INTERREG V A FRANCE-SUISSE 2014-2020

(2014 - 2020)
Axe prioritaire-Priorité d'investissement-Objectif spécifique 2-1-2
AXE 2 : Protéger et valoriser le patrimoine naturel et culturel
6.c En conservant, protégeant, favorisant et développant le patrimoine naturel et culturel
OS 4 = Préserver et restaurer les écosystèmes fragilisés de l'espace transfrontalier

SYNAQUA

(Ref : 2369 / 2016-36)
SYNérgie transfrontalière pour la bio-surveillance et la préservation des écosystèmes AQUAtiques

LIVRABLE 39629

WP1.2 : Inventaires de diatomées et oligochètes du Léman

Responsable : INRA CARRTEL

Inventaires des diatomées et oligochètes obtenus sur le Léman

Dans le cadre du WP1 du programme SYNAQUA, des prélèvements de biofilms (diatomées, INRA) et de sédiments (oligochètes, Centre Ecotox) ont été effectués en 2017 et 2018 avec l'appui technique de l'INRA (J.C. Hustache, P. Perney). Ces prélèvements ont été analysés pour chacun des maillons biologiques par deux méthodes différentes afin d'obtenir des listes d'espèces par échantillon et par méthode. La méthode dite à « haut-débit » utilisant le séquençage massif et le métabarcoding ADN pour identifier les organismes contenus dans les échantillons environnementaux a été réalisé par les équipes scientifiques partenaires du projet SYNAQUA qui ont développé ces outils (S. Lacroix, C. Chardon, L. Jacas, F. Rimet, A. Bouchez pour l'INRA, L. Apotheloz, J. Pawlowski pour UNIGE, R. Vivien, B. Ferrari pour le Centre Ecotox). La méthode « classique » par observations visuelles en microscopie des organismes présents dans les échantillons a été utilisée pour valider l'approche haut-débit. Elle a sollicité des experts en taxonomie : F. Rimet (INRA) pour les diatomées et R. Vivien (Centre Ecotox) pour les oligochètes.

Pour chacun des bioindicateurs étudiés, diatomées et oligochètes, 2 types d'inventaires ont donc été produits (haut-débit et microscopie). La production de ces 4 types d'inventaires taxonomiques est détaillée ci-dessous et les inventaires sont proposés en annexe.

Inventaires diatomées :

- *Annexe 1. Inventaire microscopie diatomées*
- *Annexe 2. Inventaires ADN diatomées*

Inventaires oligochètes :

- *Annexe 5. Inventaire microscopie oligochètes*
- *Annexe 6. Inventaire ADN oligochètes*

1- Inventaires des diatomées benthiques des rives du Léman

Organisation : INRA

Lieux et dates : Les communautés de diatomées ont été obtenues à partir de prélèvements de biofilms des zones littorales qui ont été réalisés sur les rives françaises les 14 et 15 Juin 2017, et sur les rives suisses les 16, 19, 21, 22, 26 et 27 Juin 2017. Voir les détails dans l'*Annexe 3. Tableau récapitulatif des échantillons diatomées.*

Choix des sites de prélèvement : Le placement des sites s'est fait de manière régulière mais également de façon à être le plus représentatif de la diversité typologique des zones côtières du Léman. En particulier, nous nous sommes attachés à représenter de façon détaillée les gradients de pressions s'exerçant sur les rives du lac. Plusieurs types de pressions avait été identifiées préalablement:

- Les ports,
- Les embouchures de rivières,
- Les effluents de stations d'épuration.

Les prélèvements ont été densifiés au niveau de ces zones de pression potentielles et le reste des prélèvements a été placé de manière équidistante entre ces sites. Ce maillage a permis le suivi de 153 sites sur les 200km de rives du Léman, soit environ un site tous les 1,3km (Figure 1). A noter : 3 sites ont été prélevés en duplicats, ce qui porte le nombre total d'échantillons à 156.

Carte des points de prélèvements :

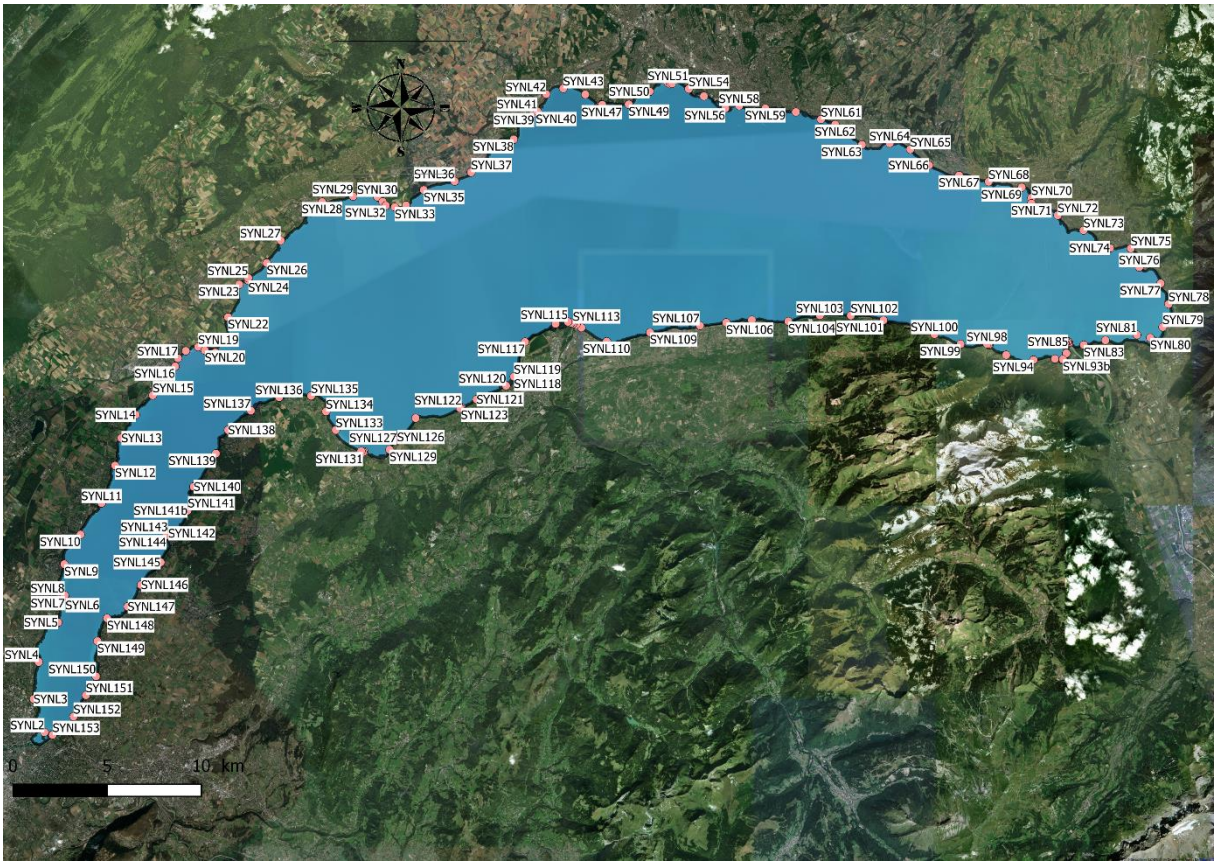


Figure 1 : Points de prélèvements autour du Léman pour les diatomées - projet SYNAQUA.

Bilan : 8 jours ont été nécessaires en juin 2017 pour réaliser les prélèvements sur ces 153 points autour du Léman. En chaque site de prélèvement (point), de l'eau et du biofilm ont été prélevés puis analysés en laboratoire. Une description géographique de chaque point a aussi été réalisée en parallèle des prélèvements. Les inventaires de diatomées ont été réalisés à partir de échantillons de biofilm par deux approches : a) grâce au séquençage haut-débit de l'ADN pour l'ensemble des échantillons et b) en microscopie optique pour un sous-ensemble de 33 échantillons destinés à valider les résultats de l'approche innovante basée sur l'ADN.

a) Inventaire des diatomées par séquençage ADN haut-débit

Pour chacun des 156 échantillons biologiques l'ADN total des biofilms échantillonnés a été extrait, le gène rbcL a été amplifié par PCR puis séquencé. Les inventaires de séquences ADN ont ensuite été analysées et identifiées taxonomiquement par comparaison à la base de référence Diat.barcode (livrable WP2.1-39634). L'ensemble de cette méthode est aussi appelé « métabarcoding ADN ».

Méthode d'extraction : L'ADN des échantillons de biofilm a été extrait grâce au kit d'extraction NucleoSpin®Soil. Un fragment de 312pb du gène rbcL**,** contenu dans les chloroplastes, a été utilisé comme barcodes pour l'identification moléculaire des diatomées. Ce barcode a été amplifié par PCR. Les produits PCR (amplicons) ont été taggés spécifiquement pour chaque échantillon puis poolés pour préparer les librairies de séquençage.

VASSELON V., RIMET F., TAPOLCZAI K., BOUCHEZ A. (2017) Assessing ecological status with diatoms DNA metabarcoding: Scaling-up on a WFD monitoring network (Mayotte island, France). Ecological Indicators; 82:1-12.

Méthode de séquençage haut-débit : La technologie Illumina MiSeq a été utilisée. Le séquençage a été réalisé à l'Université de Genève par Laure Apotheloz-Perret-Gentil.

Base de référence utilisée : Diat.barcode V6 (anciennement R-Syst::diatom - Rimet et al. 2016). Cette base est détaillée dans le livrable WP2.1-39634.
RIMET F., CHAUMEIL P., KECK F., KERMARREC L., VASSELON V., KAHLERT M., FRANC A., BOUCHEZ A. (2016) R-Syst::diatom: an open-access and curated barcode database for diatoms and freshwater monitoring. Database baw016.

Analyses bio-informatiques : Le logiciel utilisé est Mothur Version 1.39.5 (Schloss et al. 2009). Le pipeline utilisé est celui décrit par Valentin Vasselon (Keck et al. 2018).
SCHLOSS, P.D., et al., Introducing mothur: Open-source, platform-independent, community-supported software for describing and comparing microbial communities. Appl Environ Microbiol, 2009. 75(23):7537-41.
KECK F., VASSELON V., TAPOLCZAI K., RIMET F., BOUCHEZ A. (2018) Boosting DNA metabarcoding for biomonitoring with phylogenetic estimation of OTUs' ecological profiles. Mol Ecol Res 18:1299–1309.

Protocoles : *Annexe 4. Ensemble des protocoles laboratoires Diatomées*

Inventaires : *Annexe 2. Inventaires ADN diatomées (156 échantillons)*

b) Inventaire des diatomées en microscopie

Méthode d'observation : Pour chacun des 156 échantillons biologiques une lame pour observation en microscopie a été préparée (S. Lacroix). Une sélection de 33 lames a été observée au microscope. Cette sélection s'est faite sur la base des typologies de communautés de diatomées déterminées grâce à l'approche ADN, afin de retenir des inventaires différant le plus possible les uns des autres. Ces observations ont pour but de valider l'approche basée sur l'ADN par comparaison d'inventaires.

Lieu de conservation : Toutes les lames sont conservées à l'INRA de Thonon les bains.

Comptage en microscopie réalisé par : Fréderic Rimet

Protocoles : *Annexe 4. Ensemble des protocoles laboratoires Diatomées*

Norme NFT 90-354. Qualité de l'eau - Échantillonnage, traitement et analyse de diatomées benthiques en cours d'eau et canaux, 63 p

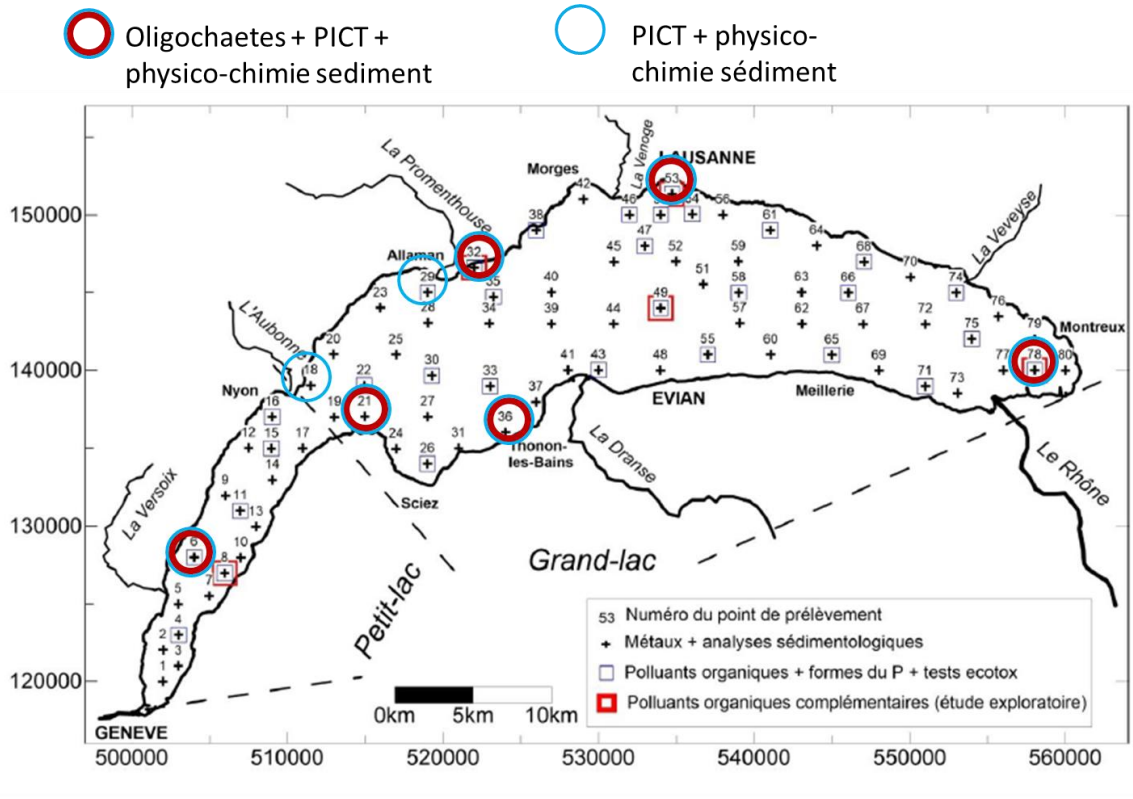
Inventaire : *Annexe 1. Inventaire microscopie diatomées (33 échantillons)*

2- Inventaires des oligochètes des sédiments du Léman

Organisation : Centre Ecotox

Lieux et dates : *Annexe 9. Tableau récapitulatif des prélèvements d'échantillons de sédiment pour produire les inventaires oligochètes*

Carte des points de prélèvements :



Carte campagne 2015: Loizeau et al. , Rapport CIPEL 2017

Participants : Régis Vivien (Centre Ecotox) avec l'appui technique de l'INRA

a) Inventaire des oligochètes en microscopie

Méthode d'observation : Microscope

Lieu de conservation : Centre Ecotox

Identifications réalisées par : Régis Vivien

Protocoles : *Annexe 7. Protocole d'analyse morphologique des oligochètes (lac)*

Inventaire : *Annexe 5. Inventaire en microscopie des oligochètes*

b) Inventaire des oligochètes par séquençage ADN haut-débit

Méthode d'extraction : Guanidine

Méthode de séquençage : Utilisation de primers taggés, Next-Generation sequencing

Base de référence utilisée : Notre base de donnée (Vivien et al., 2017), complétée au cours du projet (voir livrable WP2.1-39634), et Genbank.
Vivien R, Holzmann M, Werner I, Pawlowski J, Lafont M, Ferrari BJD. 2017. Cytochrome c oxidase barcodes for aquatic oligochaete identification: development of a Swiss reference database. PeerJ 5:e4122

Protocoles : *Annexe 8. Protocole d'analyse génétique des oligochètes (lac)*

Inventaires d'oligochètes : *Annexe 6. Inventaire génétique des oligochètes*

Annexe 1 – Inventaire microscopie diatomées (33 échantillons)

Pour une meilleure visualisation de l'ensemble des données (33 sites x 131 taxons), celles-ci sont présentées sous la forme d'un tableau à 4 colonnes. « Taxons » est la colonne ou figure le nom du taxon, « Echantillons » la colonne avec les noms des sites dans lesquels ce taxon a été trouvé, « Abondance relative (%) » représente l'abondance relative en pourcentage du taxon dans les différents sites où il a été identifié. Enfin, dans la colonne « % » figure l'abondance relative totale du taxon dans l'ensemble du jeu de données. Le tableau a été trié par ordre décroissant des abondances relatives totales des taxons.

