.1	616.1	25.4	627.0	21.2	628.6	15.2	640.4
bv	*	*	*	*	*	*	*	*	*	*
bw	176.6	545.1	175.3	547.3	176.6	545.1	168.7	552.3	165.5	556.3
bx	173.2	408.0	166.1	402.5	166.1	402.5	71.9	410.8	71.9	410.8

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
by	183.7	648.1	167.8	628.8	167.8	628.8	167.8	628.8	167.8	628.8
bz	273.1	546.0	269.4	537.3	269.4	537.3	269.4	537.3	267.4	535.6
ca	5.3	568.4	16.5	553.4	11.4	554.7	17.0	558.6	18.5	560.7
cc	210.3	585.7	210.3	585.7	210.3	585.7	210.3	585.7	219.7	604.8
ce	443.0	750.3	442.8	750.3	442.8	750.3	442.8	750.3	422.9	753.7
cf	287.9	708.6	287.9	708.6	187.9	708.6	306.6	710.8	324.9	712.7
cg	393.0	793.7	393.0	793.7	393.0	793.7	311.0	801.0	311.0	801.0
ci	268.6	709.9	271.7	692.3	271.7	692.3	271.7	692.3	282.5	689.8
cm	8.9	673.1	5.3	668.4	5.3	668.4	5.3	668.4	-4.2	658.3
cs	313.6	727.3	279.5	770.8	279.5	770.8	282.5	771.6	325.2	761.0
ct	91.8	737.2	91.8	737.2	83.0	702.7	83.0	702.7	91.1	688.5
cu	253.5	746.9	250.0	746.9	246.5	746.9	250.0	746.9	250.0	746.9
d	327.8	42.5	357.3	27.5	390.0	47.2	383.7	42.7	384.9	45.8
da	28.3	648.2	38.5	640.5	41.8	640.8	51.7	645.0	53.5	646.9
dc	405.3	668.4	405.3	668.4	405.3	668.4	405.3	668.4	405.3	668.4
dd	*	*	*	*	*	*	*	*	*	*
df	26.4	719.8	18.9	723.0	18.9	723.0	18.9	723.0	20.7	715.0
dj	34.1	790.3	5.6	788.7	6.6	786.1	*	775.8	*	775.8
dl	102.4	738.0	104.2	740.4	111.9	741.5	111.4	744.3	119.8	744.0
dm	56.3	765.5	66.3	793.1	80.2	791.9	106.7	778.5	104.9	776.0
dn	178.6	775.8	201.0	771.1	201.0	771.1	218.4	768.7	220.5	770.8
dq	122.0	783.5	124.8	772.0	124.8	772.0	124.8	772.0	121.4	775.8
dr	201.0	771.1	191.3	755.2	192.7	752.8	189.9	752.4	206.0	742.8
ds	182.0	655.6	172.4	660.0	172.4	660.0	184.8	623.5	178.2	609.6
dt	*	*	*	*	*	*	*	*	*	*
dv	222.7	762.0	219.3	765.8	219.3	765.8	219.3	765.8	252.1	765.7
dw	220.3	802.1	218.3	787.0	221.3	786.3	221.3	786.3	221.3	786.3
e	408.5	121.2	453.5	129.0	469.5	146.8	459.5	155.4	457.7	157.2
el	454.5	632.5	454.5	632.5	436.1	627.1	436.1	627.1	436.1	627.1
em	146.4	550.5	144.3	555.6	144.3	555.6	144.3	555.6	144.3	555.6

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
eo	269.6	597.0	269.6	597.0	269.6	597.0	221.4	575.8	227.5	573.8
es	322.1	542.9	322.1	542.9	322.1	542.9	299.4	535.6	299.4	535.6
et	*	*	*	*	*	*	*	*	*	*
eu	450.0	594.2	463.4	592.0	460.6	590.9	460.6	590.9	455.0	585.4
ex	458.5	524.7	448.6	522.0	446.6	523.6	446.0	514.5	447.0	507.0
ey	309.8	485.8	300.1	486.4	300.1	486.4	300.1	486.4	300.1	486.4
fa	375.3	511.6	375.3	511.6	371.9	510.8	374.8	508.9	374.8	508.9
fb	305.7	406.5	305.7	406.5	305.7	406.5	305.7	406.5	296.0	371.0
fc	450.0	502.8	444.7	491.2	447.7	475.0	426.8	474.0	426.1	477.0
ff	473.9	349.4	482.5	345.0	481.3	347.2	504.2	332.8	505.7	327.3
fh	258.6	301.1	258.6	301.1	258.6	301.1	258.6	301.1	153.5	326.3
fi	256.5	268.6	256.5	268.6	256.5	268.6	256.5	268.6	269.2	294.1
fj	263.2	269.6	258.8	270.0	258.8	270.0	245.9	264.0	245.9	264.0
fq	105.2	137.7	106.5	109.0	106.5	109.0	117.0	102.7	117.0	102.7
fr	116.0	184.9	116.0	184.9	116.0	184.9	97.2	173.6	95.3	176.1
fv	293.3	778.5	292.4	780.9	292.4	780.9	290.4	778.2	293.8	778.5
fw	317.7	733.7	330.3	730.8	324.5	732.4	330.3	730.8	345.5	732.5
fx	308.7	780.8	309.7	778.1	306.7	778.5	314.7	772.2	312.8	770.0
fy	314.4	790.3	314.4	790.3	314.4	790.3	347.1	804.2	365.5	787.4
fz	430.8	794.1	432.6	782.7	423.4	777.8	423.5	788.4	443.1	774.8
g	450.0	82.6	443.3	71.8	443.3	71.8	445.6	70.3	438.9	71.4
ga	361.6	756.8	370.9	753.6	370.9	753.6	373.2	754.8	370.9	753.6
gd	307.4	757.9	391.2	765.4	368.7	752.3	368.7	752.3	374.4	743.9
ge	418.0	779.3	416.3	748.1	387.4	751.8	395.3	748.0	409.4	765.4
gg	*	*	*	*	*	*	*	*	*	*
gh	250.0	697.1	250.0	697.1	250.0	697.1	287.2	727.6	287.2	727.6
gk	330.0	670.1	327.4	671.1	327.4	671.1	327.4	671.1	330.5	667.0
gl	366.0	659.6	366.0	659.6	366.0	659.6	366.0	659.6	366.0	659.6
gm	344.8	588.3	381.6	610.2	378.7	612.3	384.7	617.0	278.7	612.3
gn	345.2	679.5	317.7	700.0	328.1	710.8	336.8	718.9	341.5	724.7

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
go	450.0	634.9	450.0	634.9	426.9	646.0	439.9	642.6	439.9	642.6
gr	188.7	549.5	188.7	549.5	188.7	549.5	188.7	549.5	193.8	545.3
gs	193.2	614.1	260.3	588.0	260.1	585.1	266.3	593.1	266.3	593.1
gt	292.4	611.5	273.7	627.6	274.0	627.6	257.3	627.5	260.0	620.5
gv	380.2	591.9	376.5	588.4	379.5	589.1	374.1	590.3	377.1	591.1
gx	197.4	409.2	197.4	409.2	197.4	409.2	203.0	409.2	202.6	409.2
gy	270.9	353.6	270.9	353.6	270.9	353.6	270.9	353.6	288.7	349.5
ha	305.7	406.5	305.7	406.5	318.6	441.7	320.5	454.7	334.5	456.3
hb	347.9	365.7	347.9	365.7	347.9	365.7	382.4	363.7	382.4	363.7
hc	396.2	332.8	425.8	324.3	422.6	322.4	434.0	314.4	429.2	320.3
hd	145.5	273.4	145.6	270.3	145.6	270.3	145.6	270.3	144.3	255.6
he	*	*	*	*	*	*	*	*	*	*
hf	*	*	*	*	*	*	*	*	*	*
hg	410.3	217.5	410.3	217.5	413.6	203.2	421.0	199.4	428.8	189.4
hh	96.0	140.4	96.8	155.8	99.7	155.9	99.7	155.9	87.4	146.6
hk	*	*	*	*	*	*	*	*	*	*
hl	177.8	12.3	178.1	10.1	178.1	10.1	178.1	10.1	180.2	38.4
hm	187.5	216.0	187.5	216.0	187.5	216.0	187.5	216.0	195.0	217.1
hn	*	*	*	*	*	*	*	*	*	*
hp	394.2	191.3	396.3	211.7	386.5	216.1	393.0	213.5	386.3	221.4
hq	478.0	137.1	482.2	128.3	482.3	133.7	482.3	133.7	463.6	131.7
hr	499.0	122.8	489.5	113.8	489.5	113.8	463.6	131.7	461.9	129.6
hs	235.8	61.5	240.5	55.4	240.5	55.4	240.5	55.4	260.8	93.7
ht	174.1	90.3	174.1	90.3	171.2	89.4	171.2	89.4	168.3	88.5
hu	201.1	88.9	192.7	66.9	196.5	65.9	184.8	87.6	187.0	85.4
hv	240.8	51.9	240.8	51.9	240.8	51.9	240.8	51.9	298.9	53.3
hw	166.0	59.6	178.6	75.8	179.4	78.6	187.9	125.2	184.2	120.9
hx	158.8	103.9	158.8	103.9	158.8	103.9	158.8	103.9	155.8	102.7
hy	235.0	11.5	235.0	11.5	235.0	11.5	181.2	20.7	181.2	20.7
i	316.3	42.7	318.6	41.7	318.6	41.7	318.6	41.7	318.6	41.7

Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
ia	245.3	36.9	243.5	38.9	245.3	36.9	245.3	36.9	243.5	38.9
ib	268.1	48.9	271.7	48.2	253.6	50.5	267.0	98.8	271.5	108.1
ic	*	*	*	*	*	*	*	*	*	*
id	325.2	61.0	374.6	127.0	381.0	130.0	368.1	139.5	368.1	139.5
ie	271.3	65.1	271.3	65.1	279.4	78.6	279.4	78.6	287.2	70.0
if	362.1	52.5	362.1	52.5	362.4	48.0	360.1	42.6	358.2	40.8
ig	371.9	68.1	371.9	68.1	371.9	68.1	371.3	65.1	373.8	66.1
ij	366.8	41.7	375.6	41.7	375.6	41.7	383.5	37.2	383.5	37.2
ik	484.8	40.4	484.8	40.4	484.8	40.4	484.8	40.4	484.8	40.4
il	474.5	69.1	481.5	76.5	481.5	76.5	481.5	76.5	481.5	76.5
ip	481.0	84.2	487.0	85.4	490.2	85.8	490.2	85.8	502.2	71.1
iq	502.2	71.1	501.2	58.4	499.7	61.0	505.7	60.7	499.7	55.9
ir	*	*	*	*	*	*	*	*	*	*
it	403.5	3.6	414.3	10.6	414.3	10.6	414.3	10.6	414.3	10.6
iu	390.6	12.0	381.0	7.1	381.0	7.1	381.9	17.8	381.9	17.8
iv	414.8	14.0	407.9	18.7	419.5	23.4	419.5	23.4	430.6	37.3
iy	8.2	68.1	24.1	75.0	24.1	75.0	46.9	109.8	46.9	109.8
j	295.3	35.2	295.3	35.2	306.2	45.3	317.5	45.0	316.3	48.1
jd	262.0	44.3	277.6	48.4	277.6	48.4	298.1	63.5	294.6	70.9
jf	55.8	102.7	50.0	102.8	50.0	102.8	50.0	94.2	47.3	95.6
ji	90.2	14.9	90.2	14.9	90.2	14.9	96.3	6.7	93.9	4.5
jj	131.1	63.9	131.1	63.9	129.4	62.0	129.4	62.0	129.4	62.0
jm	15.2	123.5	14.9	110.8	14.9	110.8	14.9	110.8	14.9	110.8
jn	94.5	119.6	94.5	119.6	115.9	95.2	115.9	95.2	129.8	91.8
jo	10.3	193.4	13.0	185.4	13.0	185.4	33.0	165.9	45.7	167.2
jq	52.9	204.2	52.9	204.2	52.9	204.2	59.8	217.8	59.8	217.8
jr	30.4	197.0	37.3	186.3	37.3	186.3	50.0	208.4	67.8	204.4
jt	37.1	238.3	31.9	248.9	30.5	246.8	31.9	248.9	31.9	248.9
ju	54.0	214.5	54.0	214.5	13.6	203.2	13.6	203.2	10.2	203.6
jv	5.9	273.4	5.9	273.4	5.9	273.4	22.0	283.5	19.0	284.2



Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
lj	-2.1	683.8	-3.4	693.9	-3.4	693.9	20.3	702.1	23.0	704.2
lk	47.2	698.5	47.2	698.5	46.9	709.8	46.9	709.8	44.2	702.7
m	403.4	186.3	415.6	169.4	410.8	183.1	411.8	172.7	410.0	170.4
n	462.9	151.5	462.9	151.5	459.2	151.9	459.2	151.9	457.5	153.8
o	506.2	178.5	454.6	176.5	454.6	176.5	454.5	173.4	454.6	176.5
p	428.3	117.0	410.5	113.8	408.2	121.6	408.2	121.6	398.0	145.7
pb	485.6	200.6	485.6	200.6	485.6	200.6	485.6	200.6	501.0	196.5
pc	453.1	34.8	427.5	51.5	425.2	61.0	425.2	61.0	425.2	61.0
pd	463.3	54.9	463.3	54.9	463.3	54.9	463.3	54.9	461.6	56.8
pe	474.4	43.9	472.2	42.5	473.1	46.0	470.9	44.7	472.2	42.5
pi	301.1	763.5	302.3	768.5	308.2	768.1	307.0	770.8	305.3	768.4
pj	377.1	691.1	377.1	691.1	376.5	688.4	379.5	689.1	367.4	682.7
pk	332.9	754.3	332.9	754.3	332.9	754.3	310.7	736.6	303.3	750.7
pl	295.0	730.1	272.6	736.6	272.6	736.6	243.5	738.9	243.5	738.9
pm	348.3	745.0	348.3	745.0	348.3	745.0	357.6	732.3	357.6	732.3
pn	358.5	766.9	385.5	726.2	388.7	723.9	397.0	720.1	397.1	678.7
pq	297.9	735.5	315.1	745.8	317.5	745.0	317.5	745.0	316.3	748.1
pr	375.8	714.3	374.8	708.9	341.6	698.2	341.6	698.2	269.4	755.6
q	444.6	94.1	447.6	81.0	447.6	81.0	447.6	81.0	461.8	77.4
qc	183.5	737.2	183.5	737.2	183.5	737.2	160.4	726.0	160.4	726.0
qd	52.2	768.8	45.9	764.0	45.9	764.0	52.1	765.7	50.0	767.3
qe	12.8	757.0	12.8	757.0	15.5	756.3	15.5	756.3	14.0	754.1
qf	168.7	752.3	168.7	752.3	145.3	736.9	145.3	736.9	145.3	736.9
qj	129.4	673.1	111.1	667.7	110.4	667.8	110.4	667.8	110.4	667.8
qk	67.4	682.7	67.4	682.7	67.4	682.7	67.4	682.7	92.3	683.5
ql	60.8	668.3	60.8	668.3	60.8	668.3	32.6	682.7	32.6	682.7
qm	9.4	696.1	25.2	708.9	25.2	708.9	30.6	715.4	30.6	715.4
qn	*	*	*	*	*	*	*	*	*	*
qo	*	686.1	-3.5	673.6	-3.5	673.6	-3.5	673.6	1.0	671.1
qq	404.8	663.3	404.8	663.3	404.8	663.3	398.0	648.2	402.0	648.2



Moule	24 mai 1990		1 juin 1990		7 juin 1990		15 juin 1990		21 juin 1990	
	X	Y	X	Y	X	Y	X	Y	X	Y
qr	391.1	731.8	391.1	742.2	391.1	742.2	394.4	730.0	398.6	740.6
qs	455.2	688.3	468.1	672.0	440.8	609.5	411.0	601.0	411.0	601.0
qt	6.0	616.7	4.1	616.8	6.0	616.7	7.3	634.8	8.2	637.2
qx	21.4	575.8	22.1	572.9	22.1	572.9	22.1	572.9	11.8	580.4
qz	420.5	189.1	420.5	189.1	424.7	195.9	436.0	197.7	461.9	205.1
r	7.7	563.0	4.8	563.3	4.8	563.3	6.5	565.7	0.5	566.0
rb	8.2	468.1	8.2	468.1	8.2	468.1	7.8	475.8	6.3	475.9
rd	32.6	435.6	38.9	436.5	38.5	440.5	51.7	445.0	76.6	445.1
rf	28.3	417.0	26.3	421.7	18.9	423.0	11.3	431.0	8.9	431.8
rg	230.5	346.8	230.5	346.8	230.5	346.8	232.6	345.4	238.9	336.5
rh	44.5	397.0	44.5	397.0	30.4	397.0	42.0	392.5	35.7	378.6
ri	73.5	240.3	96.7	260.9	93.9	260.7	106.7	278.5	102.9	278.7
rk	28.1	310.8	28.1	310.8	28.1	310.8	28.1	310.8	31.4	309.9
rl	47.9	265.7	47.8	268.8	47.8	268.8	47.8	268.8	47.8	268.8
rm	14.4	224.0	14.4	224.0	11.3	211.2	7.9	218.7	17.4	225.1
ro	57.3	180.8	57.3	180.8	57.3	180.8	63.9	175.7	63.9	175.7
rp	4.0	171.0	18.5	176.5	40.5	179.2	23.6	201.4	23.6	201.4
rq	28.6	138.9	16.3	142.7	18.6	141.7	14.5	132.5	14.5	132.5
rs	24.2	129.4	22.1	131.0	23.3	126.9	21.2	128.6	21.2	128.6
rt	90.3	78.1	81.0	152.5	81.0	152.5	81.0	152.5	88.9	167.7
rx	99.6	30.5	97.3	29.1	99.6	30.5	99.6	30.5	104.2	32.8
ry	474.5	179.9	463.1	189.2	463.1	189.2	455.4	194.1	452.7	192.8
s	484.8	151.1	478.4	196.7	475.8	198.7	478.4	196.7	478.4	196.7
t	501.4	240.6	501.4	240.6	500.3	243.2	500.3	243.2	498.6	240.6
u	356.6	219.3	356.6	219.3	356.6	219.3	356.6	219.3	359.8	217.8
v	314.2	113.4	314.2	113.4	314.2	113.4	314.2	113.4	335.8	136.1
w	250.0	100.0	250.0	100.0	257.8	89.6	257.8	89.6	257.8	89.6
x	462.1	280.4	462.1	280.4	457.3	280.8	457.3	280.8	459.5	279.2
y	489.8	303.6	496.0	301.5	496.0	301.5	486.4	303.2	487.2	305.9
z										

## **Annexe 4**

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**Tableau de données brutes des caractéristiques physiques  
de chaque moule**

## Annexe 4

Ensemble des données originales sur les caractéristiques physiques de chacune des moules utilisées dans cette étude. Les données morphométriques des coquilles sont représentées par les colonnes *longueur*, *hauteur* et *largeur* du tableau. Les dimensions sont en mm. Les données corporelles sont indiquées par la colonne *masse fraîche* représentant la masse « fraîche et égouttée » du contenu interne d'une coquille. La *masse sèche* représente la masse du contenu interne d'une coquille après séchage en étuve sur une période de 24 heures. La *masse fraîche du pied* de l'animal y est aussi indiquée. Le sexe de chaque moule y est indiqué selon une classification en cinq catégories de proportion de tissu mâle contenu dans la gonade (voir méthode, chapitre 3).