Taxons	Echantillons	Abondance relative (%)	%
Achnanthidium.minutissimum..Kützing..Czarnecki.var..minutissimum	1, 100, 101, 103, 107, 114, 12, 120, 123, 132, 137, 139, 144, 150, 152, 16, 19, 24, 29, 31, 38, 43, 52, 57, 6, 61, 66, 67, 71, 76, 80, 84, 99	16.8, 3.41, 34.5, 21.5, 36.8, 5.78, 4.33, 29.8, 22.7, 17.9, 32.7, 25.2, 49.3, 13, 13.5, 11.7, 13.1, 15.7, 2.48, 9.65, 14.1, 9.68, 32.4, 37.1, 38.9, 18.1, 23.1, 7.84, 10.8, 17.1, 12.4, 18, 29.2	19.7
Encyonopsis.minuta.Krammer...Reichardt	1, 100, 101, 103, 107, 12, 120, 132, 137, 139, 144, 150, 152, 16, 19, 24, 29, 31, 38, 43, 57, 6, 61, 66, 67, 76, 84, 99	25.5, 1.22, 10.8, 8.78, 6.92, 11.7, 11.5, 4.84, 8.38, 16, 3.43, 5.85, 46.4, 1.46, 6.05, 1.23, 33.7, 5.94, 23.9, 0.496, 12.6, 11.3, 21.3, 9.83, 0.98, 1.45, 5.37, 3.96	9.12
Encyonema.minutum..Hilse.in.Rabh...D.G..Mann.in.Round.Crawford...Mann.var..minutum	1, 100, 101, 103, 107, 114, 120, 123, 132, 137, 139, 144, 150, 152, 16, 19, 24, 29, 31, 38, 43, 52, 57, 6, 61, 66, 67, 76, 80, 84, 99	0.75, 2.93, 14.7, 9.51, 4.77, 17.6, 8.35, 2.68, 13.8, 12.7, 3.49, 14.2, 1.06, 7.13, 5.58, 3.15, 16.7, 10.4, 13.1, 1.95, 5.21, 10.2, 2.72, 11.1, 19.1, 24.6, 6.62, 4.11, 11.5, 8.78, 12.6	8.52
Gomphonema.pumilum..Grunow..Reichardt...Lange.Bertalot.var..pumilum	1, 100, 101, 103, 107, 114, 12, 120, 123, 132, 137, 139, 144, 152, 16, 24, 29, 38, 43, 52, 6, 61, 66, 67, 71, 76, 80, 84, 99	1, 66.3, 1.93, 19.5, 4.3, 13, 0.509, 0.716, 19, 6.54, 2.03, 0.748, 0.49, 0.737, 5.58, 14.7, 0.743, 0.732, 0.248, 17, 5.67, 0.496, 2.21, 21.8, 4.99, 35.7, 0.488, 0.244, 4.95	7.65
Amphora.pediculus..Kützing..Grunow.var..pediculus	1, 100, 101, 103, 107, 12, 120, 123, 132, 137, 139, 144, 150, 152, 16, 19, 24, 29, 31, 38, 43, 52, 57, 6, 61, 66, 67, 80, 84, 99	3.5, 0.976, 3.13, 1.71, 0.955, 1.78, 5.97, 3.41, 16, 6.09, 12, 2.7, 13, 1.97, 12.4, 36.1, 6.86, 5.94, 11.1, 30.7, 0.744, 2, 4.7, 5.42, 3.72, 3.69, 2.45, 4.88, 10.7, 2.72	6.59
Nitzschia.fonticola.Grunow.in.Cleve.et.Möller.var..fonticola	1, 100, 101, 103, 107, 114, 12, 120, 123, 132, 137, 139, 144, 152, 16, 19, 24, 29, 31, 38, 43, 52, 57, 6, 61, 66, 67, 71, 76, 80, 84, 99	1.75, 7.07, 3.37, 20.2, 2.39, 3.13, 8.65, 5.49, 1.46, 1.94, 0.761, 0.249, 3.43, 1.72, 4.85, 1.21, 1.72, 2.72, 2.48, 1.46, 1.99, 4.74, 5.45, 3.2, 7.94, 8.85, 21.1, 0.651, 8.21, 6.34, 2.44, 5.94	4.63
Navicula.cryptotenelloides.Lange.Bertalot.var..cryptotenelloid	1, 100, 101, 103, 107, 114, 12, 120, 123, 132, 137, 139, 144, 150, 152, 16, 19, 24, 29, 31, 38, 43, 52, 57, 6, 61, 66, 67, 71, 80, 84, 99	0.5, 4.15, 4.34, 1.95, 21.7, 1.2, 4.33, 4.06, 8.05, 13.6, 1.02, 4.49, 8.82, 1.6, 5.16, 2.67, 3.39, 4.17, 4.21, 7.67, 6.59, 0.744, 2.74, 6.93, 1.23, 3.23, 4.67, 1.96, 0.868, 4.63, 3.41, 8.42	4.62
Nitzschia.dissipata.subsp..dissipata..Kützing..Grunow.var..dissipata	1, 100, 101, 103, 114, 12, 120, 123, 132, 137, 139, 144, 16, 19, 24, 29, 31, 38, 52, 57, 6, 61, 66, 67, 71, 76, 80, 84, 99	0.5, 1.46, 3.37, 0.732, 5.78, 22.4, 0.955, 7.56, 2.91, 0.761, 0.249, 0.735, 5.1, 0.242, 0.245, 0.99, 1.73, 1.22, 1.75, 2.72, 5.67, 2.48, 2.21, 4.9, 0.434, 3.62, 11.5, 12.4, 5.94	3.35
Gomphonema.tergestinum..Grunow.in.Van.Heurck..Schmidt.in.Schmidt...al..var..tergestinum	100, 103, 114, 123, 132, 137, 144, 16, 24, 29, 38, 52, 6, 61, 67, 71, 76, 99	4.63, 1.46, 23.9, 8.29, 1.45, 0.254, 0.245, 1.46, 1.72, 0.248, 0.244, 15, 0.493, 0.248, 20.3, 8.46, 7.97, 0.248	2.93
Staurosirella.pinnata..Ehrenberg..Williams.Round.var..pinnata	1, 12, 132, 137, 139, 144, 150, 16, 19, 24, 29, 31, 38, 43, 57, 61, 80, 84	7.5, 1.27, 1.69, 1.78, 6.48, 1.96, 33.8, 11.4, 2.91, 1.47, 0.743, 0.743, 3.41, 0.496, 0.743, 1.24, 10.7, 2.68	2.76
Cymbella.excisa.Kützing.var..excisa	100, 101, 103, 107, 114, 12, 120, 123, 137, 139, 152, 16, 24, 29, 31, 38, 43, 57, 6, 61, 66, 71, 76, 99	0.488, 7.47, 1.95, 15.3, 0.723, 6.11, 8.83, 0.976, 8.63, 0.748, 11.1, 1.94, 1.72, 3.96, 0.495, 0.488, 0.248, 1.24, 2.22, 3.23, 3.93, 1.74, 1.21, 5.45	2.73
Achnanthidium.pyrenaicum..Hustedt..Kobayasi	123, 137, 24, 52, 57, 67, 71, 84	4.39, 2.79, 6.62, 0.998, 0.248, 0.245, 57.7, 0.244	2.22
Encyonopsis.subminuta.Krammer...Reichardt	1, 100, 101, 103, 12, 120, 132, 139, 144, 152, 16, 29, 31, 57, 6, 61, 66, 67, 80, 84, 99	2, 0.732, 0.482, 1.22, 24.9, 1.43, 0.484, 4.49, 0.49, 0.246, 1.21, 13.4, 1.24, 3.71, 1.97, 3.47, 1.47, 0.245, 6.1, 1.95, 0.743	2.18

Taxons	Echantillons	Abondance relative (%)	%
Gomphonema.olivaceolacum..Lange.Bert....Reichardt..Lange.Bert....Reichardt	100, 101, 103, 114, 12, 120, 123, 139, 144, 152, 16, 29, 31, 6, 66, 67, 71, 76, 84, 99	2.68, 0.723, 4.15, 2.65, 0.254, 0.239, 1.46, 0.499, 0.49, 1.23, 10.7, 6.19, 0.248, 0.246, 0.246, 1.47, 2.82, 11.1, 0.244, 0.248	1.45
Nitzschia.paleacea..Grunow..Grunow.in.Van.Heurck.var..paleacea	100, 114, 120, 16, 38, 43, 52, 57, 6, 61, 67, 76, 84	0.488, 0.482, 0.477, 1.21, 0.244, 29.3, 0.249, 7.67, 0.985, 1.74, 2.94, 0.483, 0.244	1.41
Cocconeis.pediculus.Ehrenberg	101, 107, 120, 132, 137, 144, 150, 152, 19, 24, 31, 38, 43, 57, 61, 66, 67, 71, 80, 84, 99	0.482, 0.477, 0.477, 0.969, 0.254, 0.49, 1.06, 0.491, 2.42, 2.21, 13.9, 0.244, 14.1, 0.743, 0.744, 1.97, 0.49, 0.434, 0.244, 1.46, 0.99	1.35
Diatoma.ehrenbergii.Kützing	100, 103, 107, 114, 12, 120, 123, 16, 29, 31, 6, 61, 66, 67, 71, 76, 99	1.22, 2.44, 0.477, 8.43, 1.02, 0.477, 0.244, 1.21, 0.495, 12.1, 2.96, 2.98, 0.246, 3.19, 0.868, 3.62, 2.23	1.34
Achnanthidium.affine..Grun..Czarnecki	1, 101, 103, 107, 120, 132, 137, 152, 61, 66, 80, 99	1, 2.41, 0.488, 0.477, 13.4, 0.484, 7.36, 5.16, 0.744, 2.95, 0.244, 8.17	1.3
Encyonema.ventricosum..Kützing..Grunow.in.Schmidt...al..var..ventricosum	1, 101, 103, 107, 114, 120, 123, 137, 144, 19, 24, 52, 57, 6, 61, 67, 71, 76, 84, 99	0.5, 0.482, 0.244, 0.239, 6.75, 0.716, 8.05, 1.02, 0.49, 0.484, 4.41, 1.25, 0.495, 0.739, 0.496, 0.98, 2.39, 0.966, 1.22, 4.95	1.12
Navicula.cryptotenella.Lange.Bertalot.var..cryptotenella	1, 100, 101, 103, 12, 123, 137, 139, 144, 16, 19, 31, 52, 57, 61, 66, 80, 84	1.75, 0.976, 0.964, 0.732, 0.763, 0.244, 0.254, 0.249, 1.23, 0.485, 0.969, 0.248, 0.499, 1.49, 1.24, 0.983, 14.4, 3.66	0.944
Encyonopsis.krammeri.Reichardt	1, 101, 107, 120, 137, 139, 152, 29, 31, 38, 61, 99	7.75, 2.89, 1.43, 1.91, 1.78, 1.75, 0.983, 6.44, 0.248, 2.2, 2.23, 0.495	0.912
Fragilaria.perminuta..Grunow..Lange.Bertalot	103, 114, 12, 120, 123, 132, 137, 139, 144, 16, 24, 31, 38, 57, 6, 61, 66, 67, 71, 76, 80, 84	1.46, 6.75, 1.02, 0.239, 0.488, 3.39, 0.508, 1.75, 0.245, 1.7, 0.98, 0.248, 0.244, 0.248, 0.493, 0.248, 0.983, 0.49, 1.52, 1.93, 0.976, 0.488	0.8
Nitzschia.lacuum.Lange.Bertalot	1, 100, 101, 12, 120, 132, 16, 19, 29, 31, 57, 6, 61, 66, 67, 76, 80, 84, 99	0.25, 0.732, 0.241, 3.31, 1.43, 0.242, 3.16, 2.66, 1.98, 0.248, 0.743, 0.246, 1.74, 3.93, 0.49, 0.483, 1.95, 0.976, 1.24	0.789
Navicula.utermoehlii.Hustedt	1, 137, 139, 144, 150, 16, 19, 24, 31, 38, 57, 6, 84	2.25, 0.254, 4.24, 0.98, 2.13, 3.64, 6.3, 0.49, 0.495, 2.68, 0.743, 0.493, 1.22	0.785
Gomphonema.minutum.f..minutum..Agardh..Agardh	1, 139, 152, 24, 31, 43, 61, 84	0.75, 0.998, 0.246, 7.11, 0.248, 14.9, 0.248, 1.22	0.779
Fragilaria.brevistriata.Grunow.in.Van.Heurck.var..brevistriata	132, 137, 139, 150, 19, 24, 29, 38	0.969, 1.02, 0.748, 14.4, 5.08, 0.98, 0.495, 1.71	0.77
Encyonema.caespitosum.Kützing.var..caespitosum	12, 132, 137, 139, 150, 152, 16, 19, 29, 31, 6, 61, 66, 76, 80, 84, 99	3.05, 1.21, 0.254, 1.75, 1.06, 0.737, 0.728, 0.726, 1.24, 7.43, 0.739, 0.496, 0.491, 0.242, 0.244, 0.976, 0.743	0.67
Nitzschia.palea..Kützing..W.Smith.var..palea	132, 144, 24, 31, 43, 52, 71, 76, 80, 84	0.242, 1.72, 0.49, 1.24, 14.6, 1.25, 0.217, 0.242, 0.244, 1.46	0.658
Navicula.reichardtiana.Lange.Bertalot.var..reichardtiana	12, 123, 132, 137, 139, 150, 152, 16, 24, 29, 31, 38, 43, 52, 57, 76, 84	0.509, 0.488, 1.69, 1.02, 0.998, 0.532, 0.246, 2.67, 1.96, 0.495, 0.495, 0.244, 1.49, 3.99, 0.248, 0.483, 3.66	0.643
Cocconeis.placentula.var..euglypta..Ehrenberg..Grunow	1, 101, 103, 114, 12, 120, 132, 137, 139, 144, 150, 16, 19, 31, 38, 43, 52, 57, 61, 66, 67, 71, 76, 80, 84, 99	0.5, 0.482, 0.244, 1.2, 0.254, 0.477, 0.484, 1.52, 2.99, 1.47, 0.532, 0.243, 1.94, 0.743, 2.68, 0.248, 0.249, 0.495, 0.744, 0.246, 0.49, 0.434, 0.242, 0.732, 0.976, 0.248	0.632
Achnanthidium.eutrophilum..Lange.Bertalot.Lange.Bertalot	1, 101, 107, 132, 137, 139, 150, 152, 38, 57	6.5, 2.17, 0.477, 0.242, 0.508, 5.49, 0.532, 0.246, 0.732, 1.73	0.564
Planothidium.rostratoholarcticum.Lange.Bertalot...B.k	12, 132, 150, 16, 19, 24, 29, 38, 52, 57, 80, 84	0.254, 0.484, 4.52, 0.728, 2.42, 0.245, 0.743, 0.976, 0.249, 0.495, 1.95, 3.66	0.507
Amphora.inariensis.Krammer	100, 101, 12, 123, 132, 139, 144, 150, 16, 19, 24, 29, 31, 38, 52, 6, 80, 84	0.488, 0.482, 0.254, 0.732, 0.242, 0.499, 0.49, 2.13, 0.971, 2.18, 0.245, 0.99, 0.99, 0.488, 0.249, 0.246, 1.22, 0.244	0.398
Pseudostaurosira.brevistriata..Grun.in.Van.Heurck..Williams...Round.var..brevistriata	1, 12, 16, 31, 61, 84	5.5, 0.254, 2.18, 3.96, 0.248, 0.732	0.39
Denticula.tenuis.Kützing.var..tenuis	137, 139, 144, 152, 24, 52, 6	4.82, 2.49, 0.245, 1.72, 1.47, 0.249, 0.246	0.341
Achnanthidium.straubianum..Lange.Bertalot.Lange.Bertalot	1, 101, 103, 107, 120, 152, 19, 31, 38, 61, 66, 99	1.75, 2.65, 0.244, 1.67, 0.716, 0.491, 0.242, 0.495, 0.244, 0.248, 0.983, 0.495	0.31

Taxons	Echantillons	Abondance relative (%)	%
Navicula.tripunctata..O.F.Müller..Bory.var..tripunctata	1, 103, 107, 114, 123, 132, 144, 24, 31, 57, 61, 66, 80, 84	0.5, 0.488, 0.239, 0.964, 3.17, 0.242, 0.49, 1.23, 0.248, 0.248, 0.248, 0.491, 0.244, 0.488	0.282
Eolimna.minima.Grunow..Lange.Bertalot	1, 120, 123, 144, 16, 19, 29, 57, 6, 80	0.5, 0.239, 0.488, 0.98, 0.485, 1.45, 0.495, 0.495, 0.246, 1.46	0.207
Navicula.antonii.Lange.Bertalot	12, 132, 137, 16, 19, 24, 31, 38, 52, 6, 84	0.509, 0.242, 0.254, 1.21, 0.242, 0.49, 0.495, 0.976, 0.249, 0.739, 1.22	0.201
Rhoicosphenia.abbreviata..C.Agardh..Lange.Bertalot	103, 123, 132, 144, 24, 52	0.488, 0.488, 0.484, 0.98, 3.19, 0.499	0.186
Achnanthidium.lineare.W.Smith	71	4.99	0.151
Navicula.capitatoradiata.Germain	120, 132, 139, 150, 57, 66, 84	0.477, 1.94, 0.249, 0.266, 0.99, 0.491, 0.244	0.141
Encyonema.silesiacum..Bleisch.in.Rabh...D.G..Mann.var..silesiacum	107, 114, 12, 120, 132, 16, 29, 43, 6, 66	0.239, 0.482, 0.509, 0.239, 1.21, 0.485, 0.248, 0.248, 0.493, 0.246	0.133
Achnanthes.minuscula.Hustedt	150, 19, 24, 38	1.33, 1.21, 0.49, 1.22	0.129
Simonsenia.delognei.Lange.Bertalot	101, 120, 57, 80, 84	0.241, 0.477, 2.48, 0.732, 0.244	0.126
Nitzschia.sociabilis.Hustedt	123, 139, 19, 66, 67, 84	1.71, 0.499, 0.242, 0.246, 0.245, 0.732	0.111
Caloneis.bacillum..Grunow..Cleve.var..bacillum	123, 144, 24, 66, 80, 84	0.976, 0.49, 0.49, 0.246, 0.488, 0.732	0.104
Gomphonema.parvulum.var..parvulum.f..parvulum..Kützing..Kützing	123, 43, 52	0.244, 2.73, 0.249	0.0977
Cymbella.neoleptoceros.Krammer.var..neoleptoceros	1	3	0.0909
Cocconeis.placentula.Ehrenberg.var..placentula	114, 150, 152, 16, 29, 6	0.482, 0.532, 0.491, 0.485, 0.495, 0.493	0.0902
Pantocsekiella.costei..Druart.et.F..Straub..K.T..Kiss.et.Ács	103, 120, 61, 66, 80, 84	0.488, 0.239, 0.496, 0.246, 0.732, 0.732	0.0889
Cymbella.compacta.Østrup	101, 107, 137, 61, 80	0.482, 0.955, 0.508, 0.248, 0.732	0.0886
Cocconeis.neothumensis.Krammer.var..neothumensis	1, 19, 80	0.25, 2.18, 0.488	0.0884
Reimeria.sinuata..Gregory..Kociolek...Stoermer	132, 144, 52, 6, 67, 71	0.484, 0.245, 0.748, 0.739, 0.245, 0.434	0.0877
Staurosira.venter..Ehrenberg..Cleve...Moeller.var..venter	1	2.75	0.0833
Nitzschia.archibaldii.Lange.Bertalot	12, 16, 84	1.53, 0.243, 0.488	0.0685
Nitzschia.draveillensis.Coste...Ricard	1, 114, 12, 6, 67, 76	0.5, 0.241, 0.254, 0.739, 0.245, 0.242	0.0673
Navicula.gregaria.Donkin.var..gregaria	123, 144, 52, 84	0.488, 0.49, 0.748, 0.488	0.0671
Fallacia.subhamulata..Grunow.in.V..Heurck..D.G..Mann	123, 144, 19, 84	0.488, 0.245, 0.484, 0.976	0.0665
Geissleria.decussis..Østrup..Lange.Bertalot...Metzeltin	132, 16, 19	1.45, 0.485, 0.242	0.066
Planothidium.granum..Hohn...Hellerman..Lange.Bertalot	57, 80, 84	0.248, 0.488, 1.22	0.0593
Fragilaria.construens.f..venter..Ehr...Hustedt	80	1.95	0.0591
Navicula.cryptocephala.Kützing.var..cryptocephala	150, 16, 6, 84	0.798, 0.243, 0.493, 0.244	0.0539
Amphora.copulata...Kützing..Schoeman...Archibald.var..copulata	120, 132, 24, 31	0.239, 0.242, 0.735, 0.495	0.0518
Cocconeis.placentula.var..pseudolineata.Geitler	137, 139, 31, 61	0.254, 0.499, 0.495, 0.248	0.0453

Taxons	Echantillons	Abondance relative (%)	%
Surirella.brebissonii.var..brebissonii.Krammer...Lange.Bertalot	123, 132, 144, 52	0.488, 0.242, 0.245, 0.499	0.0447
Amphora.indistincta.Levkov	19	1.45	0.0439
Achnanthidium.atomoides.Monnier..Lange.Bertalot...Ector	1, 114	1, 0.241	0.0376
Fallacia.lenzii..Hustedt..Lange.Bertalot	43, 52, 84	0.496, 0.499, 0.244	0.0375
Encyonema.prostratum..Berkeley..Kützing	1, 107, 31, 57	0.25, 0.239, 0.248, 0.495	0.0373
Placoneis.nanoclementis.Lange.Bertalot...Wojtal	19, 84	0.484, 0.732	0.0368
Mayamaea.atomus.var..alcimonica..Reichardt..Reichardt	52	0.998	0.0302
Nitzschia.amphibia.f..amphibia.Grunow.var..amphibia	57, 66	0.743, 0.246	0.03
Planothidium.werumianum.Lange.Bertalot...B.k	57, 6	0.743, 0.246	0.03
Mayamaea.atomus.var..permitis..Hustedt..Lange.Bertalot	144, 43	0.49, 0.496	0.0299
Gomphonema.micropus.Kützing.var..micropus	144	0.98	0.0297
Tryblionella.angustata.W.M..Smith.var..angustata	1, 150	0.25, 0.532	0.0237
Cymbopleura.naviculiformis.var..naviculiformis..Auerswald..Krammer	132, 150	0.242, 0.532	0.0235
Fragilaria.crotonensis.Kitton.var..crotonensis	101, 150, 6	0.241, 0.266, 0.246	0.0228
Craticula.molestiformis..Hustedt..Lange.Bertalot	144, 43	0.245, 0.496	0.0225
Nitzschia.linearis.var..linearis..Agardh..W.M.Smith	1, 144	0.25, 0.49	0.0224
Stephanodiscus.minutulus..Kützing..Cleve...Moller	52, 67, 76	0.249, 0.245, 0.242	0.0223
Cavinula.scutelloides..W.Smith..Lange.Bertalot	19, 80	0.242, 0.488	0.0221
Navicula.moskalii.Metzeltin..Witkowski...Lange.Bertalot	16	0.728	0.0221
Cyclotella.costei.Druart...Straub	101, 38	0.482, 0.244	0.022
Navicula.verecunda.Hustedt	150	0.532	0.0161
Navicula.jakovljevicii.Hustedt...	137, 139	0.254, 0.249	0.0152
Cymbopleura.amphicephala.Krammer	1	0.5	0.0152
Navicula.exilis.Kützing	1	0.5	0.0152
Nitzschia.inconspicua.Grunow	1	0.5	0.0152
Craticula.accomoda..Hustedt..D.G..Mann.in.Round.et.al.	43	0.496	0.015
Fistulifera.saprophila..Lange.Bertalot...Bonik..Lange.Bertalot	43	0.496	0.015
Nitzschia.recta.Hantzsch.in.Rabenhorst.var..recta	1, 84	0.25, 0.244	0.015
Achnanthidium.rivulare.Potapova...Ponader	6	0.493	0.0149

Taxons	Echantillons	Abondance relative (%)	%
Planothidium.frequentissimum..Lange.Bertalot.Lange.Bertalot.var..frequentissimum	1, 114	0.25, 0.241	0.0149
Diatoma.moniliformis.Kützing	123	0.488	0.0148
Diploneis.separanda.Lange.Bertalot	123	0.488	0.0148
Gyrosigma.nodiferum..Grunow..Reimer	84	0.488	0.0148
Karayevia.clevei..Grunow.in.Cl....Grun...Bukhtiyarova	80	0.488	0.0148
Navicula.cluthensoides.Hustedt	84	0.488	0.0148
Paraplaconeis.minor.Lange.Bertalot	80	0.488	0.0148
Sellaphora.mutata..Krasske..Lange.Bertalot	84	0.488	0.0148
Ulnaria.ulna.var..acus..Kützing..Lange.Bertalot	80	0.488	0.0148
Sellaphora.pupula..Kützing..Mereschkowksy.var..pupula	132, 84	0.242, 0.244	0.0147
Encyonema.reichardtii..Krammer..D.G..Mann.in.Round.Crawford...Mann	132	0.484	0.0147
Placoneis.clementioides..Hustedt..Cox	132	0.484	0.0147
Nitzschia.pusilla..Kützing..Grunow.emend.Lange.Bertalot	101	0.482	0.0146
Epithemia.adnata..Kützing..Brébisson.var..adnata	137	0.254	0.0077
Puncticulata.radiosa..Lemmermann..Håkansson	12	0.254	0.0077
Cymatopleura.solea.var..solea..Brébisson.in.Breb....Godey..W.Smith	1	0.25	0.00758
Nitzschia.heufleriana.Grunow.var..heufleriana	1	0.25	0.00758
Eolimna.subminuscula..Manguin..Moser.Lange.Bertalot...Metzeltin	52	0.249	0.00755
Discostella.stelligera..Cleve.et.Grun...Houk...Klee.var..stelligera	31	0.248	0.00752
Nitzschia.vermicularis..Kützing..Hantzsch.in.Rabenhorst.var..vermicularis	57	0.248	0.00752
Psammothidium.helveticum..Hustedt..Bukhtiyarova.et.Round.var..helveticum	29	0.248	0.00752
Tryblionella.brunoi..Lange.Bertalot..Cantonati.et.Lange.Bertalot	31	0.248	0.00752
Cocconeis.pseudolineata..Geitler..Lange.Bertalot	6	0.246	0.00745
Navicula.densilineolata..Lange.Bertalot..Lange.Bertalot	66	0.246	0.00745
Nitzschia.angustatula.Lange.Bertalot	6	0.246	0.00745
Gomphonema.olivaceum..Hornemann..Brébisson.var..olivaceum	123	0.244	0.00739

Taxons	Echantillons	Abondance relative (%)	%
Platessa.conspicua..A.Mayer..Lange.Bertalot	84	0.244	0.00739
Platessa.hustedtii..Krasske..Lange.Bertalot	84	0.244	0.00739
Geissleria.acceptata..Hust...Lange.Bertalot...Metzeltin	16	0.243	0.00736
Navicula.chiarae.Lange.Bertalot...Genkal.	16	0.243	0.00736
Nitzschia.solgensis.Cleve.Euler	16	0.243	0.00736
Cyclotella.ocellata.Pantocsek	76	0.242	0.00733
Gyrosigma.attenuatum..Kützing..Rabenhorst.var..attenuatum	19	0.242	0.00733
Navicula.lacuum.Lange.Bertalot..Hofmann..Werum...Van.de.Vijver	132	0.242	0.00733
Nitzschia.denticula.Grunow.in.Cleve...Grunow.var..denticula	120	0.239	0.00724
Staurosira.robusta..Fusey..Lange.Bertalot	120	0.239	0.00724
Ulnaria.ulna..Nitzsch..Compère.var..ulna	71	0.217	0.00658

Annexe 2 – Inventaire ADN diatomées (156 échantillons)

Pour une meilleure visualisation de l'ensemble des données (161 taxons x 156 sites), celles-ci sont présentées sous la forme d'un tableau à 4 colonnes. « Taxons » est la colonne ou figure le nom du taxon, « Echantillons » la colonne avec les noms des sites dans lesquels ce taxon a été trouvé, « Abondance relative (%) » représente l'abondance relative en pourcentage du taxon dans les différents sites où il a été identifié. Enfin, dans la colonne « % » figure l'abondance relative totale du taxon dans l'ensemble du jeu de données. Le tableau a été trié par ordre décroissant des abondances relatives totales des taxons.

Taxons	Echantillons	Abondance relative (%)	%
Encyonema_ventricosum	1, 10, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 11, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 5, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 8, 80, 81, 82, 83, 84, 85, 86, 88, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	6.32, 1.3, 4.79, 47.9, 16.3, 18.4, 25, 43.6, 31.8, 18.1, 1.31, 29.1, 0.698, 21.1, 17, 26.9, 30.2, 32.6, 30, 37.8, 33.5, 43.1, 28.7, 4.85, 40.1, 23.1, 22.2, 7.21, 31, 15.1, 25.3, 2.73, 24, 33.7, 7.69, 35, 30.8, 26.8, 15.9, 16.5, 25.3, 29, 33.6, 9.07, 8.06, 19, 16.7, 1.31, 18.9, 44.3, 42.1, 47.8, 44.3, 24.7, 42.2, 26.9, 27.8, 15.9, 12.9, 5.1, 48, 12.3, 21.6, 13.9, 2.62, 3.71, 3.82, 0.765, 6.81, 5.36, 1.71, 25.6, 10.3, 5.69, 22.4, 12.2, 25.3, 32.8, 9.32, 34.9, 20.4, 10.6, 15.9, 45.9, 16.4, 19.4, 21.3, 12.4, 39.4, 16.3, 39.1, 47.1, 12.7, 9.04, 0.252, 31.7, 0.994, 11.8, 34.3, 19.1, 2.31, 5.01, 6.13, 28.9, 27.3, 8.12, 10.7, 35.7, 13.6, 52.5, 15.9, 14.3, 10.3, 20.9, 23, 19.8, 27.4, 53.9, 55.5, 14.6, 17.2, 35.8, 6.28, 29.6, 6.62, 40.8, 31.2, 13, 37.7, 12.2, 50.2, 10.9, 2.97, 3.53, 16.7, 2.75, 4.33, 7.89, 15.4, 12.5, 28.8, 0.716, 0.21, 14.5, 28.8, 1.54, 14.6, 32.4, 6.41, 36.8, 37.6, 35.3, 7.47, 62.5, 47.8	21.2
Diatoma_ehrenbergii	1, 10, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 11, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 29, 3, 30, 31, 32, 33, 34, 35, 36, 38, 39, 4, 40, 41, 42, 43, 44, 45, 46, 47, 49, 5, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 8, 80, 82, 83, 84, 85, 86, 88, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	0.446, 0.556, 7.75, 5.33, 7.11, 50.2, 25.5, 21.9, 2.58, 10.1, 0.123, 47.2, 68.5, 33, 21.8, 30.1, 0.491, 35.8, 11.2, 24.9, 36.1, 1.36, 0.393, 3.83, 19.8, 0.784, 2, 0.174, 4.2, 30.5, 8.56, 0.126, 16.3, 3.6, 5.63, 3.4, 0.0611, 0.163, 0.436, 1.26, 9.29, 7.93, 2.54, 1.15, 0.585, 2.6, 0.201, 0.233, 2.13, 0.281, 0.0626, 0.043, 0.499, 0.571, 0.924, 0.247, 8.76, 0.249, 20.6, 0.145, 1.01, 0.0219, 10.5, 23.2, 9.84, 9.75, 1.7, 1.41, 5.59, 31.2, 51.8, 0.145, 0.0451, 0.124, 3.76, 0.166, 1.41, 3.91, 1.62, 59.1, 0.457, 57, 5.55, 35.8, 45.4, 0.0418, 0.492, 8.22, 0.0282, 0.0894, 0.524, 0.0597, 0.0561, 0.0212, 0.0649, 0.0296, 0.209, 57, 0.0653, 0.105, 0.148, 0.221, 0.202, 68.3, 32.2, 2.75, 3.36, 16, 33.2, 61.9, 58, 46, 52.1, 3.19, 9.75, 6.08, 14.1, 59.4, 5.01, 0.0772, 13.2, 1.67, 8.33, 12.8, 19.6, 1.92, 27.7, 8.05, 28.9, 26.5, 68.4, 0.119, 0.0444, 0.112, 1.08, 1.08, 2.73, 58.3, 86.4, 7.89, 5.01, 88.5, 2.06, 7.71, 7.39, 14.9, 1.45, 7.29, 25.4, 1.44, 21.5	13.3