Annexe 4

Moule	Dimensions			Masse			Sexe (% mâle)
	longueur	hauteur	largeur	fraîche	sèche	du pied	
aa	62.48	31.12	16.32	13.52	8.40	1.23	100
ab	61.76	32.23	14.46	12.69	6.64	1.59	0
ac	83.28	41.76	23.66	34.52	22.80	2.92	100
ae	99.22	46.88	28.81	5.57	33.96	6.95	50
af	50.00	22.91	10.11	4.62	2.03	0.56	100
ah	45.79	22.77	10.54	4.23	2.22	0.42	100
ai	55.32	27.78	12.26	9.00	5.07	0.87	100
aj	73.18	38.69	18.87	23.86	13.81	2.85	0
al	49.84	24.32	10.70	5.37	2.76	0.59	100
am	86.26	49.84	24.42	41.41	24.13	4.25	100
ao	83.97	43.13	28.04	52.24	37.13	3.25	0
aq	60.29	32.54	13.12	12.48	6.63	1.51	0
ar	60.61	31.22	13.88	10.36	5.80	1.10	100
au	51.95	25.77	10.98	7.07	4.18	0.52	0
av	93.58	51.86	24.86	55.53	36.52	3.10	0
aw	47.93	26.58	11.94	7.63	4.55	0.64	100
ax	42.31	22.86	11.68	5.26	2.73	0.55	100
ay	50.40	24.25	12.76	6.64	3.62	0.79	100
b	82.81	42.00	24.48	39.18	24.91	3.12	0
ba	80.28	42.46	20.61	31.89	21.02	3.72	100
bc	69.16	35.30	18.69	18.44	10.58	2.05	0
bd	56.40	29.94	13.52	9.56	5.08	1.04	0
be	42.26	23.23	9.81	3.66	1.79	0.46	100
bf	45.00	24.14	10.94	5.00	2.59	0.56	100
bg	46.56	23.15	10.98	4.96	2.84	0.48	100
bh	83.83	48.60	25.41	41.94	26.85	3.74	0
bi	62.89	33.90	17.18	15.10	9.09	1.79	100
bj	55.83	29.01	14.35	10.46	5.47	0.45	0
bl	99.20	48.91	25.02	49.92	27.93	4.68	0
bm	64.32	32.49	15.49	13.59	8.15	1.17	0
bp	59.85	29.60	13.42	10.92	6.20	0.92	100
bq	44.21	22.02	10.28	4.60	2.30	0.42	100
br	48.95	23.15	11.49	6.73	3.17	0.70	100
bs	83.71	44.05	22.39	40.29	25.85	3.67	100
bt	61.94	32.47	15.21	12.40	6.94	1.61	100
bu	55.12	29.68	14.07	12.04	7.31	1.11	0
bv	78.44	41.75	21.44	31.04	19.84	2.64	100
bw	62.09	36.92	22.06	7.13	3.66	0.91	0
bx	43.76	20.59	10.63	3.99	1.84	0.44	100
by	49.07	25.51	12.21	6.90	3.88	0.89	100
ca	95.48	48.49	26.82	56.58	34.89	5.80	0
cc	64.30	33.47	18.68	17.30	11.67	1.53	100
cd	40.46	21.56	9.27	3.76	1.76	0.48	100
ce	94.03	48.63	23.14	47.25	28.28	4.49	100
cf	43.84	22.21	11.00	4.29	2.34	0.22	100
cg	62.21	30.90	15.42	13.52	7.50	1.44	0
ci	64.85	35.00	17.47	16.48	9.22	2.02	100
cm	49.54	26.33	11.09	6.83	3.85	0.60	100
co	95.69	49.09	24.87	46.24	30.22	4.62	0

## Annexe 4, suite...

Moule	Dimensions			Masse			Sexe (% mâle)
	longueur	hauteur	largeur	fraîche	sèche	du pied	
cq	83.56	44.83	23.99	43.73	29.21	3.94	100
cr	81.17	41.43	22.80	37.50	25.36	3.92	100
cs	62.87	31.24	16.91	13.87	7.40	1.53	0
ct	60.86	32.70	18.13	17.86	11.29	1.56	0
cu	77.01	41.90	21.05	24.16	14.41	1.76	100
d	69.29	35.39	17.96	21.10	12.96	2.46	100
da	55.79	29.58	12.33	9.98	5.53	0.95	100
db	73.14	38.78	19.52	23.36	13.72	2.76	0
db	62.85	31.52	13.78	12.12	6.61	1.10	0
dc	62.68	31.78	15.32	15.20	8.60	1.98	100
dc	54.69	27.75	12.83	8.53	5.09	0.84	100
dd	54.14	27.36	11.75	7.74	4.50	0.93	100
df	74.23	39.76	19.89	27.40	16.42	3.06	100
dj	72.94	40.49	19.58	26.47	17.85	2.27	100
dk	80.02	40.79	23.74	32.51	20.53	3.33	100
dl	58.09	31.15	14.13	12.44	7.98	1.22	0
dm	69.51	35.04	19.28	22.73	14.87	2.08	100
dn	89.16	43.72	28.85	46.14	31.04	3.65	100
do	36.46	19.20	8.87	2.49	1.08	0.33	100
dq	53.97	29.35	14.90	10.47	5.47	1.22	0
dr	52.93	28.55	13.08	7.90	4.33	0.84	100
ds	73.72	40.35	19.71	25.78	14.85	3.19	0
dt	50.33	27.25	13.55	8.31	4.99	0.93	100
dv	64.63	33.33	17.95	18.20	9.96	1.84	25
dw	49.22	25.85	12.26	7.79	4.71	0.60	0
e	59.24	30.67	14.01	11.90	7.16	1.26	100
el	44.84	22.77	10.11	4.32	2.18	0.45	100
en	49.73	25.93	11.12	6.31	3.21	0.73	50
es	38.26	20.29	9.19	2.87	1.46	0.28	100
et	48.66	23.69	10.06	4.62	2.50	0.45	100
eu	43.73	22.82	10.28	4.33	2.30	0.42	100
ex	60.98	31.33	15.06	13.16	8.30	1.13	0
ey	57.31	29.90	14.05	11.33	6.50	0.93	100
fa	49.54	23.66	10.46	5.41	2.94	0.67	75
fb	41.66	22.77	10.32	3.54	1.68	0.39	100
fc	63.06	32.22	14.18	15.91	9.09	1.16	0
fd	41.85	21.48	10.27	3.60	1.91	0.32	100
ff	62.25	32.51	17.31	13.81	8.62	1.40	100
fi	40.56	20.19	9.15	3.43	1.61	0.40	100
fj	46.93	23.84	10.55	4.50	2.19	0.50	100
fk	44.27	22.29	11.77	4.73	2.47	0.42	100
fq	51.56	24.81	12.01	7.23	3.15	0.87	100
fr	45.92	22.93	10.41	4.62	2.52	0.53	100
ft	34.45	18.43	8.61	2.46	1.03	0.28	100
fv	98.90	48.14	27.96	54.60	32.46	4.52	0
fw	85.85	47.72	22.82	39.02	23.24	4.32	100
fx	60.92	31.40	14.41	12.23	6.61	1.26	0
fy	53.09	28.38	11.27	6.88	3.26	0.94	100
fz	53.34	24.22	12.95	7.87	4.06	0.84	100

suite...