Taxons	Echantillons	Abondance relative (%)	%
Amphora_pediculus	1, 10, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 11, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 5, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 8, 80, 81, 82, 83, 84, 85, 86, 88, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	4.75, 1.79, 0.15, 5.62, 3.6, 0.507, 1.79, 3.18, 2.97, 0.831, 36, 0.24, 9.36, 0.0408, 0.759, 0.04, 0.409, 0.02, 0.987, 2.63, 0.142, 1.24, 2.75, 1.05, 3.65, 1.84, 4.83, 2.02, 2.47, 2.81, 2.77, 14.8, 1.36, 10.5, 22.3, 0.7, 4.38, 8.6, 4.55, 6.87, 6.12, 8.5, 5.39, 13.7, 14.8, 6.41, 19.7, 35, 13.8, 10.8, 5.96, 2.3, 15.2, 13.1, 11.2, 25.1, 1.26, 5.05, 2.6, 10.5, 0.896, 2.98, 17.3, 4.89, 38.3, 23.9, 42.2, 1.21, 0.573, 16.8, 10.2, 8.63, 7.32, 28.3, 27.7, 33.6, 3.4, 10.7, 9.55, 14.7, 2.38, 3.32, 0.58, 8.89, 10.1, 3.65, 9.07, 28.5, 9.04, 1.95, 1.33, 5.01, 18.9, 0.199, 32.9, 5.5, 54.2, 6.99, 10.4, 14.7, 1.09, 29.1, 6.13, 2.1, 6.03, 4.86, 0.905, 2.08, 4.96, 5.01, 4.62, 3.19, 0.729, 1.26, 0.312, 2.14, 0.945, 1.84, 1.99, 2.24, 1.26, 11.8, 2.91, 0.319, 0.0407, 14.5, 9.85, 0.442, 18.3, 0.427, 0.831, 0.265, 0.0809, 0.545, 1.55, 51.5, 3.4, 12.3, 11.5, 1.02, 0.294, 0.168, 0.126, 4.32, 2.26, 0.0445, 1.28, 5.39, 4.15, 3.11, 14.8, 0.922, 0.0636, 2.09, 0.479	7.72
Gomphonema_pumilum_var._pumilum	1, 10, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 11, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 44, 45, 46, 47, 48, 49, 5, 50, 51, 52, 53, 54, 55, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 8, 81, 82, 83, 84, 85, 86, 88, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	0.188, 0.453, 67.5, 0.875, 1.9, 11.9, 4.69, 7.51, 48.5, 7.18, 0.0246, 11.9, 0.0998, 33.2, 28.4, 28.1, 9.19, 4.87, 19.9, 2.57, 5.19, 0.256, 0.177, 0.0789, 0.983, 1.53, 3.8, 16.6, 0.416, 0.285, 2.13, 30.8, 3.03, 0.624, 0.35, 3.02, 23.2, 7.05, 0.257, 9.62, 1.39, 0.337, 0.159, 1.78, 0.524, 1.38, 0.201, 0.0636, 0.401, 0.241, 7.4, 2.75, 0.419, 0.276, 0.197, 0.412, 3.96, 0.768, 2.4, 0.0829, 0.179, 1.6, 2.25, 4.63, 0.935, 0.118, 0.335, 0.282, 1.24, 5.12, 4.25, 3.85, 4.62, 0.186, 0.202, 1.72, 0.303, 0.562, 4.69, 3.75, 0.163, 3.4, 0.38, 0.854, 0.761, 0.95, 2.02, 2.32, 2.07, 1.63, 1.24, 7.42, 0.0838, 0.14, 4.63, 0.519, 9.19, 2.3, 6.02, 1.75, 0.414, 44.3, 8.92, 1.95, 5.65, 0.362, 0.067, 0.201, 6.45, 3.81, 1.07, 0.12, 14.4, 0.679, 43.8, 2.76, 0.987, 31.3, 2.73, 17.3, 2.03, 1.12, 1.41, 3.35, 1.34, 12.3, 1.92, 23.7, 3.52, 23.7, 6.37, 1.92, 16.6, 0.2, 0.716, 0.065, 0.14, 0.0784, 0.989, 0.0838, 4.34, 0.277, 0.334, 0.48, 0.629, 0.0216, 4.04, 0.733, 0.471, 10.4, 0.974, 2.05	5.33

Taxons	Echantillons	Abondance relative (%)	%
Nitzschia_fonticola	1, 10, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 11, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 5, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 8, 80, 81, 82, 83, 84, 85, 86, 88, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	1.01, 1.94, 7.21, 13.1, 30.8, 6.13, 7.49, 2.25, 1.93, 2.32, 1.06, 1.98, 0.679, 2.65, 4.49, 5, 0.942, 1.58, 1.07, 3.07, 2.51, 11.9, 8.95, 5.92, 4.07, 4.16, 7.2, 0.369, 4.93, 4.52, 8.07, 2.18, 11.3, 8.01, 3.54, 3.5, 0.245, 1.53, 4.75, 9, 3.94, 1.68, 2.17, 1.91, 0.544, 4.47, 1.74, 0.318, 2.09, 5.31, 1.23, 1.01, 5.73, 2.28, 8.87, 3.72, 8.45, 8.16, 4.53, 0.725, 1.45, 0.987, 5.5, 5.14, 1.1, 1.56, 0.648, 2.07, 3.62, 3.66, 1.39, 0.827, 1.76, 0.928, 1.07, 0.436, 0.692, 1.69, 5.37, 2.99, 0.691, 3.65, 4.04, 10.6, 5.57, 2.57, 0.76, 0.92, 2.52, 2.61, 2.94, 1.45, 0.985, 5.47, 1.15, 0.701, 0.627, 1.54, 1.3, 1.78, 2.35, 0.784, 0.464, 3.35, 3.66, 0.911, 1.85, 7.62, 3.84, 2.47, 5.94, 1.86, 2.81, 3.2, 4.2, 2.08, 6.8, 3.4, 8.41, 7.97, 7.17, 3.97, 0.977, 8.06, 0.326, 4.02, 7.2, 2.23, 5.39, 5.75, 7.12, 2.12, 0.223, 2.56, 8.42, 0.104, 0.156, 0.962, 2.99, 9.11, 3.71, 0.0632, 0.231, 2.95, 6.63, 0.445, 3.78, 0.983, 1.75, 2.35, 2.7, 10.4, 4.54, 5.11, 5.7	3.68
Nitzschia_sp.	1, 10, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 11, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 5, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 8, 80, 81, 82, 83, 84, 85, 86, 88, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	2.63, 0.247, 1.35, 4.42, 17.1, 2.33, 15.1, 0.79, 0.394, 0.336, 5, 0.781, 0.399, 0.531, 2.03, 2.82, 7.94, 0.741, 1.68, 3.19, 0.446, 12.9, 0.982, 1.66, 1.06, 1.94, 12.7, 27.5, 6.51, 1.26, 3.52, 19.3, 5.27, 0.905, 0.267, 5.2, 2.43, 3.88, 0.832, 1.34, 0.377, 3.79, 0.775, 1.17, 1.31, 1.1, 14.1, 10.1, 4.92, 0.341, 1.13, 2.88, 2.14, 0.0591, 0.492, 0.309, 1.58, 4.65, 0.978, 0.476, 0.338, 0.132, 1.2, 2.46, 1.93, 0.809, 2.95, 0.121, 0.962, 2.18, 2.57, 0.352, 0.766, 2.08, 2.06, 0.582, 0.303, 0.915, 2.83, 1.39, 0.63, 3.07, 0.78, 0.325, 0.446, 0.464, 0.08, 1.73, 8.52, 3.42, 1.13, 2.84, 30.1, 0.677, 1.43, 0.234, 3.83, 2.01, 1.05, 1.61, 0.982, 18.4, 1.05, 0.474, 1.97, 6.09, 0.684, 7.32, 21.2, 0.342, 8.67, 3.95, 2.21, 1.96, 0.894, 0.519, 0.781, 4.46, 1.52, 3.06, 0.55, 2.17, 7.36, 0.419, 0.204, 6.63, 2.27, 1.35, 2.8, 1.66, 0.85, 4.12, 0.142, 2.14, 3.09, 1.48, 4.02, 3.96, 22.7, 8.63, 10.3, 1.66, 5.53, 2.35, 3.05, 1.09, 0.959, 1.38, 16, 0.677, 2.72, 4.49, 0.615, 1.64, 1.89	3.49

Taxons	Echantillons	Abondance relative (%)	%
Nitzschia_dissipata	1, 10, 100, 101, 102, 103, 104, 105, 106, 108, 109, 11, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 5, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 8, 80, 81, 82, 83, 84, 85, 86, 88, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	0.399, 0.35, 2.48, 0.814, 1.45, 0.406, 5.25, 0.217, 0.236, 0.0246, 0.12, 0.439, 0.653, 1.97, 2.22, 2.95, 1.18, 1.7, 0.983, 0.284, 0.158, 0.0589, 39.5, 0.943, 1.45, 4.5, 2.69, 10.2, 1.36, 5.31, 4.83, 8.84, 3.84, 1.75, 20.1, 0.51, 4.17, 3.5, 5.69, 0.813, 8.9, 0.735, 1.54, 5.99, 2.28, 3.93, 0.424, 0.602, 0.862, 0.792, 0.946, 0.22, 0.177, 2.62, 1.15, 7.5, 2.55, 0.279, 0.166, 0.179, 0.0658, 2.59, 6.83, 1.38, 1.88, 0.804, 0.0604, 0.665, 1.35, 1.31, 0.0621, 0.158, 0.103, 2.06, 0.208, 0.0433, 4.74, 5.75, 1.37, 0.833, 0.786, 3.78, 5.04, 2.42, 3.25, 0.18, 0.753, 21.2, 17.5, 6.27, 1.99, 1.93, 0.0199, 0.196, 0.127, 0.973, 7.23, 0.761, 1.11, 19.3, 0.283, 0.675, 2.7, 3.32, 1.05, 1.49, 0.83, 2.66, 4.22, 15.3, 4.35, 2.98, 0.88, 1.37, 0.619, 0.37, 1.26, 1.32, 1.66, 1.24, 1.38, 0.72, 0.659, 0.0407, 2.87, 13.6, 4.26, 0.932, 0.786, 1.92, 1.73, 0.0607, 9.77, 24.7, 0.0416, 0.444, 2.39, 8.23, 10.3, 48.8, 0.105, 0.817, 20.9, 2.4, 2.03, 0.919, 0.511, 1.49, 1.57, 0.314, 4.28, 0.212, 0.304, 7.3	3.48
Cymbella_cymbiformis	1, 10, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 11, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 44, 48, 49, 5, 50, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 8, 80, 81, 83, 85, 86, 88, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	0.211, 0.0618, 0.449, 7.96, 8.5, 1.68, 1.81, 4.25, 1.79, 13.8, 0.222, 2.26, 0.12, 1.2, 0.369, 0.2, 1.02, 0.261, 16.3, 4.7, 8.17, 1.69, 3.83, 5.34, 6.72, 9.7, 1.66, 0.261, 5.96, 14.3, 1.43, 0.231, 3.23, 10.6, 2.43, 0.62, 0.163, 0.45, 5.66, 1.3, 2.08, 10.2, 15.7, 7.31, 4.52, 0.901, 0.983, 0.0212, 8.03, 4.47, 0.396, 0.172, 2.08, 2.88, 1.42, 1.58, 3.01, 5.4, 0.02, 0.104, 13.3, 23, 0.722, 1.55, 0.488, 12.9, 0.067, 55.6, 5.04, 4.47, 0.945, 0.0207, 0.721, 0.144, 0.0808, 0.0623, 0.0433, 5.78, 11.2, 0.144, 0.244, 0.888, 8.42, 4.17, 9.43, 3.14, 0.04, 4.37, 0.492, 7.41, 0.0282, 0.134, 0.028, 0.0206, 0.0209, 0.598, 0.0653, 0.081, 0.422, 0.24, 0.134, 0.342, 0.123, 3.27, 7.23, 4.16, 2.64, 8.56, 0.0617, 7.26, 5.88, 0.37, 1.59, 0.798, 0.283, 4.73, 0.428, 1.41, 2.41, 0.779, 0.81, 1.19, 3.92, 1.39, 1.4, 0.141, 0.0793, 0.0208, 0.0447, 0.24, 0.0588, 0.211, 0.0419, 7.31, 10.7, 0.423, 11.5, 7.51, 0.54, 7.73, 1.72, 3.5, 0.721, 2.25, 4.01	3.35

Taxons	Echantillons	Abondance relative (%)	%
Achnanthidium_minutissimum	1, 10, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 11, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 5, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 8, 80, 81, 82, 83, 84, 85, 86, 88, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	3.85, 3.09, 0.77, 3.46, 1.82, 1.03, 3.31, 4.66, 2.54, 2.63, 5.17, 1.44, 0.419, 0.755, 1.21, 0.14, 1.54, 0.661, 2.23, 3.77, 5.55, 5.41, 1.3, 0.572, 6.92, 4.8, 1.96, 5.63, 2.81, 3.7, 2.11, 1.89, 2.02, 1.57, 3.6, 1.92, 2.51, 3.68, 4.85, 9.66, 2.58, 4.04, 3.44, 1.74, 4.13, 7.53, 0.542, 0.721, 4.45, 2.73, 3.5, 4.43, 5.25, 2.27, 2.54, 4.44, 9.57, 2.43, 1.72, 5.1, 5.59, 6.47, 4.13, 3.18, 2.42, 1.15, 3.33, 7.02, 8.27, 2.94, 0.866, 8.71, 5.25, 0.867, 0.364, 5.34, 2.25, 1.16, 3.14, 3.04, 0.366, 4.79, 1.16, 1.42, 2.49, 0.696, 1.64, 2.82, 0.942, 2.87, 1.16, 4.54, 0.587, 0.657, 0.14, 2.87, 1.58, 2.61, 14.3, 4.04, 0.662, 1.15, 8.28, 10.5, 2.11, 14.2, 0.805, 0.349, 3.31, 2.99, 1.19, 5.17, 1.48, 0.78, 0.769, 1.28, 1.38, 2.94, 2.78, 0.595, 1.14, 1.04, 6.56, 3.47, 0.977, 4.08, 1.08, 4.38, 4.11, 1.28, 2.93, 0.754, 5.38, 1.19, 1.01, 4.64, 0.689, 3.98, 1.23, 2.18, 0.373, 1.45, 0.21, 5.2, 3.37, 0.156, 11.3, 8.53, 2.33, 3.96, 8.32, 3.3, 2.52, 4.34, 1.62	3.16
Encyonopsis_subminuta	1, 10, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 11, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 43, 44, 45, 46, 48, 49, 5, 50, 51, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 72, 73, 74, 75, 76, 77, 78, 79, 8, 80, 81, 82, 83, 84, 85, 86, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	11.6, 0.288, 0.193, 0.753, 0.736, 1.14, 1.14, 0.988, 0.433, 0.851, 0.936, 0.3, 0.339, 0.449, 1.11, 0.0799, 0.246, 0.1, 0.714, 1.06, 1.36, 3.27, 0.884, 18.4, 2.33, 9.7, 12, 0.369, 10.2, 8.63, 27.7, 0.483, 4.47, 6.14, 7.77, 10.5, 0.53, 2.55, 11.8, 4.93, 3.29, 2.44, 2.52, 23.5, 7.72, 5.59, 10.8, 0.594, 7.42, 6.9, 0.501, 0.258, 2.28, 1.62, 5.03, 4.71, 4.29, 10.1, 0.419, 0.891, 6.25, 6.82, 1.1, 2.25, 4.13, 4.15, 0.514, 2.8, 0.183, 2.07, 1.73, 2.28, 0.451, 1.65, 2.06, 5.03, 0.0866, 18.3, 10.2, 4.59, 1.18, 0.0254, 0.54, 2.1, 1.05, 2.34, 1.68, 3.11, 1.58, 9.44, 0.0565, 3.15, 0.293, 0.0796, 0.0561, 5.57, 0.0432, 0.165, 7.4, 3.59, 1.63, 2.82, 0.382, 1.7, 0.764, 0.896, 4.63, 1.23, 1.25, 2.01, 1.8, 0.68, 0.686, 1.72, 0.452, 1, 1.6, 0.287, 0.672, 1.22, 5.21, 0.857, 4.21, 0.527, 3.85, 0.292, 1.9, 0.367, 0.506, 0.868, 1.51, 2.89, 0.222, 0.313, 3.66, 4.16, 0.647, 0.0629, 5.92, 4.48, 0.334, 8.87, 1.83, 2.53, 1.41, 1.61, 3.05, 0.17, 1.42, 1.1	3.1

Taxons	Echantillons	Abondance relative (%)	%
Achnanthidium_sp.	1, 10, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 11, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 5, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 8, 80, 81, 82, 83, 84, 85, 86, 88, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 98, 99	0.611, 1.92, 0.492, 3.66, 2.37, 0.588, 2.43, 3.16, 2.78, 3.01, 1.82, 2.04, 0.679, 1.96, 1.44, 0.42, 1.97, 0.561, 2.18, 4.96, 2.35, 6.67, 0.746, 0.434, 3.17, 1.9, 0.839, 1.41, 1.8, 1.08, 1.8, 1.62, 2.58, 1.89, 3.66, 0.919, 1.49, 3.9, 3.48, 8.68, 2.1, 3.57, 2.92, 0.696, 1.75, 4.73, 0.421, 0.424, 1.67, 3.59, 3.07, 5.35, 5.67, 2.19, 1.79, 5.86, 3.6, 1.47, 1.04, 0.642, 6.25, 4.74, 1.91, 1.47, 2.66, 0.731, 0.648, 0.986, 3.76, 1.08, 0.525, 14.8, 2.77, 1.79, 0.667, 10.3, 1.36, 1.02, 3.18, 2.91, 0.244, 3.88, 0.92, 2.14, 0.42, 0.718, 1.4, 1.19, 0.922, 3.05, 0.65, 3.31, 0.503, 0.318, 0.14, 6.08, 0.562, 2.64, 2.41, 8.16, 0.769, 1.55, 11.3, 3.59, 3.32, 16.2, 0.965, 0.109, 2.44, 4.18, 0.822, 4.28, 0.879, 0.64, 0.624, 0.978, 1.15, 4.98, 6.4, 0.657, 0.733, 1.28, 3.65, 6.9, 1.02, 4.76, 1.56, 4.17, 5.81, 1.37, 4.29, 1.08, 2.47, 0.767, 0.555, 0.291, 0.333, 1.74, 0.325, 3.52, 0.157, 0.316, 0.398, 3.73, 3.16, 0.245, 10.5, 11, 0.734, 4.2, 10.1, 2.07, 8.36, 1.46	2.67
Gomphonema_tergestinum	10, 100, 101, 102, 103, 104, 105, 106, 107, 109, 11, 110, 111, 112, 113, 114, 115, 116, 117, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 142, 143, 144, 145, 146, 147, 148, 149, 15, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 43, 44, 45, 46, 47, 48, 49, 5, 50, 51, 52, 53, 54, 57, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 8, 80, 81, 82, 83, 84, 86, 88, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 99	0.165, 3.4, 0.183, 0.0613, 2.09, 0.344, 0.257, 0.728, 0.0198, 0.26, 0.0599, 0.245, 14.7, 0.2, 8.9, 11.7, 5.67, 0.341, 0.182, 0.0588, 3.11, 4.69, 0.891, 0.0611, 0.246, 2.52, 0.441, 0.282, 0.0617, 1.96, 6.36, 1.7, 0.139, 0.679, 0.159, 0.0991, 0.0398, 0.283, 0.0202, 0.28, 0.0201, 0.0401, 0.355, 0.043, 0.0591, 0.059, 0.0412, 0.0394, 0.125, 0.02, 0.1, 1.22, 0.488, 0.079, 0.112, 0.0402, 0.55, 3.13, 3.67, 2.77, 0.383, 0.0206, 0.505, 1.23, 0.151, 0.707, 1.24, 3.3, 0.102, 3.27, 0.22, 0.224, 2.34, 2.38, 0.08, 0.397, 1.74, 0.224, 0.565, 1.39, 0.0199, 0.0841, 0.595, 1.69, 12.6, 12.2, 2.13, 0.448, 0.196, 3.46, 8.86, 0.281, 1.09, 0.0223, 8.22, 0.455, 0.364, 0.06, 0.915, 0.14, 4.81, 0.64, 0.79, 19.6, 1.51, 5.41, 0.129, 2.95, 22.5, 1.3, 0.963, 17.8, 0.122, 19.9, 0.0198, 21.8, 50.1, 0.767, 0.0198, 0.333, 0.0222, 28.5, 0.173, 0.196, 11.1, 3.21, 0.0803, 0.139, 2.49, 0.16, 0.197, 0.0648, 0.0199, 0.0419, 0.102, 7.53, 0.0798	2.49

Taxons	Echantillons	Abondance relative (%)	%
Navicula_cryptotenella	1, 10, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 11, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 5, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 8, 80, 81, 82, 83, 84, 85, 86, 88, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	0.517, 1.26, 1.03, 1.16, 3.33, 0.101, 0.818, 0.474, 0.512, 30.8, 1.63, 0.36, 0.279, 0.204, 0.984, 0.5, 0.942, 0.421, 0.609, 0.442, 0.243, 0.847, 46.5, 0.67, 0.542, 0.412, 1.82, 1.02, 0.911, 0.509, 0.963, 3.52, 1.24, 1.29, 0.678, 0.999, 4.4, 3.17, 0.891, 1.2, 0.495, 0.317, 0.338, 0.435, 0.867, 1.32, 0.341, 1.17, 0.803, 0.501, 3.69, 1.59, 3.88, 0.118, 0.216, 0.391, 0.295, 0.789, 1.24, 0.704, 0.597, 0.0877, 1.83, 1.11, 0.752, 0.118, 1.43, 4.21, 0.458, 0.593, 0.499, 1.06, 1.94, 0.557, 0.869, 1.25, 3.94, 0.0832, 0.847, 1.78, 0.183, 1.27, 0.1, 0.325, 0.105, 0.359, 0.979, 1.11, 1.54, 0.997, 18.1, 2.75, 2.91, 0.338, 1.43, 1.21, 7.33, 14.5, 9.28, 2.47, 0.363, 1.68, 1.16, 1.84, 1.69, 2.9, 0.442, 5.48, 1.72, 1.13, 3.31, 1.45, 0.322, 0.6, 0.416, 0.399, 0.945, 0.52, 0.474, 0.554, 0.244, 0.818, 5.66, 0.259, 0.0814, 0.897, 1.2, 0.4, 2.45, 0.157, 1.03, 0.693, 0.121, 0.404, 16.5, 0.5, 1.91, 3.78, 3.33, 28.5, 0.49, 0.316, 0.105, 0.522, 2.84, 0.134, 3.98, 1.22, 1.79, 0.577, 1.47, 1.74, 0.148, 3.35, 0.299	2.22
Encyonema_caespitosum	1, 10, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 11, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 44, 45, 48, 49, 5, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 8, 80, 81, 82, 83, 84, 85, 86, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	3.92, 0.0206, 0.0214, 0.102, 0.143, 0.527, 0.969, 1.15, 0.256, 0.0594, 0.813, 0.28, 0.559, 0.592, 0.492, 0.12, 3.54, 0.361, 0.84, 2.93, 0.851, 0.276, 0.118, 9.21, 1.44, 2.82, 10.9, 0.0652, 3.44, 1.73, 3.63, 0.126, 1.26, 0.624, 6.6, 2.46, 0.0815, 2.92, 3.09, 5.09, 10.5, 8.9, 1.31, 2.74, 7.96, 15.1, 2.83, 1.93, 4.65, 3.57, 0.751, 0.215, 0.28, 1.38, 2.54, 1.09, 4.27, 2.47, 0.659, 0.787, 0.498, 0.373, 2.95, 2.71, 2.46, 11.8, 1.74, 0.483, 0.0687, 0.97, 0.499, 0.538, 0.203, 9.06, 4.67, 1.54, 0.0649, 3.1, 4.38, 4.82, 5.53, 0.178, 0.66, 1.57, 3.89, 4.77, 0.52, 0.585, 2.66, 7.16, 0.0847, 1.41, 0.838, 0.14, 2.78, 0.267, 3.93, 1.39, 0.37, 0.232, 0.0889, 0.362, 0.891, 5.59, 0.896, 1.68, 2.21, 3.25, 0.952, 2.44, 1.66, 1.02, 0.858, 0.103, 0.24, 0.474, 0.205, 0.998, 1.8, 0.0257, 0.279, 0.122, 0.538, 2.83, 2.23, 4.36, 0.472, 0.277, 0.183, 0.405, 1.27, 0.0198, 0.146, 0.111, 0.827, 1.67, 4.4, 0.196, 0.398, 2.93, 1.45, 0.445, 2.42, 1.04, 1.4, 1.14, 1.49, 1.13, 0.0636, 0.0609, 1.28	1.95

Taxons	Echantillons	Abondance relative (%)	%
Cocconeis_pediculus	1, 10, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 11, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 139, 14, 141, 141b, 142, 143, 144, 144b, 146, 147, 148, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 28, 29, 3, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 43, 45, 46, 47, 48, 49, 5, 50, 51, 52, 53, 54, 55, 56, 57, 58, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 83, 84, 85, 86, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	0.634, 15.8, 0.0214, 0.142, 0.0613, 0.162, 0.194, 2.63, 0.847, 0.0594, 1.35, 0.421, 1.26, 0.449, 0.041, 1.44, 0.0614, 0.0601, 0.021, 2.15, 0.588, 1.59, 0.412, 0.138, 0.261, 0.176, 0.0409, 6.99, 0.122, 0.123, 0.042, 5.15, 1.73, 5.57, 1.22, 1.45, 5.27, 1.21, 0.559, 12, 0.198, 0.0596, 0.0403, 6.95, 0.127, 0.0401, 0.0401, 0.167, 0.172, 0.22, 0.0197, 0.206, 0.197, 17.7, 0.29, 0.279, 0.241, 6.86, 0.259, 0.244, 0.079, 14.7, 0.463, 0.252, 0.135, 0.21, 0.641, 3.04, 0.268, 0.424, 0.649, 0.0416, 0.103, 0.738, 5.28, 2.89, 0.12, 0.448, 0.0263, 0.865, 4.88, 3.05, 0.266, 0.59, 0.593, 0.604, 2.1, 1.17, 11.8, 2.51, 1.13, 1.38, 5.48, 0.555, 0.0218, 0.401, 0.326, 19.1, 0.324, 4.69, 0.502, 3.15, 9.39, 0.435, 0.515, 0.38, 0.27, 0.399, 0.164, 0.58, 0.691, 0.0205, 0.591, 0.14, 0.103, 0.339, 0.0407, 0.638, 0.501, 9.04, 0.689, 0.449, 0.396, 0.0204, 0.0202, 0.0224, 0.736, 0.42, 0.0588, 0.402, 0.208, 0.0223, 0.519, 13.1, 1.88, 14.6, 7.42, 0.164, 0.106, 1.26, 1.1	1.75
Staurosira_sp.	1, 10, 102, 105, 107, 109, 11, 114, 115, 116, 117, 118, 12, 120, 121, 122, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 33, 34, 35, 36, 37, 38, 39, 4, 41, 42, 43, 44, 45, 46, 48, 49, 5, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 65, 67, 68, 69, 7, 73, 74, 75, 76, 77, 78, 8, 80, 81, 82, 83, 84, 85, 86, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	1.62, 0.227, 0.0409, 0.0198, 0.0792, 0.02, 2.95, 0.0401, 0.021, 0.0201, 0.0203, 0.0591, 0.592, 0.181, 0.0392, 0.102, 0.0594, 0.0407, 0.041, 0.021, 0.1, 0.101, 2.71, 0.18, 0.0611, 0.919, 0.119, 0.12, 0.0396, 0.159, 0.318, 1.07, 2.44, 1.78, 2.97, 17.6, 2.59, 0.621, 0.188, 0.043, 0.419, 0.295, 0.885, 1.38, 0.551, 5.9, 0.559, 21.1, 0.239, 0.197, 0.181, 2.28, 3.76, 0.829, 3.69, 0.161, 0.115, 1.7, 4.07, 2.98, 1.51, 9.51, 5.78, 6.38, 1.86, 0.603, 0.847, 0.738, 0.345, 0.1, 0.102, 0.315, 0.464, 11.1, 7.73, 0.082, 0.346, 0.157, 5.85, 0.139, 12.6, 3.12, 0.0649, 0.144, 1.63, 0.448, 14.8, 2.02, 0.0296, 3.36, 0.911, 0.322, 0.109, 0.603, 1.11, 0.164, 1.28, 0.0429, 0.04, 0.0416, 0.0599, 0.02, 0.0205, 0.0204, 0.519, 5.22, 0.16, 0.0211, 0.0405, 0.0449, 0.138, 0.0204, 0.242, 6.86, 3.08, 24.6, 0.447, 4.22, 0.46, 0.255, 0.021, 0.522, 0.0693, 0.0223, 0.34, 1.2, 4.21, 0.0199, 0.105, 0.0615, 0.0424, 0.0203, 0.0199	1.56

Taxons	Echantillons	Abondance relative (%)	%
Encyonema_minutum	1, 10, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 33, 34, 36, 37, 38, 39, 4, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 5, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 8, 80, 82, 83, 84, 85, 86, 88, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	0.47, 1.26, 0.364, 0.122, 0.45, 0.812, 0.581, 0.632, 0.591, 0.119, 0.222, 0.1, 0.367, 1.27, 0.779, 18.3, 3.87, 1.7, 1.63, 0.223, 2.17, 0.491, 0.0197, 3.13, 3.67, 2.19, 9.76, 2.65, 6.09, 1.11, 0.294, 2.1, 2.66, 0.0206, 1.28, 8.76, 1.94, 0.693, 0.539, 1.31, 2.24, 3.08, 1.39, 0.0403, 0.1, 0.12, 0.0212, 0.201, 0.561, 1.23, 5.59, 0.859, 0.0197, 0.177, 0.0412, 0.118, 0.0415, 0.2, 0.0207, 0.0398, 0.0602, 0.129, 0.0203, 0.0592, 0.112, 0.0402, 0.687, 0.0269, 0.0262, 0.476, 11.4, 0.121, 0.0623, 0.0649, 0.27, 0.267, 0.061, 33.3, 0.16, 0.244, 0.0211, 0.08, 0.293, 0.779, 0.0407, 2.2, 1.32, 0.105, 0.0199, 0.14, 0.149, 6.57, 1.16, 0.0617, 0.146, 0.32, 0.0435, 0.422, 3.02, 0.523, 0.0607, 0.121, 0.371, 1.01, 0.281, 0.945, 3.5, 0.193, 0.32, 0.353, 0.14, 0.164, 0.82, 0.178, 0.349, 0.265, 1.6, 10.7, 0.18, 1.1, 0.239, 0.802, 0.19, 0.223, 0.0449, 0.0989, 0.0815, 0.303, 0.141, 0.0594, 0.0222, 0.0447, 0.368, 0.04, 0.176, 1.6, 0.0838, 0.0602, 0.162, 0.0223, 0.16, 0.0983, 0.302, 0.139, 0.984, 0.451, 10.9, 0.142, 0.219	1.33
Staurosira_construens	1, 10, 105, 106, 107, 108, 11, 111, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 128, 129, 13, 130, 131, 132, 134, 135, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 4, 41, 42, 43, 44, 45, 46, 47, 48, 49, 5, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 65, 68, 69, 7, 72, 73, 75, 76, 77, 78, 79, 8, 80, 81, 82, 83, 84, 85, 86, 9, 90, 91, 92, 93, 93b, 95, 96	2.49, 0.391, 0.0198, 0.0197, 0.0396, 0.246, 4.99, 0.0205, 0.256, 0.0589, 0.73, 0.0803, 0.255, 0.102, 0.0217, 0.0594, 0.0814, 0.102, 0.0801, 0.141, 5.82, 0.3, 0.0204, 0.368, 0.18, 0.0396, 1.29, 4.31, 7.18, 2.54, 3.09, 8.97, 3.33, 0.762, 0.438, 0.323, 0.639, 0.236, 1.77, 3.13, 0.926, 4.22, 0.499, 16.1, 0.279, 0.417, 0.201, 3.96, 5.71, 3.49, 2.52, 0.362, 0.0917, 1.51, 2.57, 2.67, 1.13, 3.75, 4.97, 2.6, 1.13, 0.499, 3.04, 1.72, 0.305, 0.0254, 0.04, 0.0814, 0.0525, 2.13, 14.5, 5.31, 0.123, 0.346, 0.291, 3.02, 0.119, 2.36, 2.8, 0.13, 0.0593, 0.185, 0.795, 0.278, 3.24, 1.52, 0.0296, 3.32, 0.425, 0.121, 0.0218, 0.447, 0.643, 0.288, 0.331, 0.0214, 0.02, 0.0416, 0.0599, 0.02, 0.0407, 0.519, 0.0772, 0.0199, 0.1, 0.0203, 0.0449, 0.0791, 0.0408, 0.0405, 0.323, 4.38, 1.35, 13.4, 0.537, 2.45, 0.14, 0.157, 0.984, 0.0462, 0.0445, 0.12, 0.315, 1.36, 0.0628, 0.041	1.22