## Annexe 4, suite...

Moule	Dimensions			Masse			Sexe (% mâle)
	longueur	hauteur	largeur	fraîche	sèche	du pied	
g	61.16	30.49	13.15	12.44	8.01	0.99	100
ga	59.97	30.83	15.12	12.12	6.80	1.47	100
gd	72.90	39.99	19.44	23.47	13.54	2.35	100
ge	79.89	41.50	22.63	33.80	20.79	3.20	0
gh	58.53	30.74	13.93	11.20	6.66	1.06	100
gi	41.90	21.34	9.75	3.63	1.84	0.36	100
gj	43.67	21.54	9.92	4.28	2.28	0.38	100
gk	49.17	24.88	11.39	6.28	3.65	0.57	100
gl	49.40	24.50	12.57	7.11	4.05	0.68	100
gm	85.24	42.74	23.69	41.26	26.23	3.17	100
gn	65.98	34.84	18.98	20.27	12.75	1.84	0
go	52.54	29.34	14.29	9.22	5.14	1.14	100
gr	63.16	32.93	18.13	16.04	9.38	1.86	0
gs	54.08	28.69	13.05	8.12	4.77	0.69	0
gt	58.52	28.96	13.35	8.96	4.78	1.00	100
gv	64.76	33.36	14.28	13.29	7.28	1.60	100
gy	43.77	21.50	10.90	5.27	2.69	0.55	100
ha	60.84	33.07	13.94	12.96	7.45	1.49	100
hb	44.28	23.27	10.23	4.20	2.13	0.40	75
hc	64.59	33.77	19.05	20.86	12.53	1.92	100
hd	44.20	22.38	10.86	5.00	2.63	0.45	100
he	43.61	22.59	9.72	4.12	2.00	0.44	100
hf	43.94	22.61	10.34	5.05	2.49	0.60	100
hg	70.86	35.14	19.05	21.24	12.79	1.99	0
hh	45.87	22.60	11.06	5.90	3.23	0.61	100
hk	47.08	22.42	10.96	5.02	2.74	0.56	100
hl	48.45	20.07	12.63	7.43	3.77	0.66	100
hm	42.84	22.72	9.76	3.89	1.98	0.50	100
hn	47.11	23.27	9.86	4.92	2.74	0.47	100
hp	60.51	33.06	14.91	14.09	8.05	1.49	0
hr	71.45	37.86	19.19	20.20	12.72	1.88	0
hs	72.74	39.41	18.28	17.89	9.63	2.30	100
ht	62.13	30.54	17.54	12.32	6.67	1.38	100
hu	41.39	20.59	9.02	3.70	1.58	0.30	100
hv	50.19	28.62	11.91	6.80	3.44	0.75	100
hw	61.79	30.64	14.12	13.14	7.42	1.46	100
hx	49.15	24.33	10.97	5.88	3.26	0.65	100
hy	51.93	28.09	12.03	8.53	5.09	0.82	100
i	90.21	44.58	23.80	42.11	27.84	3.51	0
ia	92.31	51.63	32.13	71.02	50.16	5.87	100
ib	61.97	30.14	13.48	9.98	5.72	0.80	100
ic	48.62	23.89	11.43	6.20	2.94	0.62	100
id	67.53	37.32	15.56	16.89	9.21	1.83	100
ie	58.86	29.56	13.60	10.36	5.83	1.20	100
if	46.19	23.04	10.71	5.72	2.99	0.61	100
ig	89.72	49.81	28.30	53.58	28.38	4.46	100
ij	83.59	43.12	24.59	42.51	24.76	3.68	100
ik	99.23	55.30	28.68	75.04	52.08	4.86	100
ip	64.78	32.80	14.27	13.60	7.35	1.40	100

suite...

## Annexe 4, suite...

Moule	Dimensions			Masse			Sexe (% mâle)
	longueur	hauteur	largeur	fraîche	sèche	du pied	
iq	77.69	40.36	20.09	26.68	19.44	1.70	0
ir	85.06	42.13	21.91	34.14	20.69	3.23	100
it	60.05	30.73	13.99	11.59	6.61	1.20	0
iv	70.12	38.63	18.43	20.58	12.50	2.07	100
iy	61.96	31.13	15.61	14.20	7.96	1.49	100
j	60.24	30.62	14.23	11.30	6.10	0.93	100
jd	70.76	33.74	18.46	18.78	10.51	2.09	0
jf	82.07	41.01	22.08	29.00	16.90	2.61	0
ji	57.22	29.55	14.33	10.43	6.07	1.10	100
jj	58.68	28.68	13.42	8.69	4.76	0.93	100
jm	59.37	30.09	13.69	10.73	6.62	1.19	100
jn	80.68	40.75	20.25	30.49	19.89	2.89	100
jq	43.99	22.80	11.53	5.27	2.48	0.55	100
jr	59.16	31.04	13.71	11.90	5.53	1.40	0
jt	49.89	25.09	12.01	6.94	3.55	0.70	100
jv	53.92	28.45	13.25	9.19	5.18	0.88	100
jx	84.41	43.80	26.14	37.44	22.46	4.53	100
jy	69.96	34.53	17.75	17.19	10.11	2.09	100
jz	55.64	28.20	13.41	9.58	5.18	0.97	0
k	44.44	22.40	9.76	4.37	2.12	0.53	100
kb	75.25	38.49	20.77	27.36	17.73	1.49	100
kc	67.46	33.92	17.95	17.78	10.37	1.77	0
kd	59.78	30.74	13.61	10.97	6.45	1.27	100
ke	63.43	32.54	17.59	14.82	9.46	1.78	100
kh	68.88	36.17	17.53	24.73	15.57	2.32	100
ki	44.02	23.22	10.69	4.83	2.56	0.52	100
kj	63.35	32.04	17.01	15.79	9.17	1.42	0
kl	45.22	22.74	12.33	5.71	3.29	0.40	100
km	59.91	30.45	15.85	14.21	7.50	1.71	100
ko	64.97	32.49	17.14	15.12	8.20	1.34	0
kp	62.76	33.65	18.86	16.37	9.39	1.63	100
kq	50.35	28.32	11.80	6.84	3.59	0.78	25
kr	63.52	31.58	14.53	14.13	8.05	1.15	100
ks	59.85	31.97	13.60	12.14	6.50	1.45	100
kt	44.61	23.84	11.47	5.97	3.49	0.62	100
ku	70.64	48.37	32.35	6.87	3.99	0.57	100
61.39	32.02	17.88	13.06	8.07	1.27	0	
kw	60.57	31.81	14.43	13.26	8.01	1.22	100
kx	54.54	29.62	13.02	9.67	5.40	0.79	100
ky	49.90	28.20	11.80	7.32	3.79	0.76	100
kz	70.05	34.95	18.50	20.21	12.07	2.44	0
la	65.55	33.38	18.11	16.20	9.47	2.10	0
lc	59.22	29.72	13.41	11.46	6.11	1.37	0
ld	74.23	38.64	18.92	23.80	14.60	2.40	0
lf	61.84	32.71	16.57	15.83	8.56	1.75	100
lg	71.17	40.29	21.69	30.37	19.43	2.76	0
lh	54.41	28.57	12.54	7.96	3.78	1.09	0
li	56.05	28.49	13.34	9.18	4.87	1.03	25
lj	63.02	30.29	14.47	12.68	7.65	1.28	0

suite...

Annexe 4, suite...

Moule	Dimensions			Masse			Sexe (% mâle)
	longueur	hauteur	largeur	fraîche	sèche	du pied	
lk	65.38	34.92	16.33	17.94	11.06	1.97	100
m	70.22	39.07	19.43	22.91	13.86	2.31	100
n	68.71	34.10	15.46	17.14	9.93	1.50	0
o	59.61	30.04	6.98	11.76	7.61	1.06	0
p	72.95	42.05	22.84	31.10	19.65	2.43	100
pa	31.16	15.83	8.56	1.92	0.78	0.29	100
pb	45.46	22.45	10.85	5.44	3.08	0.40	100
pc	69.15	33.19	18.31	17.48	10.46	1.89	100
pd	51.32	25.39	13.38	6.95	4.04	0.94	25
pe	93.54	49.58	26.89	53.53	31.13	5.32	100
ph	38.33	18.68	8.75	2.84	1.45	0.33	100
pi	63.37	34.57	18.17	16.37	9.38	1.97	100
pj	90.00	44.22	26.88	49.46	33.16	4.06	0
pk	45.55	23.23	10.25	5.10	2.90	0.48	100
pl	66.14	32.32	14.88	14.71	8.42	1.50	100
pm	68.95	34.05	18.31	18.22	11.15	1.59	0
pp	34.69	18.73	8.45	1.69	0.80	0.18	100
pq	71.00	36.26	16.20	17.88	9.95	1.38	0
pr	74.81	39.92	20.45	25.43	15.54	2.01	100
q	58.25	29.98	14.09	10.19	7.02	0.78	0
qc	61.10	32.88	18.09	15.75	10.07	1.77	100
qd	55.27	28.92	13.74	9.69	5.53	1.00	0
qe	59.82	29.98	13.07	12.21	7.74	1.11	100
qf	80.68	41.85	21.99	32.20	20.09	3.56	100
qg	46.65	23.29	11.55	5.64	3.08	0.65	100
qi	45.16	21.59	9.69	4.15	1.99	0.59	100
qj	83.05	43.65	22.64	37.16	22.95	3.32	100
qk	44.75	22.80	11.29	5.46	3.03	0.60	100
ql	52.84	24.62	13.20	7.62	3.92	0.94	100
qm	79.38	41.41	20.72	26.50	15.49	4.01	100
qn	80.44	45.59	23.28	32.67	20.79	2.56	0
qo	80.67	41.76	21.30	33.88	18.99	4.06	100
qp	57.95	29.32	14.82	12.02	6.63	1.31	100
qq	39.15	19.47	9.78	2.61	1.15	0.33	100
qr	58.77	26.74	13.11	10.28	5.88	1.11	100
qs	52.37	28.43	12.80	8.95	4.91	0.79	0
qt	93.83	49.57	29.21	47.56	27.82	6.03	0
qw	49.31	24.00	11.96	7.00	4.16	0.76	100
qx	63.35	32.92	15.13	14.72	8.58	1.54	0
qy	40.06	21.18	9.98	3.52	1.48	0.44	100
qz	41.35	20.99	9.26	3.17	1.48	0.39	100
rb	47.22	23.77	12.01	5.70	2.79	0.72	50
rc	40.83	20.86	9.81	3.80	1.77	0.44	100
rd	52.07	22.65	5.92	11.06	6.08	1.27	100
re	63.51	32.33	18.35	19.23	12.07	1.79	100
rf	60.58	32.19	14.61	13.33	8.01	1.04	0
rg	56.20	29.49	14.62	12.72	7.56	1.20	0
rh	39.62	20.62	9.33	3.56	1.62	0.44	100
ri	55.14	28.54	12.57	8.35	4.70	0.85	50