Taxons	Echantillons	Abondance relative (%)	%
Encyonopsis_sp.	1, 10, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 113, 115, 116, 117, 118, 119, 12, 120, 121, 122, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 23, 24, 25, 26, 27, 29, 3, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 43, 45, 48, 49, 5, 50, 51, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 68, 69, 70, 72, 73, 74, 75, 76, 77, 78, 79, 8, 80, 81, 84, 85, 86, 88, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	19.7, 0.0412, 0.0642, 0.977, 0.204, 0.264, 0.172, 0.277, 0.0984, 1.35, 10.1, 0.14, 0.102, 0.0205, 0.102, 0.21, 0.421, 0.304, 1.48, 0.511, 1.01, 0.622, 0.431, 0.164, 0.178, 1.53, 0.738, 0.0629, 0.1, 2.11, 2.12, 0.0999, 0.0815, 0.245, 2.75, 0.639, 0.436, 0.872, 0.696, 1.85, 0.927, 0.3, 2.11, 0.0636, 4.15, 3.37, 0.0626, 0.0215, 1.62, 0.886, 1.38, 2.2, 1.54, 2.87, 0.0399, 0.104, 7.62, 11.2, 0.1, 0.0517, 0.061, 1.01, 0.626, 6.32, 0.367, 0.916, 0.0207, 0.0901, 0.371, 0.343, 0.166, 5.7, 3.6, 0.821, 0.061, 0.152, 0.2, 2.38, 0.368, 0.591, 0.02, 5.1, 0.246, 5.43, 0.0282, 0.514, 0.0419, 0.0199, 2.74, 0.0617, 2.51, 0.448, 2.61, 0.19, 0.0402, 0.223, 0.402, 0.83, 4.36, 0.0804, 0.247, 0.559, 0.622, 0.74, 0.125, 0.698, 0.0617, 0.841, 0.553, 0.224, 0.718, 3.25, 1.61, 1, 0.105, 4.76, 0.0898, 2.16, 0.0204, 0.0607, 0.0605, 0.178, 1.21, 0.173, 0.781, 0.0196, 0.0211, 0.0419, 1.69, 5.03, 0.0445, 6.45, 1.04, 1.3, 0.617, 1.82, 2.89, 0.0212, 0.244, 0.239	1.2
Achnanthidium_pyrenaicum	111, 113, 114, 115, 122, 123, 124, 131, 150, 19, 20, 21, 22, 23, 27, 32, 33, 34, 46, 5, 68, 69, 7, 70, 71, 72, 74, 76, 86, 88, 89, 94, 96, 97	0.0205, 0.246, 0.1, 0.063, 0.0205, 13.7, 0.0792, 0.0204, 0.0207, 0.0447, 51.4, 0.0539, 0.0262, 0.0207, 0.0208, 5.25, 0.04, 0.0407, 0.0865, 0.0854, 0.0204, 0.0399, 27.8, 3.29, 52.4, 0.0598, 0.0421, 0.0449, 0.0784, 0.484, 0.0629, 0.0199, 0.123, 23.6	1.16
Encyonopsis_minuta	1, 100, 101, 102, 103, 105, 106, 107, 109, 11, 110, 112, 115, 116, 117, 118, 12, 120, 121, 122, 124, 125, 126, 127, 128, 129, 13, 130, 131, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 150, 151, 152, 153, 16, 17, 18, 2, 21, 25, 26, 27, 29, 3, 30, 31, 32, 33, 34, 35, 36, 38, 39, 4, 5, 55, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 72, 73, 75, 77, 78, 8, 9, 90, 92, 93, 93b, 94, 95, 96, 99	10.7, 0.128, 1.06, 0.0409, 0.142, 0.356, 0.0197, 0.0198, 0.0601, 0.02, 0.0612, 0.02, 0.063, 0.12, 0.182, 0.0788, 0.0592, 0.622, 3.76, 0.164, 0.0594, 1.57, 0.492, 0.021, 0.02, 0.362, 3.15, 0.06, 0.0204, 10.3, 2.89, 0.218, 0.0793, 0.616, 4.87, 1.89, 0.2, 3.35, 0.0212, 10.1, 3.25, 0.0626, 0.043, 0.539, 1.28, 2.06, 1.67, 2.99, 7.6, 0.331, 2.85, 17.4, 0.0201, 0.0259, 0.0813, 7.52, 9.5, 0.458, 0.103, 0.0404, 0.0623, 5.45, 0.889, 0.185, 0.0203, 0.0507, 0.26, 3.58, 0.42, 0.274, 0.23, 0.041, 0.55, 0.0213, 0.0603, 0.0411, 0.0207, 0.686, 1.1, 0.291, 5.03, 0.0206, 0.58, 2.86, 0.0411, 0.265, 0.598, 9.44, 0.498, 1.1, 0.0203, 0.91, 0.0204, 0.0404, 1.33, 1.66, 10.5, 0.197, 0.0216, 0.378, 0.314, 1.52, 0.16	1.08

Taxons	Echantillons	Abondance relative (%)	%
Denticula_tenuis	1, 10, 100, 101, 102, 104, 108, 111, 113, 114, 115, 116, 117, 118, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 152, 153, 17, 19, 20, 21, 23, 24, 25, 26, 27, 28, 3, 30, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 43, 45, 46, 48, 49, 5, 52, 53, 59, 6, 62, 65, 66, 68, 69, 7, 71, 72, 73, 74, 75, 79, 81, 9, 90, 92, 99	0.0705, 0.0206, 0.0428, 0.0407, 0.0409, 0.043, 0.0246, 0.205, 0.143, 0.0601, 0.042, 0.1, 0.304, 0.0197, 6.74, 0.0205, 0.13, 0.0594, 0.488, 0.0615, 0.0839, 0.02, 0.0604, 0.02, 0.0815, 0.245, 16.7, 3.61, 5.67, 0.139, 13.2, 1.74, 4.54, 0.02, 0.0401, 0.12, 0.341, 0.834, 2.45, 0.16, 42.3, 7.2, 0.37, 0.394, 0.104, 8.73, 0.0401, 0.0203, 0.0447, 1.54, 0.0269, 0.0414, 8.81, 0.0413, 0.0404, 0.0208, 0.151, 0.0413, 0.0615, 6.42, 0.18, 0.305, 0.236, 0.148, 0.02, 0.0209, 0.041, 0.339, 0.313, 0.0398, 0.0212, 0.0649, 0.0206, 0.0209, 0.149, 0.0889, 0.0201, 0.0205, 0.787, 0.0416, 0.22, 0.0592, 0.0407, 0.219, 3.86, 0.0204, 0.0996, 0.0201, 0.0632, 0.081, 0.0202, 0.0416, 0.622, 0.0231, 0.02, 0.0199	0.925
Gomphonema_sp.	1, 10, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 11, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 5, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 8, 81, 82, 83, 84, 85, 86, 88, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 98, 99	0.493, 17.2, 0.706, 0.285, 0.245, 0.0203, 0.0861, 0.277, 0.0984, 0.712, 0.345, 0.28, 0.0399, 1.2, 0.492, 0.04, 0.164, 0.12, 0.084, 0.201, 0.182, 0.315, 0.491, 0.0197, 0.161, 0.0588, 0.736, 0.0217, 0.099, 0.244, 0.328, 0.546, 0.461, 1.09, 0.411, 0.32, 0.815, 1.8, 0.099, 0.14, 0.0793, 0.0595, 0.855, 1.85, 0.625, 0.681, 1.7, 0.509, 0.742, 0.16, 0.563, 0.925, 2.56, 0.0788, 0.0983, 1.17, 0.394, 1.39, 3.35, 0.29, 1.13, 0.548, 2.57, 1.22, 0.508, 0.0987, 0.134, 1.09, 0.367, 0.916, 0.446, 0.765, 7.35, 2.74, 0.444, 0.166, 2.62, 0.229, 1.12, 0.985, 0.366, 2.11, 0.1, 0.224, 1.55, 0.295, 0.26, 1.32, 0.328, 0.407, 0.339, 0.537, 1.22, 5.93, 0.112, 1.36, 1.99, 4.12, 1.28, 0.397, 0.128, 0.239, 1.08, 0.978, 0.302, 2.37, 0.0402, 0.153, 1.45, 3.24, 0.267, 0.331, 0.129, 0.04, 0.249, 0.239, 0.76, 0.32, 0.257, 0.205, 0.244, 0.758, 0.386, 2.71, 5.38, 0.139, 0.14, 0.316, 0.0405, 0.651, 0.376, 0.754, 1.62, 0.182, 5.1, 0.178, 0.447, 0.433, 0.18, 0.0392, 1.31, 0.126, 0.381, 0.369, 0.0445, 1.04, 0.157, 0.281, 0.0796, 0.0838, 0.635, 0.284, 0.0199	0.883

Taxons	Echantillons	Abondance relative (%)	%
Navicula_antonii	1, 10, 103, 105, 106, 108, 11, 111, 112, 113, 114, 115, 116, 119, 12, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 5, 50, 51, 52, 53, 54, 55, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 67, 68, 69, 7, 71, 72, 73, 74, 76, 78, 8, 80, 81, 82, 83, 84, 85, 86, 88, 89, 9, 90, 92, 93, 93b, 94, 95, 96, 98	0.54, 0.288, 0.0203, 0.0395, 0.0197, 0.0739, 0.798, 0.0615, 0.02, 0.328, 0.0802, 0.021, 0.0401, 0.0196, 0.276, 0.0588, 0.327, 0.0435, 0.099, 0.0204, 0.102, 0.315, 0.14, 0.423, 0.617, 0.32, 1.04, 2.1, 0.0594, 0.379, 0.238, 0.0994, 1.54, 0.323, 2.28, 0.822, 0.212, 0.0803, 0.12, 0.751, 0.989, 0.4, 0.138, 0.236, 2.8, 0.197, 0.831, 1.36, 0.539, 0.0199, 0.0439, 0.923, 4.52, 0.773, 0.375, 0.737, 0.141, 0.367, 1.32, 1.08, 4.49, 1.78, 1.01, 2.32, 1.54, 3.35, 0.895, 0.93, 3.08, 0.223, 1.88, 0.06, 0.285, 0.0263, 0.274, 1.04, 0.753, 0.43, 2.32, 6.69, 3.53, 0.356, 0.0995, 11.2, 1.15, 1.9, 3.17, 1.56, 3.53, 0.0854, 3.2, 0.59, 1.99, 4.12, 10.3, 0.0603, 0.38, 0.281, 0.801, 0.373, 0.0643, 0.04, 0.187, 0.14, 0.452, 0.02, 0.0411, 0.0204, 0.16, 0.874, 0.0407, 0.418, 0.321, 0.358, 0.0449, 0.0204, 0.242, 0.238, 0.146, 3.73, 1.12, 3.59, 0.58, 0.353, 0.0632, 0.021, 0.361, 0.115, 0.0999, 0.0983, 0.432, 0.0199, 0.0628, 0.123, 0.0203	0.836
Gomphonema_elegantissimum	1, 10, 105, 107, 108, 113, 114, 119, 124, 13, 131, 132, 136, 14, 141, 143, 144, 15, 150, 153, 16, 18, 19, 23, 24, 25, 26, 27, 28, 30, 32, 37, 39, 4, 40, 41, 42, 43, 44, 45, 46, 47, 48, 5, 51, 52, 53, 54, 56, 57, 58, 59, 6, 64, 69, 7, 70, 71, 72, 73, 74, 75, 77, 78, 8, 81, 82, 83, 84, 85, 86, 88, 93, 93b, 96, 97, 98, 99	0.564, 42.7, 0.0198, 0.119, 0.295, 0.0205, 0.0401, 0.0393, 0.0198, 0.0206, 0.0408, 0.0204, 0.0198, 0.04, 0.0212, 0.605, 1.76, 5.67, 0.0207, 2.09, 0.207, 0.0197, 0.268, 0.662, 10.1, 0.0206, 0.0202, 0.0831, 4.76, 0.103, 0.786, 0.14, 0.0615, 0.0407, 0.0565, 0.0447, 1.07, 18.9, 0.0841, 0.425, 2.08, 6.52, 1.46, 0.0213, 0.0211, 0.0889, 0.0603, 0.0405, 0.0655, 4.04, 0.0402, 0.0822, 0.124, 0.843, 0.12, 0.231, 0.299, 0.122, 0.0598, 0.0201, 0.105, 0.0405, 0.297, 0.143, 0.0202, 0.437, 0.4, 0.403, 0.455, 0.04, 0.0196, 0.105, 0.0393, 0.367, 0.0205, 0.0212, 0.0203, 0.0199	0.718
Staurosira_brevistriata	1, 10, 102, 104, 105, 106, 107, 108, 11, 117, 118, 119, 12, 120, 121, 122, 124, 125, 126, 127, 128, 129, 13, 130, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 43, 44, 45, 48, 49, 5, 50, 51, 53, 54, 55, 56, 57, 58, 59, 6, 61, 62, 63, 64, 69, 72, 73, 76, 77, 78, 8, 80, 81, 82, 83, 84, 85, 86, 9, 90, 91, 92, 93, 93b, 95, 96	2.66, 0.247, 0.0613, 0.043, 0.0198, 0.0197, 0.0198, 0.222, 2, 0.0203, 0.256, 0.137, 0.434, 0.381, 0.51, 0.777, 0.099, 0.407, 0.266, 0.042, 0.16, 0.584, 2.41, 0.06, 0.245, 0.198, 0.459, 0.297, 0.198, 1.59, 3.85, 3.33, 1.34, 3.45, 3.05, 0.963, 0.421, 0.167, 0.108, 0.659, 0.492, 0.885, 2.88, 0.414, 3.3, 0.739, 5.76, 0.438, 0.132, 0.281, 1.71, 3.7, 1.03, 1.74, 0.282, 0.889, 1.31, 1.06, 0.406, 3.42, 3.25, 1.74, 0.671, 0.52, 1.51, 1.11, 0.345, 0.1, 0.305, 1.29, 1.52, 6.5, 2.05, 0.164, 0.285, 0.0282, 0.224, 1.11, 0.0398, 1.01, 0.489, 0.0823, 0.523, 0.171, 1.44, 0.337, 1.15, 0.263, 0.0603, 0.0655, 0.268, 0.462, 0.39, 0.124, 0.04, 0.0208, 0.0399, 0.0206, 0.259, 0.0199, 0.281, 0.0225, 0.0198, 0.0204, 0.242, 0.713, 0.375, 2.38, 0.179, 0.715, 0.06, 0.137, 1.12, 0.0231, 0.0223, 0.14, 0.197, 1.01, 0.168, 0.0819	0.651

Taxons	Echantillons	Abondance relative (%)	%
Sellaphora_pupula	1, 10, 101, 102, 103, 104, 105, 107, 108, 11, 118, 12, 120, 121, 122, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 153, 16, 17, 18, 19, 2, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 44, 45, 48, 49, 5, 50, 51, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 63, 64, 65, 66, 67, 68, 69, 7, 72, 73, 75, 79, 8, 80, 81, 82, 83, 84, 85, 86, 9, 92, 93, 93b, 94, 95, 96, 98, 99	1.9, 0.0618, 0.0204, 0.0409, 0.0406, 0.0215, 0.138, 0.0198, 0.0739, 0.539, 0.0394, 0.276, 0.361, 0.118, 0.102, 0.0198, 0.0611, 0.205, 0.042, 0.0401, 0.563, 2.32, 0.0999, 0.0204, 0.143, 0.139, 0.16, 0.139, 0.139, 0.716, 1.17, 6.65, 0.821, 2.75, 2.4, 1.32, 0.661, 0.104, 0.172, 0.519, 0.256, 0.472, 3.05, 0.158, 1.31, 0.559, 2.94, 0.0398, 0.542, 0.543, 1.55, 3.61, 4.54, 0.0604, 1.35, 1.63, 1.34, 0.203, 2.31, 2.04, 1.91, 0.151, 0.874, 2.71, 0.656, 0.163, 0.366, 0.21, 0.274, 1.08, 1.57, 0.164, 0.366, 0.0282, 0.224, 0.23, 5.5, 0.85, 0.103, 1.63, 0.192, 2.72, 0.422, 0.483, 0.547, 0.0603, 0.0437, 0.201, 0.683, 0.452, 0.0207, 0.0214, 0.04, 0.0399, 0.0411, 0.1, 0.118, 0.0411, 0.102, 1.24, 0.0514, 0.0598, 0.0602, 0.0203, 0.0202, 0.0404, 0.416, 0.167, 1.89, 0.313, 2.97, 0.16, 0.0392, 0.361, 0.12, 0.334, 0.13, 0.0597, 0.314, 0.0615, 0.0203, 0.0598	0.567
Nitzschia_paleacea	1, 10, 100, 101, 102, 103, 104, 105, 106, 107, 108, 11, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 12, 123, 124, 128, 13, 131, 132, 133, 134, 135, 136, 137, 14, 140, 141b, 142, 143, 144, 144b, 146, 147, 148, 149, 15, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 43, 44, 45, 47, 48, 49, 5, 50, 51, 52, 53, 54, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 8, 80, 81, 82, 83, 84, 85, 86, 9, 90, 91, 92, 93b, 94, 95, 96, 98, 99	0.634, 1.83, 0.214, 0.0204, 0.102, 0.142, 0.043, 0.0395, 0.0984, 0.693, 0.172, 0.0998, 0.143, 0.103, 0.0799, 0.368, 0.301, 0.105, 0.0201, 0.0405, 0.217, 0.0196, 0.177, 0.0217, 0.0198, 0.0401, 0.0617, 0.0815, 0.0204, 0.0594, 0.0799, 0.0396, 0.476, 0.0994, 0.681, 0.0201, 0.0602, 0.0401, 0.313, 0.108, 0.02, 0.0787, 0.144, 0.571, 0.498, 12.4, 0.0597, 0.154, 2.35, 0.569, 0.163, 0.138, 0.335, 0.0201, 0.596, 1.62, 0.315, 0.31, 0.383, 0.124, 1.76, 0.312, 0.13, 0.0208, 0.413, 0.779, 0.0406, 0.254, 0.18, 0.224, 0.0525, 0.464, 6.94, 0.125, 0.143, 0.57, 0.254, 0.201, 0.796, 20.1, 0.168, 0.0637, 0.267, 0.206, 0.251, 0.833, 0.0218, 0.443, 0.652, 0.422, 0.162, 0.218, 7.91, 0.422, 0.637, 1.14, 0.0214, 0.18, 0.27, 0.02, 0.493, 0.02, 0.0592, 0.637, 0.0407, 0.239, 0.279, 0.143, 0.279, 0.0802, 0.674, 0.081, 0.359, 0.316, 0.326, 0.0607, 0.525, 0.178, 0.354, 0.111, 0.403, 0.39, 0.1, 0.0588, 0.642, 0.0231, 0.0223, 0.04, 0.108, 0.0597, 0.0628, 0.246, 0.122, 0.0399	0.544