## Annexe 4, suite...

Moule	Dimensions			Masse			Sexe (% mâle)
	longueur	hauteur	largeur	fraîche	sèche	du pied	
<b>rj</b>	50.68	24.19	11.25	6.42	3.43	0.67	100
<b>rk</b>	62.42	33.99	18.16	17.17	10.35	2.13	100
<b>rl</b>	39.07	19.52	9.12	3.00	1.37	0.35	100
<b>rm</b>	50.05	23.37	11.73	6.26	3.01	0.64	100
<b>rn</b>	44.29	22.18	9.64	4.36	2.08	0.58	100
<b>ro</b>	72.15	37.02	16.53	16.90	9.85	1.94	0
<b>rp</b>	65.90	31.67	15.75	14.67	7.71	1.87	100
<b>rq</b>	59.08	29.09	13.46	11.68	6.45	1.10	0
<b>rs</b>	61.46	31.13	13.91	12.05	6.47	1.35	100
<b>rt</b>	82.81	43.47	21.31	35.12	20.03	2.84	100
<b>rw</b>	63.47	34.00	17.60	13.46	7.55	1.55	0
<b>rx</b>	68.95	35.00	18.00	19.73	12.49	1.10	100
<b>ry</b>	62.73	31.88	15.14	14.60	8.69	1.33	0
<b>t</b>	79.88	42.35	22.83	39.46	26.59	3.56	100
<b>u</b>	90.70	48.06	24.76	48.34	29.76	5.12	100
<b>v</b>	51.12	25.03	12.58	6.26	3.51	0.75	100
<b>w</b>	48.69	22.32	10.25	4.61	2.50	0.54	100
<b>x</b>	49.51	23.26	10.85	5.63	2.81	0.60	100
<b>y</b>	51.59	28.82	13.34	8.69	5.24	1.00	100
<b>z</b>	65.49	33.97	18.51	18.62	11.65	1.63	100
<b>2</b>	64.29	32.61	16.88	18.40	8.88	1.77	0
<b>3</b>	38.49	18.66	8.45	2.52	1.04	0.22	100
<b>4</b>	59.03	30.37	13.83	11.76	6.32	1.18	0
<b>5</b>	58.80	29.73	13.68	11.06	6.10	0.89	0
<b>6</b>	39.16	20.13	8.77	3.38	1.42	0.36	100
<b>10</b>	52.62	28.83	12.83	29.00	5.03	1.01	100
<b>11</b>	68.18	39.18	19.26	19.72	11.01	2.42	100
<b>12</b>	78.83	39.95	21.66	27.25	16.81	2.55	0
<b>13</b>	83.84	42.50	22.41	34.22	21.75	2.25	25
<b>14</b>	60.33	31.12	18.86	16.14	9.24	1.59	0
<b>16</b>	59.45	30.44	13.87	10.45	5.83	0.91	0
<b>17</b>	56.31	30.46	14.54	12.58	6.54	1.15	0
<b>18</b>	44.40	23.06	10.88	5.11	2.68	0.52	100
<b>19</b>	81.79	43.10	23.17	38.03	25.33	3.04	100
<b>20</b>	63.50	33.97	14.44	15.23	7.86	1.89	0
<b>21</b>	55.93	29.42	13.68	10.00	5.74	1.05	100
<b>22</b>	89.62	49.11	28.42	48.35	29.19	3.92	100
<b>23</b>	78.65	43.09	21.41	31.62	19.21	3.28	0
<b>24</b>	62.08	33.09	17.25	14.01	8.24	1.67	0
<b>31</b>	76.42	40.92	20.03	24.34	14.88	2.37	100
<b>32</b>	60.97	30.51	15.44	12.71	7.12	1.34	0
<b>33</b>	48.41	23.93	12.15	6.06	3.36	0.44	100
<b>34</b>	100.74	52.96	25.57	58.12	36.52	4.25	100
<b>35</b>	65.09	36.96	18.14	17.08	10.56	1.85	0
<b>36</b>	64.85	34.60	18.90	18.72	12.27	1.59	100
<b>37</b>	70.07	39.09	19.56	25.12	16.53	2.26	100
<b>39</b>	74.03	38.65	20.13	25.20	16.72	2.02	0
<b>41</b>	62.53	31.26	13.93	12.49	6.97	1.38	0
<b>42</b>	62.69	33.88	17.89	17.71	10.34	1.84	0

## Annexe 4, suite...

Moule	Dimensions			Masse			Sexe (% mâle)
	longueur	hauteur	largeur	fraiche	sèche	du pied	
44	55.30	31.87	14.19	11.43	7.03	0.99	100
46	65.27	34.28	17.91	15.42	9.12	2.11	100
48	84.27	42.69	28.88	46.19	30.09	4.03	100
48	64.21	33.65	18.06	15.79	9.08	1.63	100
50	64.66	33.62	18.36	19.61	11.58	1.43	0
52	61.69	30.33	14.62	11.68	6.01	1.35	0
53	64.04	33.10	18.52	19.53	11.90	1.88	100
54	70.23	38.93	17.03	19.07	10.93	1.77	0
55	59.91	30.44	13.86	9.95	5.49	1.26	0
59	63.31	32.44	25.50	15.96	9.55	1.33	0
60	64.14	33.54	15.94	16.07	9.52	1.73	0
60	49.11	24.57	11.68	6.49	3.43	0.63	0
61	68.34	32.87	17.72	14.31	8.04	1.57	0
64	64.23	31.99	17.58	13.75	8.07	1.26	0
65	53.20	28.80	12.40	8.80	5.22	0.94	100
68	61.41	31.77	16.11	12.12	6.48	1.45	0
71	60.86	30.75	16.33	13.82	7.96	1.20	0
73	65.77	33.11	16.81	16.54	10.00	1.66	0
76	57.57	32.79	16.12	11.04	6.72	0.98	0
78	60.09	30.74	14.75	13.76	7.67	1.17	100
79	43.28	23.18	10.83	4.85	2.61	0.32	25
79	43.28	23.18	10.83	4.85	2.61	0.32	100
80	91.32	44.68	27.83	46.24	26.22	4.43	100
81	55.20	28.32	13.02	9.28	5.29	0.99	100
82	79.31	39.74	20.22	27.64	17.34	2.96	100
83	69.00	35.03	19.23	19.69	11.55	2.63	100
84	80.68	39.12	19.31	25.07	14.17	2.95	100
85	92.46	49.71	27.64	50.95	31.77	4.59	100
87	53.59	28.58	12.92	9.17	4.78	1.21	75
88	51.16	29.56	74.05	11.13	6.74	1.11	100
89	86.50	45.59	26.90	57.18	38.57	4.70	100
90	91.33	52.70	25.99	60.83	38.75	5.71	0
91	68.54	35.29	18.92	20.29	12.14	1.46	100
92	55.32	30.54	13.41	10.10	5.19	1.01	100
93	63.82	31.48	16.95	15.23	7.34	1.52	50
95	42.34	22.52	11.82	5.69	2.75	0.65	100
96	55.17	30.69	16.67	12.40	7.27	1.18	0
97	69.87	38.52	15.58	19.49	11.22	2.56	100
98	91.69	43.88	28.40	52.37	35.54	3.91	75
98	44.44	23.41	11.45	5.17	2.52	0.36	75
98	44.44	23.41	11.45	5.17	2.52	0.36	100
98	91.69	43.88	28.40	52.37	35.54	3.91	100
99	88.77	45.82	24.90	44.90	31.87	2.77	0
100	60.80	31.19	14.27	13.70	7.99	1.17	25
101	90.59	47.62	27.68	54.67	37.55	4.76	100
102	90.15	48.04	25.94	51.43	35.16	2.97	100
104	88.93	52.65	27.40	53.64	36.17	4.63	100
105	78.68	40.45	20.74	33.60	21.07	2.74	0
106	84.86	43.33	21.85	40.58	26.72	4.35	100

suite...

## Annexe 4, suite...

Moule	Dimensions			Masse			Sexe (% mâle)
	longueur	hauteur	largeur	fraîche	sèche	du pied	
109	82.53	43.10	23.31	41.15	27.57	3.60	100
110	89.89	48.34	22.16	43.33	28.05	3.35	0
111	74.73	39.78	21.51	31.60	21.45	1.54	100
112	82.96	43.95	21.53	34.05	22.37	2.55	100
113	65.05	34.69	18.69	20.81	11.77	1.83	0
114	79.51	41.28	21.61	34.74	21.82	2.56	0
115	76.17	40.19	23.97	35.90	21.35	4.02	0
119	57.56	29.44	12.56	9.64	5.36	0.92	0
120	60.60	31.10	17.39	15.00	8.49	1.53	100
122	82.33	47.38	22.92	39.48	25.55	3.49	0
123	82.95	43.15	24.33	40.21	23.75	4.66	100
126	66.20	33.69	14.80	14.21	7.89	1.44	0
127	49.38	26.00	12.62	6.63	3.40	0.58	0
129	72.12	40.51	23.83	30.25	19.86	2.56	0
130	80.49	43.25	23.07	38.80	25.19	4.44	0
131	97.30	50.36	25.04	58.99	37.76	5.23	100
132	92.60	44.93	28.00	49.00	32.10	4.56	50
135	77.08	38.85	20.16	27.62	15.76	2.72	0
136	67.50	35.38	18.05	18.99	10.30	2.00	0
137	91.27	49.11	23.85	41.12	24.82	5.04	100
139	61.10	32.06	13.68	12.20	6.72	1.38	100
141	42.54	22.46	11.07	5.47	2.90	0.45	100
143	59.30	30.68	16.52	13.86	8.22	1.24	0
144	65.25	32.85	17.40	15.44	9.05	1.40	0
145	49.26	23.96	12.67	7.00	3.75	0.70	100
146	49.06	25.88	11.62	6.38	3.53	0.52	0
147	99.42	48.81	25.38	54.43	31.58	4.48	0
148	77.36	41.27	19.22	28.38	19.20	2.31	100
149	63.65	30.34	16.86	16.41	10.45	1.59	100
150	62.17	33.87	15.39	13.32	6.40	1.87	100
152	74.33	39.30	19.44	21.66	11.81	1.65	0
153	60.25	30.73	13.46	11.82	6.28	1.30	0
155	59.69	29.66	15.01	11.67	6.17	1.22	0
157	70.22	34.07	18.44	19.96	12.30	1.89	0
158	52.45	28.70	13.51	9.21	5.90	0.74	100
161	64.10	34.97	18.07	16.01	9.31	2.31	100
162	84.12	65.31	44.45	38.22	22.19	3.30	100
163	62.21	32.09	16.99	14.50	7.08	1.88	0
164	57.76	29.38	15.20	11.82	6.84	1.01	100
165	68.72	34.12	15.41	16.72	10.29	1.58	100
166	48.35	23.98	12.23	6.17	3.56	0.44	100
167	59.11	30.74	13.78	12.36	6.82	1.49	100
168	69.92	35.60	18.33	19.16	11.94	2.14	100
169	55.48	30.53	13.82	11.72	7.23	1.37	100
170	64.23	32.96	17.14	17.87	10.92	1.54	100
171	62.97	33.08	15.51	14.30	8.68	1.64	100
172	60.89	32.35	16.86	14.60	8.46	1.84	0
173	68.32	34.36	18.46	18.53	11.24	2.17	0
174	51.95	29.03	13.60	9.96	6.05	1.15	100

## Annexe 4, suite...

Moule	Dimensions			Masse			Sexe (% mâle)
	longueur	hauteur	largeur	fraîche	sèche	du pied	
175	60.06	30.32	13.14	10.39	5.77	1.43	100
176	69.67	33.68	16.78	16.06	9.78	1.47	100
177	69.57	37.14	18.14	19.63	12.24	1.86	100
178	63.54	33.70	15.09	16.12	8.62	2.21	100
179	62.69	32.61	15.67	14.30	8.69	1.43	100
180	63.68	37.42	16.06	16.55	9.28	2.46	100
181	92.99	51.25	25.50	49.80	30.18	7.80	100
182	80.50	39.52	21.47	34.51	22.79	3.29	100
183	79.50	41.08	20.21	27.80	16.73	3.20	0
185	58.75	30.12	12.92	10.84	6.22	1.03	100
186	59.04	30.57	13.63	10.51	5.64	1.42	100
187	66.13	34.96	17.72	16.77	10.24	1.50	100
191	82.98	42.82	22.49	37.20	23.86	2.82	100
192	60.68	30.45	14.62	12.30	7.44	1.43	100
193	61.53	31.57	15.85	12.72	6.63	1.36	25
194	64.01	32.71	14.48	13.66	6.90	1.25	100
195	64.09	33.14	17.37	17.08	10.68	1.65	0
197	68.86	33.28	13.86	16.78	9.18	1.85	0
198	69.66	35.27	19.20	21.12	13.52	1.94	25
199	58.66	31.33	14.09	11.64	6.66	1.24	50
201	51.81	28.13	13.84	9.73	5.92	0.96	0
202	58.63	30.97	14.63	13.55	7.90	1.55	0
203	50.97	28.57	12.86	8.54	4.26	0.86	0
204	78.68	40.12	22.69	31.46	21.37	2.43	100
205	59.91	30.96	15.06	12.89	8.06	1.60	100
206	63.73	33.61	18.24	16.87	9.71	2.07	100
207	39.72	21.30	10.48	4.13	2.16	0.41	100
208	74.01	38.72	19.37	27.84	16.81	2.15	0
209	62.32	33.70	14.76	14.94	9.36	1.15	0
210	63.45	32.43	18.00	16.91	10.53	1.52	0
211	59.71	32.08	17.53	14.07	8.66	1.39	100
212	64.10	32.18	15.64	13.90	8.14	1.31	100
215	60.12	29.17	15.31	12.74	7.21	1.45	0
216	60.92	34.70	14.59	14.87	8.66	1.66	100
217	65.08	33.31	17.82	17.23	10.67	1.70	100
218	89.16	43.66	24.19	42.60	21.77	5.34	100
219	64.45	32.01	17.77	16.46	9.84	1.77	100
220	54.66	30.10	14.20	12.12	7.05	1.32	0
221	59.10	29.53	14.51	11.43	6.13	1.50	100
222	65.69	33.41	18.30	16.61	9.62	1.92	100
223	59.17	28.71	13.50	10.36	6.23	0.84	100
224	58.92	30.12	14.08	12.52	7.11	1.39	100
225	76.81	42.94	22.54	34.78	19.42	3.74	0
226	89.79	45.64	28.58	51.15	30.84	5.78	100
227	62.21	32.16	14.46	13.47	8.62	1.23	100
228	62.62	33.28	16.08	15.14	9.06	1.42	25
230	72.68	38.76	18.80	22.61	12.59	2.21	0
231	69.40	36.66	18.09	19.71	11.50	2.00	0
232	59.35	30.66	13.63	11.13	6.02	1.01	0

## Annexe 4, suite...

Moule	Dimensions			Masse			Sexe (% mâle)
	longueur	hauteur	largeur	fraîche	sèche	du pied	
233	69.08	34.67	19.17	21.52	13.18	2.85	100
234	81.03	42.70	22.08	37.20	25.37	2.49	100
235	48.19	24.38	12.37	7.52	4.28	0.58	0
236	64.78	33.76	17.12	17.13	9.66	1.82	100
238	91.60	49.66	24.11	47.29	30.51	4.24	0
239	81.47	43.26	20.94	32.65	19.80	3.46	100
240	58.85	31.77	14.61	11.59	6.42	1.32	0
241	78.30	40.45	20.69	26.76	16.63	2.40	0
242	74.84	41.81	22.27	33.63	21.86	2.92	100
244	84.81	48.37	24.86	51.04	32.36	2.65	0
245	50.61	25.95	12.38	6.75	3.48	0.62	100
246	49.72	24.96	11.70	6.97	3.62	0.72	100
247	64.33	32.21	15.53	15.72	9.58	1.39	0
249	56.30	29.39	13.95	9.52	5.14	1.41	100
250	45.70	23.51	10.84	5.13	2.48	0.59	100
252	85.75	43.20	23.90	37.36	22.93	3.47	0
253	64.73	32.54	17.59	15.47	9.33	1.94	100
258	65.89	34.65	19.50	19.83	10.52	2.62	0
259	69.32	33.72	18.58	21.12	14.00	1.72	0
260	93.22	49.49	29.06	68.24	39.30	9.31	100
262	60.09	29.00	12.99	10.83	6.09	1.14	100
264	90.37	52.98	28.75	53.08	32.63	5.61	25
265	65.45	34.65	18.14	16.56	9.37	1.82	0
266	84.09	44.45	24.97	39.50	23.23	4.06	100
267	58.95	28.84	13.66	10.55	5.51	1.29	100
267	55.65	30.67	13.09	10.16	5.88	1.03	100
267	55.65	30.67	13.09	10.16	5.88	1.03	0
267	58.95	28.84	13.66	10.55	5.51	1.29	0
268	79.71	41.56	23.29	40.00	27.71	2.67	0
269	61.70	31.82	14.40	12.86	7.88	1.08	100
274	76.04	41.04	20.38	28.20	17.14	2.58	0
276	61.56	33.64	18.09	15.19	8.33	1.29	0
277	41.22	21.54	9.41	3.56	1.81	0.37	100
278	53.64	27.52	13.77	8.09	4.02	0.86	0
279	63.53	30.97	17.82	15.00	9.02	1.22	0
280	58.39	30.28	14.38	13.23	8.02	1.27	0
282	59.62	31.29	13.55	12.62	7.21	1.49	100
283	90.42	51.72	28.10	53.83	34.49	4.32	0
284	89.38	47.57	26.91	53.05	34.27	4.67	0
285	59.93	32.04	13.55	14.39	6.90	1.26	0
288	80.83	40.01	20.07	30.49	19.65	2.04	0
290	84.92	48.22	23.88	49.34	32.92	4.08	100
292	53.45	28.66	13.21	8.82	4.46	1.00	100
294	86.54	45.67	23.77	44.78	30.38	4.57	100
295	55.18	31.14	13.79	11.85	6.87	1.02	100
297	53.40	27.52	14.15	9.29	5.30	0.84	0
298	60.14	31.49	17.24	14.72	8.63	1.50	100
299	61.89	32.06	17.88	15.05	7.92	1.55	0
300	50.68	23.76	11.90	6.87	3.19	0.62	0

suite...