Taxons	Echantillons	Abondance relative (%)	%
Navicula_tripunctata	1, 10, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 11, 110, 112, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 36, 38, 39, 4, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 5, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 70, 72, 73, 74, 75, 76, 77, 78, 80, 81, 82, 83, 84, 85, 86, 88, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	0.0705, 0.433, 0.128, 0.285, 1.06, 0.0812, 0.603, 0.138, 0.138, 0.119, 2.88, 0.16, 0.02, 0.102, 0.02, 0.409, 0.0401, 0.126, 0.662, 0.101, 0.473, 0.137, 0.0592, 0.181, 0.176, 1, 2.3, 0.832, 0.224, 0.533, 5.04, 1.2, 0.141, 0.0617, 0.28, 0.856, 0.736, 0.178, 0.16, 0.159, 0.0991, 0.219, 0.0218, 0.141, 0.441, 0.0802, 0.233, 0.281, 0.14, 0.563, 1.35, 0.12, 0.0393, 0.0206, 0.0197, 0.208, 0.0998, 0.0622, 0.239, 0.0219, 0.12, 0.0259, 0.122, 0.0987, 0.67, 0.302, 0.848, 0.0269, 0.0525, 0.0207, 2.39, 0.186, 0.121, 0.0831, 0.0216, 0.0208, 0.062, 0.185, 0.0406, 1.19, 0.0844, 0.627, 0.348, 0.142, 2.46, 0.648, 3.16, 0.0796, 0.0561, 0.0637, 2.01, 0.859, 0.144, 0.125, 0.171, 0.479, 0.0632, 0.178, 0.181, 0.243, 0.0805, 1.68, 1.54, 0.442, 0.123, 0.269, 0.129, 0.18, 0.145, 0.12, 0.103, 0.08, 0.178, 0.0821, 0.102, 0.18, 3.73, 0.14, 0.179, 0.181, 0.0843, 0.831, 0.0225, 0.178, 0.0408, 0.376, 0.187, 0.0444, 0.0224, 0.845, 1.7, 0.0196, 0.253, 0.021, 0.281, 1.15, 0.0223, 0.46, 0.118, 0.648, 0.319, 0.335, 1.56, 0.148, 1.24, 0.199	0.427
Amphora_ovalis	1, 10, 101, 102, 104, 105, 107, 108, 109, 11, 111, 112, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 5, 50, 51, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 72, 73, 75, 76, 77, 78, 8, 80, 81, 82, 83, 84, 85, 9, 90, 92, 93, 93b, 94, 95, 96, 98, 99	1.27, 0.103, 0.0814, 0.184, 0.129, 0.0395, 0.0198, 0.886, 0.0801, 0.0399, 0.0615, 0.04, 0.287, 0.1, 0.126, 0.161, 0.0203, 0.0197, 0.0785, 0.0592, 0.0602, 0.0784, 0.327, 0.0217, 0.198, 0.0814, 0.246, 0.504, 0.2, 0.644, 0.185, 0.12, 0.795, 1.12, 0.535, 0.779, 0.535, 0.357, 0.219, 0.261, 0.343, 0.12, 0.181, 0.0636, 0.12, 0.361, 7.34, 3.23, 0.22, 0.295, 0.157, 0.226, 0.27, 0.0998, 0.539, 0.119, 0.154, 0.0401, 0.233, 0.366, 0.237, 1.01, 0.0604, 0.137, 0.512, 0.341, 0.6, 5.52, 1.03, 0.404, 0.623, 0.195, 0.0208, 0.269, 0.533, 0.0406, 0.06, 0.366, 0.368, 0.253, 0.76, 3.34, 0.0615, 0.224, 1.95, 1.03, 0.335, 0.0398, 0.449, 0.574, 3.59, 0.652, 0.185, 0.46, 0.107, 0.457, 0.0843, 0.382, 0.324, 0.0402, 0.0437, 0.335, 0.0804, 0.0616, 0.414, 0.0643, 0.1, 0.0624, 0.12, 0.103, 0.22, 0.0395, 0.0411, 0.0204, 0.259, 0.592, 0.0797, 0.321, 0.223, 0.0225, 0.0198, 0.0408, 0.0605, 0.0198, 0.396, 0.156, 0.0671, 0.628, 0.0801, 0.301, 0.115, 0.26, 0.315, 2.38, 0.0796, 0.377, 0.0205, 0.0812, 0.0798	0.399

Taxons	Echantillons	Abondance relative (%)	%
Staurosira_martyi	1, 10, 108, 11, 115, 117, 118, 12, 121, 13, 132, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 34, 36, 37, 38, 4, 40, 41, 42, 43, 44, 45, 48, 49, 5, 50, 51, 53, 54, 56, 57, 58, 59, 6, 63, 69, 8, 80, 81, 82, 83, 84, 85, 86, 9, 90, 93, 93b, 95	0.846, 0.0412, 0.0246, 1.1, 0.021, 0.0203, 0.0394, 0.296, 0.0392, 1.77, 0.0204, 0.0198, 0.159, 0.653, 3.12, 1, 0.642, 4.09, 0.823, 0.281, 0.229, 0.043, 0.2, 0.0197, 0.256, 0.617, 0.236, 2.49, 0.02, 5.68, 0.119, 0.0219, 0.0401, 0.879, 4.13, 0.474, 0.782, 0.181, 0.0229, 0.512, 0.472, 0.89, 0.203, 2.97, 1.52, 1.29, 0.303, 0.229, 1.55, 0.328, 0.0407, 0.106, 4.1, 1.25, 0.204, 0.0282, 0.0224, 1.36, 0.0199, 0.785, 0.722, 0.0617, 0.439, 0.064, 2.11, 0.696, 1.23, 0.162, 0.0437, 0.0447, 0.221, 0.0411, 0.0414, 0.02, 0.0199, 0.0404, 1.21, 0.541, 1.93, 0.0671, 0.411, 0.04, 0.0392, 0.402, 0.0231, 0.0787, 0.324, 0.0838	0.392
Cocconeis_placentula	1, 10, 101, 102, 104, 108, 11, 113, 114, 12, 122, 124, 126, 127, 128, 129, 13, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 146, 147, 149, 15, 150, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 32, 33, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 5, 50, 51, 52, 53, 54, 55, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 70, 72, 73, 75, 77, 78, 79, 81, 82, 83, 84, 85, 88, 9, 90, 92, 93, 93b, 94, 95, 96, 98	0.0705, 1.5, 0.0204, 0.0204, 0.0215, 0.0246, 0.659, 0.0614, 0.02, 0.0592, 0.0614, 0.0198, 0.0205, 0.0839, 0.02, 0.241, 1.3, 0.0611, 0.409, 4.1, 2.62, 2.44, 0.833, 0.0795, 0.74, 0.302, 0.18, 0.0401, 0.148, 0.0201, 0.12, 0.667, 0.086, 0.579, 0.0197, 0.226, 0.0623, 0.0998, 0.104, 0.0439, 0.0602, 0.0776, 0.285, 0.079, 1.18, 0.161, 0.0458, 0.0539, 0.157, 1.01, 0.0225, 0.0413, 0.0404, 0.914, 0.151, 0.208, 0.248, 0.123, 0.406, 0.02, 0.0407, 0.0525, 0.0422, 0.8, 2.15, 0.041, 0.0611, 0.395, 1.03, 0.251, 0.0398, 0.0561, 7.54, 1.23, 0.652, 0.802, 1.51, 0.0213, 0.327, 1.45, 0.681, 2.49, 6.94, 0.0603, 0.358, 0.181, 0.0411, 0.0858, 0.06, 0.0831, 0.02, 0.0411, 0.08, 0.0197, 0.0411, 0.0204, 0.0399, 0.283, 0.0399, 0.0199, 0.181, 0.122, 0.0593, 0.0408, 0.0202, 1.1, 0.0444, 0.38, 0.346, 0.1, 0.0421, 0.0803, 0.0231, 0.16, 0.472, 0.281, 0.0597, 0.482, 0.102, 0.183	0.373
Nitzschia_palea	1, 10, 102, 106, 113, 114, 115, 116, 118, 12, 122, 123, 124, 127, 128, 129, 13, 130, 131, 132, 133, 134, 136, 137, 138, 139, 140, 141, 141b, 142, 143, 144, 146, 147, 148, 149, 15, 150, 153, 16, 17, 19, 2, 20, 22, 23, 24, 25, 26, 27, 28, 3, 30, 32, 33, 34, 35, 37, 38, 39, 4, 40, 41, 42, 43, 44, 45, 47, 48, 49, 5, 51, 52, 53, 54, 57, 58, 59, 6, 61, 64, 68, 69, 7, 73, 74, 76, 77, 79, 8, 80, 81, 82, 83, 84, 85, 86, 88, 89, 9, 90, 91, 92, 93b, 96, 98	0.54, 0.0206, 0.0409, 0.0197, 0.348, 0.02, 0.021, 0.0401, 0.0984, 0.0197, 0.0205, 0.0217, 0.0198, 0.042, 0.0401, 0.0201, 0.0206, 0.22, 0.204, 0.96, 0.0396, 0.0799, 0.0198, 0.0199, 0.0435, 0.0202, 0.0201, 0.0636, 0.0201, 0.802, 4.65, 2.77, 0.0197, 0.0206, 0.197, 0.436, 0.399, 0.0622, 0.321, 0.0517, 0.0203, 0.0223, 0.121, 0.458, 0.131, 0.352, 0.225, 0.0619, 0.141, 0.0208, 0.238, 0.0827, 0.0821, 0.457, 0.02, 0.0203, 0.0263, 0.04, 0.0209, 0.0205, 0.244, 1.02, 0.268, 0.0419, 28.9, 0.365, 0.319, 0.207, 0.658, 0.167, 0.064, 0.0422, 0.563, 0.101, 0.0202, 0.0894, 0.0201, 0.0411, 0.393, 0.02, 0.863, 0.0204, 0.0199, 0.103, 0.0201, 0.147, 0.0225, 0.0593, 0.0607, 0.303, 0.337, 0.0624, 4.31, 0.224, 0.0217, 0.04, 0.0392, 0.0421, 0.0629, 0.1, 0.0462, 0.111, 0.2, 0.713, 0.0615, 0.0406	0.367

Taxons	Echantillons	Abondance relative (%)	%
Encyonema_prostratum	1, 100, 101, 102, 104, 105, 107, 108, 113, 115, 116, 118, 12, 120, 121, 122, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 150, 151, 16, 17, 18, 19, 2, 21, 22, 23, 25, 26, 27, 28, 29, 3, 30, 31, 32, 34, 35, 36, 37, 38, 39, 4, 40, 41, 42, 44, 45, 46, 48, 49, 50, 51, 53, 54, 55, 56, 57, 58, 59, 6, 61, 62, 65, 66, 68, 69, 70, 74, 75, 77, 79, 80, 81, 84, 85, 9, 90, 92, 93, 93b, 94, 95, 96, 98, 99	1.53, 0.0428, 0.224, 0.245, 0.0646, 0.079, 0.0198, 0.271, 0.0205, 0.021, 0.14, 0.0394, 0.927, 0.261, 0.0588, 0.511, 0.0594, 0.122, 0.143, 0.0839, 0.0401, 0.0604, 0.267, 0.02, 0.0204, 0.204, 0.099, 0.0599, 0.0991, 0.0793, 0.119, 2.18, 0.645, 0.481, 3.13, 0.191, 0.823, 0.561, 0.48, 0.0645, 0.22, 0.118, 0.0983, 0.0412, 0.0788, 0.415, 0.166, 0.239, 0.0517, 0.407, 0.474, 0.827, 0.161, 0.135, 0.0525, 0.0621, 10.2, 2.04, 0.0415, 0.0216, 0.541, 0.269, 1.11, 0.122, 0.0507, 0.0407, 0.0263, 0.0211, 0.08, 1.3, 0.0615, 0.285, 0.0282, 0.537, 2.51, 0.028, 0.489, 0.173, 0.0411, 0.335, 1.15, 0.0843, 0.201, 0.202, 0.0402, 0.786, 1.12, 0.141, 0.0205, 0.0414, 0.2, 0.0208, 0.1, 0.0395, 0.0407, 0.0199, 0.379, 0.0211, 0.142, 0.0396, 0.0202, 0.0793, 0.479, 0.628, 1.28, 0.442, 2.95, 0.3, 0.0983, 0.972, 0.0796, 0.251, 0.246, 0.223, 0.0598	0.331
Fragilaria_perminuta	10, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 11, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 12, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 33, 34, 35, 36, 39, 4, 43, 44, 45, 46, 48, 49, 5, 51, 52, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 8, 80, 81, 82, 83, 84, 85, 86, 88, 89, 9, 90, 91, 92, 93, 93b, 94, 96, 97, 98, 99	0.0206, 0.0642, 0.142, 0.0613, 0.446, 0.43, 0.237, 0.256, 0.198, 0.172, 0.14, 0.2, 0.429, 0.308, 0.12, 0.573, 0.902, 1.18, 0.0602, 0.0811, 0.0394, 0.511, 0.0394, 0.098, 0.0818, 0.239, 0.099, 0.163, 0.205, 0.021, 0.401, 0.181, 0.35, 0.979, 0.183, 0.511, 0.277, 0.319, 0.456, 1.15, 0.875, 0.174, 2.5, 2.18, 0.321, 0.276, 0.441, 0.561, 0.0209, 0.086, 0.04, 0.611, 0.177, 0.0412, 0.354, 0.187, 0.299, 0.0414, 0.0199, 0.0219, 0.321, 0.957, 1.3, 0.573, 0.0447, 0.724, 0.0458, 0.512, 0.184, 0.0827, 0.135, 1.49, 0.141, 0.0831, 0.0649, 0.0416, 0.909, 1.01, 0.102, 0.0254, 3.32, 0.285, 0.683, 0.612, 0.0205, 0.326, 0.179, 0.028, 0.0212, 0.0432, 0.0411, 0.0418, 0.406, 0.0843, 0.148, 1.45, 0.688, 0.221, 0.0218, 0.0223, 0.0603, 0.103, 0.207, 0.172, 0.16, 0.145, 0.16, 0.0206, 0.08, 0.0395, 0.246, 0.306, 0.14, 0.103, 0.259, 0.102, 0.239, 0.201, 2.11, 0.162, 0.606, 0.218, 0.0611, 0.486, 0.242, 0.0793, 0.0416, 0.178, 0.0224, 0.108, 0.18, 0.0784, 0.611, 0.503, 0.241, 0.254, 0.601, 0.24, 0.0393, 0.194, 0.0796, 0.225, 0.0636, 0.0203, 0.199	0.32