## Annexe 4, suite...

Moule	Dimensions			Masse			Sexe (% mâle)
	longueur	hauteur	largeur	fraîche	sèche	du pied	
302	85.06	47.74	28.63	54.09	34.98	3.68	100
303	64.20	32.95	18.19	19.82	12.40	1.97	0
304	81.99	40.86	21.18	30.47	18.36	2.69	100
305	72.75	38.67	19.32	22.87	14.56	2.72	100
307	59.18	31.36	15.60	13.90	8.07	1.31	0
308	86.22	47.12	26.57	52.33	36.52	2.53	100
309	95.66	50.30	24.45	49.95	28.87	4.32	100
310	81.86	43.74	20.41	29.00	17.49	2.53	0
311	90.13	47.83	28.59	51.39	31.94	3.68	100
312	88.97	43.90	20.23	34.01	21.78	2.59	0
313	64.06	31.33	16.41	13.53	6.86	1.67	100
317	88.77	49.04	28.00	56.00	35.64	4.50	100
318	40.54	21.71	9.44	3.32	6.80	0.28	100
318	62.69	29.57	14.67	11.48	1.77	1.31	100
318	40.54	21.71	9.44	3.32	6.80	0.28	0
318	62.69	29.57	14.67	11.48	1.77	1.31	0
320	60.36	29.68	13.17	12.10	6.65	1.31	100
322	63.81	33.10	15.40	15.63	8.35	1.53	100
323	67.58	26.49	12.15	47.30	31.03	3.32	50
324	59.46	31.34	14.23	14.27	9.17	1.11	0
326	59.04	28.83	14.43	12.10	8.08	0.72	0
327	69.53	37.97	16.16	19.48	9.89	1.85	0
328	68.47	36.12	19.24	20.08	12.00	1.87	0
330	62.01	31.63	16.18	15.83	9.55	1.44	100
331	77.63	40.24	20.18	28.34	16.60	3.27	0
337	84.74	43.95	24.89	44.88	24.98	3.34	0
338	65.27	32.07	15.44	12.90	7.62	1.26	0
341	68.95	35.12	18.81	19.41	11.16	1.66	100
343	63.43	32.74	15.40	14.78	8.49	1.44	100
344	54.52	28.66	13.65	10.10	5.32	0.70	0
346	72.15	38.32	21.21	26.36	18.30	1.86	0
347	64.97	33.84	18.27	18.23	11.40	1.31	0
348	61.61	32.97	15.83	15.78	9.65	1.65	100
349	69.71	33.63	18.45	17.95	9.53	1.82	0
350	65.29	33.84	15.05	15.50	9.19	1.63	100
352	84.30	42.20	29.19	47.78	30.52	3.81	0
353	59.49	31.86	14.57	13.19	7.23	1.41	0
354	55.73	28.69	14.44	11.35	6.85	1.20	100
358	63.79	33.72	18.95	17.26	11.20	1.33	100
358	63.79	33.72	18.95	17.26	11.20	1.33	50
359	65.07	31.91	16.92	15.88	9.59	1.51	0
361	60.15	30.01	16.39	13.60	7.52	1.19	0
364	59.54	31.84	15.83	3.34	8.30	1.28	0
365	62.95	31.17	18.02	16.58	10.12	1.47	0
367	74.89	41.41	20.43	26.34	15.00	2.95	100
367	74.89	41.41	20.43	26.34	15.00	2.95	0
368	73.79	39.66	19.58	27.41	18.41	2.63	50
369	65.31	34.94	18.50	20.07	12.29	1.83	0
370	70.36	34.95	19.51	26.96	13.07	3.04	100

suite...

## Annexe 4, suite...

Moule	Dimensions			Masse			Sexe (% mâle)
	longueur	hauteur	largeur	fraîche	sèche	du pied	
371	61.13	30.37	14.10	11.49	5.89	1.54	100
372	91.56	51.23	23.97	52.79	34.04	3.13	100
373	54.80	29.79	14.97	10.54	6.06	1.25	100
374	82.55	43.35	23.66	35.93	22.21	3.35	100
375	84.97	42.26	26.50	41.46	27.52	3.68	100
378	59.71	34.45	15.10	13.70	7.98	1.75	100
379	59.59	29.55	13.91	10.75	6.29	1.08	100
379	64.33	33.83	18.38	18.82	11.68	2.06	100
379	59.59	29.55	13.91	10.75	6.29	1.08	0
379	64.33	33.83	18.38	18.82	11.68	2.06	0
380	61.68	32.54	14.70	14.70	9.00	1.59	100
381	50.78	24.64	12.24	6.79	3.34	0.91	100
383	98.73	49.41	32.06	68.69	43.59	6.09	100
383	98.73	49.41	32.06	68.69	43.59	6.09	0
384	101.51	52.77	28.24	58.82	39.52	3.91	100
385	69.00	36.91	19.42	22.69	13.32	2.41	0
386	80.35	44.43	24.47	37.83	22.84	4.56	0
388	72.27	34.78	17.79	20.41	11.97	1.84	0
389	89.90	49.29	23.02	45.39	26.44	4.48	100
390	65.32	32.37	16.69	16.01	9.64	1.47	0
391	84.02	49.55	28.04	53.40	35.63	4.75	100
392	95.04	52.95	28.42	53.05	33.42	4.57	100
392	47.78	23.74	11.62	5.94	2.92	0.37	100
393	69.22	38.58	19.23	22.53	13.40	2.48	100
394	107.35	51.09	23.98	62.14	37.92	5.57	100
396	63.66	33.26	15.22	14.54	8.68	1.28	100
397	95.98	48.81	28.24	57.39	37.66	6.70	100
399	85.10	52.66	29.21	45.61	25.48	5.07	100
400	91.41	51.22	24.63	54.05	36.49	5.07	100
401	58.85	31.13	13.42	10.93	6.15	1.35	0
402	69.40	34.31	17.82	17.13	10.98	1.68	0
403	78.28	43.71	25.58	43.99	28.74	3.51	0
404	94.85	49.64	26.44	61.74	39.14	5.38	0
406	84.93	41.96	28.27	41.90	26.14	2.84	100
407	60.75	31.44	13.90	14.35	8.47	1.19	100
408	68.52	33.53	15.22	17.46	9.36	1.99	0
409	69.41	35.55	20.28	23.19	15.08	2.10	0
410	79.74	45.64	27.86	17.49	10.16	1.74	100
412	68.26	35.55	18.47	17.53	10.97	1.66	0
414	71.60	39.04	18.92	23.57	14.90	2.20	0
416	93.08	49.06	28.07	54.57	38.79	4.80	100
416	93.08	49.06	28.07	54.57	38.79	4.80	0
417	76.09	41.99	21.41	34.29	4.71	2.27	0
417	53.60	28.72	12.90	8.87	21.30	1.02	0
418	92.61	46.89	29.38	55.55	39.35	4.50	100
419	79.57	43.40	24.22	41.60	29.21	3.11	100
420	65.06	33.82	15.78	12.59	7.87	1.14	0
421	57.70	30.66	14.71	11.99	7.34	1.14	100
422	91.74	50.32	29.04	54.53	32.29	4.25	100

suite...

## Annexe 4, suite...

Moule	Dimensions			Masse			Sexe (% mâle)
	longueur	hauteur	largeur	fraîche	sèche	du pied	
423	84.22	43.97	25.91	43.36	26.73	2.65	0
425	57.80	29.09	15.32	12.64	7.60	1.18	100
426	64.45	32.90	18.49	16.19	8.99	1.51	0
428	72.50	38.39	19.11	21.94	13.63	1.75	0
430	55.19	29.04	12.51	8.83	4.99	0.91	100
432	71.01	35.89	18.21	18.46	9.49	1.52	0
434	62.49	32.42	15.80	14.05	8.40	1.22	100
435	60.50	30.46	17.97	13.76	7.48	1.64	100
437	50.35	27.25	12.15	7.46	4.46	0.66	100
441	62.15	32.87	16.72	13.00	7.09	1.31	0
442	57.17	28.61	13.62	10.00	5.30	0.92	0
444	70.43	39.35	19.42	21.21	12.28	2.73	0
446	60.86	31.51	15.84	14.74	8.40	1.53	100
450	60.28	31.38	14.51	13.31	7.53	1.34	100
451	61.47	29.97	13.74	13.14	7.06	1.32	100
452	59.36	29.98	15.59	12.83	7.56	1.26	0
454	72.76	39.95	18.23	23.27	13.21	2.71	100
455	51.96	27.88	13.37	9.29	5.19	0.92	50
457	93.50	51.94	30.87	59.70	37.44	4.86	0
459	54.57	30.79	14.62	12.03	7.38	1.22	100
460	99.74	58.95	35.82	51.89	31.36	4.13	0
461	52.32	28.69	12.53	7.73	6.70	0.92	0
461	82.45	47.28	22.75	41.78	22.74	3.01	0
463	65.63	32.49	18.48	18.46	11.67	1.45	0
464	82.47	41.07	24.14	35.96	22.74	3.90	100
465	62.59	33.23	18.00	16.73	8.76	1.68	100
466	64.72	32.43	16.66	14.90	8.83	1.33	0
467	84.36	43.33	21.92	34.11	21.97	2.63	100
468	62.58	32.39	16.70	16.05	10.02	1.60	100
470	64.97	32.81	17.12	13.98	7.62	1.47	100
471	55.88	30.23	13.80	11.89	4.25	1.02	100
473	64.48	33.36	15.19	15.92	9.29	1.77	100
475	60.82	30.53	14.66	12.46	7.47	1.06	0
477	44.06	25.87	12.86	7.18	4.45	0.70	0
479	59.71	31.89	16.02	13.26	7.43	1.26	100
480	49.62	23.97	11.89	6.56	3.96	0.45	100
481	57.68	31.31	14.27	12.03	7.17	1.19	0
482	64.77	32.99	17.63	12.60	6.90	1.58	100
483	62.46	31.30	13.45	11.44	6.45	1.32	100
484	64.69	32.63	18.69	18.15	10.96	1.71	0
485	85.45	46.11	25.09	39.72	22.65	3.13	100
486	84.02	40.96	22.68	35.63	21.09	2.79	0
487	89.23	49.87	20.51	36.89	21.10	3.81	100
488	76.47	40.84	21.92	30.85	19.89	2.87	100
489	59.68	33.58	13.59	13.10	7.14	1.29	100
490	69.02	37.87	18.34	17.93	10.63	2.39	100
492	66.87	35.32	16.22	18.01	10.82	2.32	100
495	59.82	28.23	13.57	10.54	6.17	0.94	100
496	61.29	31.97	15.19	14.54	8.31	1.60	0

suite...



Annexe 4, suite...

Moule	Dimensions			Masse			Sexe (% mâle)
	longueur	hauteur	largeur	fraîche	sèche	du pied	
498	70.03	34.30	15.64	15.88	9.02	1.38	0
499	82.27	39.93	21.23	32.04	19.07	2.37	0
500	64.72	33.16	18.71	19.87	12.92	1.62	100
504	41.97	21.24	9.17	3.60	1.71	0.36	100
505	65.16	35.28	19.94	19.59	11.65	1.82	0
507	85.03	42.99	21.60	36.71	23.81	3.19	100
508	49.27	25.11	12.14	6.67	3.63	0.68	100
510	94.12	49.13	28.38	59.20	35.94	7.16	100
511	79.90	43.01	22.73	32.14	20.22	3.30	0
514	60.31	31.51	15.90	14.42	9.27	1.06	100
515	65.45	33.08	16.56	15.67	8.89	1.91	100
516	63.42	33.52	17.56	16.31	9.49	1.61	100
520	62.71	33.16	17.97	15.98	9.68	1.49	0
522	69.75	36.62	18.21	20.76	11.24	2.20	0
524	67.50	32.10	14.55	13.94	8.31	1.50	0
525	57.97	31.24	14.86	12.36	7.46	1.12	100
526	59.07	28.62	12.64	9.29	5.00	0.94	100
527	58.51	29.44	13.23	11.02	5.83	1.09	0
528	53.94	28.54	13.24	8.38	4.44	0.95	0
529	60.03	33.38	13.86	11.31	5.87	1.45	100
600	58.60	30.52	13.92	11.41	7.03	0.98	0
601	59.80	30.79	14.58	12.02	7.50	0.96	0
603	59.08	29.88	13.52	10.77	5.67	1.06	0
605	71.38	39.06	19.68	22.08	12.92	2.36	0
607	61.14	32.40	14.56	12.17	6.98	1.15	0
608	61.25	34.80	17.37	16.76	10.53	1.54	100
609	54.76	30.16	14.87	11.71	7.25	0.99	100
610	58.36	28.51	12.15	8.68	4.36	0.89	100
611	62.63	33.57	16.64	15.37	9.46	1.43	100
612	61.00	34.12	17.17	15.66	9.43	1.65	0
613	57.92	29.63	13.77	10.52	5.97	1.04	100
615	61.05	29.62	12.89	9.74	5.35	1.03	0
616	86.21	43.98	23.34	42.11	26.78	5.27	0
618	51.82	28.76	12.66	8.13	4.67	0.77	0
619	49.31	24.28	12.05	6.60	4.01	0.58	100
620	51.77	29.36	13.00	9.16	5.51	0.93	100
621	59.03	29.75	13.15	10.10	5.53	1.15	0
624	59.35	31.42	15.40	13.61	7.50	1.27	100
625	55.59	31.23	13.49	11.11	6.51	1.04	0
626	61.00	31.93	17.69	14.81	9.28	1.56	50
627	64.34	34.02	18.36	17.66	11.27	1.74	100
628	89.60	48.37	23.00	41.68	25.93	5.37	0
630	60.58	31.41	15.28	13.13	7.57	1.18	0
640	60.36	31.23	14.97	13.67	7.89	1.55	0
641	84.69	42.88	23.33	39.30	24.84	4.27	0
642	100.78	53.86	30.53	72.07	49.99	5.51	100
645	60.07	31.43	14.01	12.37	7.65	1.28	100
646	59.45	31.86	14.91	13.30	7.95	1.48	0
647	89.92	42.62	23.14	36.25	21.03	4.02	100

suite...

## Annexe 4, suite...

Moule	Dimensions			Masse			Sexe (% mâle)
	longueur	hauteur	largeur	fraîche	sèche	du pied	
648	62.25	33.74	18.02	16.36	10.58	1.90	100
650	66.08	33.37	15.20	15.63	8.68	1.85	100
652	52.97	26.46	12.20	7.42	4.00	0.51	100
653	70.17	35.22	17.44	18.62	10.33	1.25	0
654	95.10	47.30	29.77	55.03	34.80	4.62	0
655	69.74	37.72	17.95	16.43	9.59	1.80	0
700	56.72	29.46	13.60	11.22	6.43	1.10	100
701	58.06	29.26	12.04	8.20	4.38	0.88	100
702	58.42	30.50	12.69	9.13	5.08	1.17	100
703	54.42	29.54	15.07	12.50	7.99	1.09	0
704	44.80	22.55	10.83	4.49	2.30	0.52	0
705	64.30	33.79	17.73	17.54	11.65	1.29	100
707	90.80	45.57	23.87	43.38	28.02	2.45	0
708	78.92	40.29	22.20	30.65	21.05	1.56	0
709	80.81	43.54	22.56	35.58	22.25	3.16	0
712	59.63	32.75	16.06	13.58	8.80	1.44	100
715	52.66	25.99	12.70	6.89	3.89	0.65	100
717	80.64	40.32	22.47	34.07	23.40	2.48	100
720	50.85	27.39	11.83	7.45	3.74	0.70	100
721	54.78	29.07	13.33	10.60	6.32	0.98	100
722	59.96	31.53	17.82	14.49	9.19	1.18	0
723	59.72	32.86	15.83	12.15	6.61	1.40	0
725	48.88	41.51	33.88	12.89	7.20	1.21	0
726	54.70	29.00	13.32	10.36	5.74	1.16	0
727	96.39	51.00	23.94	51.04	30.82	4.54	0
729	48.97	24.37	11.58	5.68	3.06	0.66	100
730	71.40	38.14	19.11	23.89	14.58	2.91	0
731	76.75	38.70	19.30	25.66	16.04	2.29	100
732	43.17	21.91	11.69	4.33	2.24	0.55	100
733	59.30	31.82	14.62	12.49	6.91	0.99	50
734	60.35	31.90	14.56	13.62	8.35	1.45	100
735	63.73	32.26	14.55	14.10	8.57	1.34	100
736	62.28	32.69	17.90	15.58	9.36	1.85	100
740	47.94	22.51	11.57	5.75	3.45	0.47	100
744	87.52	48.16	23.81	42.06	26.34	3.54	100
745	50.00	24.08	11.31	6.23	3.73	0.51	100
804	90.30	44.10	24.18	39.63	24.88	2.46	100
805	59.14	31.17	13.93	12.99	8.09	1.22	100
807	68.98	33.59	18.06	17.11	9.69	1.31	0
810	89.65	49.42	28.13	58.52	38.80	4.57	100
811	44.88	23.48	10.93	4.47	2.27	0.36	100
812	54.56	28.80	14.43	11.83	6.75	0.97	0
813	69.74	33.59	17.66	19.64	12.04	1.87	100
815	86.04	42.84	26.96	41.11	26.92	3.25	0
816	51.10	24.96	12.62	7.27	4.19	0.71	100
817	85.34	49.34	24.12	48.48	31.19	2.84	100
818	86.43	42.75	28.43	46.22	30.99	3.02	0
820	66.02	34.41	16.24	17.35	10.08	2.58	100
825	56.74	30.85	15.60	14.23	8.39	1.04	100

suite...

Annexe 4, suite...

Moule	Dimensions			Masse			Sexe (% mâle)
	longueur	hauteur	largeur	fraiche	sèche	du pied	
834	79.84	45.43	23.10	34.71	24.26	4.35	100
835	82.48	41.82	25.48	38.68	25.45	3.58	0
836	68.84	36.06	17.07	18.15	10.75	2.11	0
837	90.87	46.48	29.45	47.54	26.06	4.10	25
838	96.23	50.04	29.32	67.97	46.24	5.36	100
839	59.88	31.07	16.15	14.25	8.25	1.52	25
840	59.55	33.23	14.43	11.93	7.10	1.19	0
843	51.84	28.74	11.34	7.22	3.78	0.83	0
844	95.75	58.43	28.91	57.97	32.10	5.75	25
845	62.93	33.46	17.46	15.49	8.81	1.41	100
846	60.18	30.38	14.98	11.83	6.55	1.38	0
847	59.44	33.20	16.12	12.84	7.48	1.21	0
848	64.25	33.62	19.24	19.93	12.26	1.92	100
849	53.37	29.25	13.45	10.00	5.81	0.97	0
850	62.32	33.04	19.03	17.92	10.85	1.80	0
1021	64.10	35.72	17.65	17.82	10.55	2.09	100
1164	53.77	29.47	12.96	8.50	4.03	1.11	100
1169	49.02	25.17	12.32	7.03	4.02	0.66	100
1172	54.22	28.66	13.23	9.45	4.93	1.40	0
1246	39.22	19.81	9.06	3.00	1.46	0.37	100
1297	90.56	49.05	28.13	52.76	32.30	5.36	0
1365	61.16	32.39	16.19	12.77	7.25	1.61	0
1426	53.80	28.34	13.13	8.24	4.72	1.00	0
1451	90.86	43.80	25.05	49.26	32.60	3.68	100
1459	58.87	30.57	14.55	11.79	7.32	1.06	100