Taxons	Echantillons	Abondance relative (%)	%
Cymbella_sp.	1, 100, 101, 102, 103, 104, 105, 106, 107, 108, 110, 111, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 132, 133, 134, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 144b, 145, 147, 149, 150, 151, 152, 16, 17, 18, 19, 2, 21, 22, 25, 26, 27, 29, 3, 33, 34, 35, 36, 38, 4, 5, 50, 55, 57, 58, 59, 6, 60, 61, 62, 63, 65, 66, 67, 68, 69, 70, 71, 73, 75, 77, 78, 8, 80, 82, 83, 84, 85, 88, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	0.282, 0.0856, 0.407, 0.327, 0.0609, 0.108, 0.079, 0.0197, 0.277, 0.246, 0.0204, 0.0205, 0.0409, 0.02, 0.063, 0.0602, 0.324, 0.315, 0.0589, 0.69, 0.682, 0.412, 0.532, 0.0652, 0.356, 0.794, 0.246, 0.021, 0.26, 2.86, 0.0411, 0.16, 0.0204, 0.119, 0.0399, 0.0991, 1.33, 0.609, 0.222, 0.02, 0.0401, 0.148, 1.52, 0.1, 0.04, 0.0197, 0.0823, 0.457, 0.0207, 0.0398, 0.0658, 0.0259, 0.488, 0.948, 0.0223, 0.0201, 0.135, 0.0787, 0.0413, 0.0202, 0.0208, 0.0416, 0.207, 0.02, 0.0203, 0.105, 0.0422, 0.0209, 0.0204, 0.0213, 0.0218, 0.0201, 0.134, 0.0402, 0.0205, 0.0828, 0.0643, 0.2, 0.0208, 0.0798, 0.18, 0.0395, 0.0205, 0.0407, 0.0598, 0.0998, 0.0204, 0.0602, 0.0608, 0.158, 0.0204, 0.0202, 1.47, 0.0222, 0.0224, 0.26, 2.52, 0.0211, 0.0419, 0.0201, 10.7, 0.0223, 0.519, 0.197, 0.41, 0.239, 0.293, 8.81, 0.255, 0.995, 0.14	0.295
Fragilaria_sp.	1, 10, 101, 102, 103, 105, 107, 108, 11, 110, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 123, 124, 125, 126, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 3, 30, 31, 32, 33, 35, 36, 4, 40, 41, 43, 44, 46, 5, 50, 51, 53, 54, 56, 57, 58, 59, 6, 61, 67, 68, 69, 7, 70, 71, 72, 73, 74, 75, 76, 77, 79, 8, 80, 81, 82, 83, 84, 85, 86, 88, 89, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	0.188, 0.185, 0.0814, 0.0409, 0.101, 0.0198, 0.396, 1.03, 0.12, 0.0204, 0.143, 0.16, 0.126, 0.0201, 0.0405, 2.11, 0.982, 0.0986, 0.0401, 0.0588, 0.326, 0.158, 0.0814, 0.102, 0.0601, 0.0402, 0.206, 0.54, 0.938, 2.66, 0.0198, 0.0399, 0.0595, 0.0595, 0.318, 0.218, 1.43, 0.461, 0.361, 0.106, 0.0803, 0.22, 0.0645, 0.719, 0.118, 0.138, 0.103, 0.158, 0.27, 0.319, 0.787, 0.975, 0.201, 0.646, 0.183, 0.0197, 0.0447, 1.41, 0.0458, 0.108, 0.0787, 0.0207, 0.0901, 0.825, 0.0606, 0.0831, 0.0866, 0.227, 0.431, 0.0203, 0.0507, 0.02, 0.184, 0.0211, 0.346, 0.0565, 0.0447, 0.119, 0.196, 0.0432, 0.384, 0.0218, 0.0422, 0.925, 0.506, 0.0655, 0.156, 0.0201, 0.0205, 0.248, 0.02, 0.0205, 0.204, 0.0199, 0.206, 0.12, 0.57, 0.0199, 0.0802, 0.358, 0.0203, 0.0898, 0.0593, 0.0202, 0.363, 0.317, 0.0833, 1.56, 0.559, 0.238, 1.94, 0.118, 0.821, 0.168, 0.0402, 0.785, 0.245, 0.46, 0.118, 0.561, 0.0597, 0.356, 1.52, 0.148, 0.426, 0.12	0.251
Discostella_nipponica	101, 102, 103, 104, 105, 106, 107, 109, 118, 13, 131, 132, 139, 14, 147, 15, 16, 17, 18, 19, 2, 20, 23, 25, 26, 27, 3, 30, 36, 38, 39, 4, 42, 43, 45, 49, 5, 51, 54, 57, 58, 59, 6, 62, 65, 66, 68, 7, 70, 72, 74, 75, 77, 80, 82, 85, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 97, 99	0.122, 0.143, 0.0203, 0.0215, 0.158, 0.0394, 4.65, 0.02, 0.236, 0.0206, 0.0204, 0.0204, 0.0806, 0.1, 0.0206, 0.0599, 0.0517, 0.508, 3, 0.268, 0.0201, 0.183, 0.186, 0.0206, 0.0404, 0.166, 0.0207, 0.0205, 0.0211, 0.0209, 0.0205, 0.0407, 0.021, 0.119, 0.0212, 0.0209, 0.064, 0.0211, 0.0202, 0.0223, 0.0603, 0.0411, 0.0207, 0.0208, 0.1, 0.0197, 0.0407, 0.129, 0.2, 0.0199, 0.0843, 0.0608, 6.09, 0.297, 2.16, 0.02, 0.12, 0.0231, 0.111, 3.1, 0.511, 13.9, 0.0398, 0.126, 0.143, 0.0424, 0.0199	0.246

Taxons	Echantillons	Abondance relative (%)	%
Geissleria_decussis	1, 10, 104, 106, 11, 110, 111, 113, 114, 115, 122, 124, 129, 13, 130, 131, 132, 133, 134, 136, 14, 140, 144, 144b, 147, 149, 15, 150, 153, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 3, 30, 33, 34, 37, 38, 4, 40, 41, 43, 44, 48, 49, 50, 51, 52, 53, 54, 57, 58, 59, 6, 64, 67, 7, 73, 74, 76, 80, 81, 82, 83, 84, 85, 86, 88, 93b, 96	0.0235, 0.0206, 0.0215, 0.0197, 0.0399, 0.0204, 0.123, 0.0409, 0.24, 0.021, 0.0409, 0.0198, 0.0201, 0.0617, 0.08, 0.183, 3.09, 0.0396, 0.799, 0.0396, 0.22, 0.0401, 0.0215, 0.02, 0.0617, 0.0831, 0.299, 0.767, 1.18, 0.646, 0.061, 0.0447, 0.0458, 0.728, 0.0525, 3.58, 0.518, 0.0413, 0.0808, 0.436, 5.71, 0.0827, 0.0615, 0.06, 0.0203, 0.26, 0.0627, 0.0407, 0.226, 0.112, 0.0398, 0.645, 0.123, 0.0418, 0.0871, 0.126, 0.0889, 0.241, 6.3, 0.0223, 0.0201, 0.349, 0.0207, 0.411, 0.0411, 0.0257, 0.0201, 0.0632, 0.0449, 0.0198, 0.0416, 0.422, 6.73, 0.411, 0.04, 0.0392, 0.0211, 0.0864, 0.0205	0.239
Staurosira_elliptica	1, 10, 102, 107, 108, 11, 118, 12, 121, 122, 129, 13, 130, 132, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 33, 34, 36, 37, 38, 39, 42, 43, 44, 45, 48, 49, 5, 50, 51, 53, 54, 55, 56, 57, 58, 59, 6, 62, 68, 69, 7, 70, 72, 73, 75, 77, 78, 8, 80, 81, 82, 83, 84, 85, 86, 9, 90, 92, 93, 93b, 95, 96	0.611, 0.0206, 0.0409, 0.0198, 0.0246, 0.439, 0.0591, 0.118, 0.0392, 0.0409, 0.0201, 0.144, 0.02, 0.0817, 0.0596, 0.174, 0.0605, 0.14, 0.1, 0.276, 0.201, 0.0401, 0.0626, 0.02, 0.0197, 0.236, 0.165, 0.217, 2.03, 0.0599, 4.16, 0.0597, 0.0439, 0.0201, 0.491, 0.488, 0.158, 0.201, 0.0201, 0.0229, 0.35, 0.499, 1.14, 0.158, 1.4, 0.949, 0.976, 1.15, 0.146, 0.165, 0.267, 0.061, 0.04, 0.0203, 0.317, 3.7, 0.0627, 0.0205, 1.38, 0.0199, 0.337, 0.531, 0.0617, 0.293, 0.0427, 0.762, 0.211, 0.844, 0.081, 0.0201, 0.0437, 0.112, 0.101, 0.0411, 0.124, 0.0416, 0.0204, 0.399, 0.0257, 0.0998, 0.0199, 0.0802, 0.0203, 0.0593, 0.0204, 0.101, 2.5, 0.562, 3.31, 0.0671, 0.13, 0.02, 0.0196, 0.241, 0.0231, 0.04, 0.0393, 1.34, 0.105, 0.0819	0.239
Mayamaea_permitis	10, 114, 122, 123, 124, 127, 128, 129, 131, 132, 139, 141, 142, 143, 144, 147, 15, 153, 20, 23, 24, 25, 26, 27, 28, 32, 34, 38, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 57, 58, 59, 61, 62, 64, 67, 7, 73, 75, 78, 8, 81, 82, 83, 84, 85, 88	0.227, 0.02, 0.0205, 0.0435, 0.0396, 0.042, 0.0801, 0.0402, 0.102, 0.0204, 0.0202, 0.0212, 0.02, 0.229, 0.237, 0.0206, 0.0799, 0.0401, 0.0229, 0.434, 0.248, 0.0206, 0.0202, 0.187, 8.89, 0.0761, 0.0203, 0.0627, 0.65, 0.447, 0.0838, 1.21, 0.0841, 0.106, 0.0865, 1.36, 0.267, 0.627, 0.218, 0.358, 2.84, 0.503, 0.283, 0.067, 0.0201, 0.103, 0.02, 0.0208, 0.267, 0.0205, 0.154, 0.0201, 0.0203, 0.0204, 0.0202, 0.0208, 1.93, 13.5, 0.0433, 0.02, 0.168	0.238

Taxons	Echantillons	Abondance relative (%)	%
Encyonema_silesiacum	100, 101, 102, 103, 104, 105, 107, 108, 11, 110, 112, 113, 114, 115, 116, 117, 118, 119, 12, 120, 121, 122, 123, 124, 125, 126, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 14, 140, 144b, 146, 147, 148, 15, 153, 16, 2, 20, 22, 23, 24, 25, 26, 29, 3, 30, 31, 32, 33, 39, 4, 40, 41, 43, 46, 47, 48, 5, 51, 52, 53, 54, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 7, 70, 71, 73, 74, 75, 8, 80, 82, 83, 84, 85, 86, 88, 89, 9, 90, 91, 92, 93, 95, 97, 99	0.128, 0.0204, 0.163, 0.0203, 0.0215, 0.0198, 0.0198, 0.0246, 0.02, 0.0408, 0.18, 5.98, 1.68, 0.42, 0.482, 0.203, 0.335, 0.0196, 0.0197, 0.261, 0.412, 0.552, 0.152, 0.436, 0.916, 0.102, 0.1, 0.563, 0.26, 0.0611, 0.204, 0.099, 0.0599, 0.337, 0.436, 0.398, 0.348, 0.02, 0.181, 0.0999, 0.157, 0.309, 0.138, 0.0399, 0.0401, 0.44, 0.0402, 0.848, 0.0787, 0.0207, 0.135, 0.0413, 0.0202, 0.0416, 0.0413, 0.123, 0.0406, 2.31, 0.02, 0.0615, 0.204, 0.0282, 0.134, 0.0398, 0.0649, 0.0296, 0.0206, 0.064, 0.0211, 0.0593, 0.0603, 0.0202, 0.0218, 0.246, 0.0804, 0.288, 0.455, 0.0429, 0.02, 0.0208, 0.16, 0.0206, 0.1, 0.0197, 0.0616, 0.0407, 0.154, 0.419, 2.02, 0.201, 0.316, 0.0203, 0.101, 0.0396, 0.0889, 0.157, 0.498, 0.32, 0.647, 4.72, 0.356, 0.0201, 0.0231, 0.111, 0.02, 0.0197, 0.0838, 1.59, 0.0997	0.226
Sellaphora_sp.	1, 105, 107, 11, 119, 12, 120, 121, 124, 125, 128, 129, 13, 130, 133, 134, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144b, 145, 146, 147, 148, 149, 15, 150, 152, 153, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 34, 35, 37, 38, 39, 4, 42, 44, 45, 49, 5, 50, 51, 52, 53, 54, 55, 58, 59, 66, 68, 69, 70, 73, 77, 80, 81, 82, 83, 84, 85, 9, 92, 93, 93b, 94, 95	0.211, 0.0593, 0.0198, 0.14, 0.0393, 0.0197, 0.0201, 0.0392, 0.0198, 0.0407, 0.02, 0.101, 0.617, 0.14, 0.0198, 0.0998, 0.0991, 0.0199, 0.0653, 0.161, 0.16, 0.221, 0.361, 0.12, 0.0802, 0.0417, 0.0999, 0.0197, 0.059, 0.412, 0.0985, 0.0415, 0.0399, 0.767, 0.0439, 0.461, 0.155, 0.142, 0.0395, 0.871, 0.135, 0.0787, 0.165, 0.18, 0.516, 0.162, 0.872, 0.151, 0.146, 0.145, 0.205, 0.0813, 0.0814, 0.368, 0.06, 0.251, 0.0205, 0.0204, 0.021, 11.7, 0.085, 0.502, 0.0213, 0.893, 0.274, 0.0296, 0.0402, 0.162, 0.0402, 0.0603, 0.0205, 0.0197, 0.0407, 0.16, 0.02, 0.0802, 0.0198, 0.535, 1.79, 5.82, 0.38, 0.26, 0.04, 0.0201, 0.0799, 0.0787, 0.173, 0.0199, 0.0838	0.215
Nitzschia_draveillensis	1, 10, 103, 104, 106, 11, 110, 111, 112, 114, 115, 116, 117, 118, 12, 121, 122, 124, 125, 126, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 29, 3, 30, 33, 34, 35, 36, 37, 38, 39, 4, 41, 42, 43, 44, 48, 49, 5, 51, 53, 54, 57, 58, 59, 6, 61, 62, 63, 64, 65, 66, 67, 69, 7, 70, 72, 73, 74, 75, 76, 77, 78, 8, 80, 82, 83, 85, 89, 9, 90, 91, 92, 93b, 95, 96, 99	0.141, 0.453, 0.0812, 0.0215, 0.0394, 0.279, 0.0204, 0.103, 0.0799, 0.2, 0.042, 0.0401, 0.0405, 0.0197, 0.611, 0.0392, 0.0614, 0.178, 0.122, 0.102, 0.521, 0.0805, 0.164, 0.56, 0.0204, 0.368, 0.158, 1.04, 0.178, 0.139, 0.119, 0.174, 0.564, 0.661, 0.0802, 0.0636, 0.201, 0.321, 0.104, 0.04, 0.0985, 0.747, 0.123, 1.77, 0.0623, 2.52, 0.456, 0.119, 0.0658, 0.762, 0.543, 1.14, 0.592, 0.0223, 0.0229, 0.323, 0.525, 0.269, 0.0225, 0.0619, 0.222, 0.0623, 0.0208, 0.269, 0.0821, 0.1, 0.264, 0.158, 0.211, 0.04, 0.0209, 0.041, 0.224, 0.0224, 0.021, 0.0398, 1.35, 0.0206, 0.0418, 0.683, 0.0632, 0.181, 0.0202, 0.0447, 0.0402, 0.123, 3.42, 0.02, 0.0624, 0.0399, 0.144, 0.02, 0.0395, 0.0821, 0.12, 0.0257, 0.0399, 0.159, 0.12, 0.274, 0.0203, 0.112, 0.178, 0.0204, 0.666, 0.119, 0.8, 1.01, 0.1, 0.0419, 2.15, 0.0231, 0.0445, 0.18, 0.216, 0.0209, 0.143, 0.0399	0.215

Taxons	Echantillons	Abondance relative (%)	%
Fistulifera_saprophila	102, 11, 111, 112, 113, 114, 12, 123, 127, 128, 129, 13, 130, 131, 132, 134, 136, 14, 141b, 142, 143, 144, 148, 149, 15, 153, 16, 19, 20, 23, 24, 27, 28, 29, 3, 30, 32, 34, 35, 37, 38, 39, 4, 40, 41, 42, 43, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 58, 59, 6, 60, 61, 64, 65, 67, 68, 70, 71, 72, 73, 74, 76, 77, 79, 8, 80, 82, 83, 84, 85, 86, 88, 9, 93b, 96, 97	0.0204, 0.02, 0.0205, 0.16, 0.0205, 0.12, 0.158, 0.0869, 0.021, 0.02, 0.0201, 0.0206, 0.02, 0.0815, 0.0204, 0.02, 0.139, 0.02, 0.0201, 0.0802, 0.167, 0.086, 0.0197, 0.0208, 0.0599, 1.2, 0.155, 0.0447, 0.137, 0.972, 0.338, 0.519, 2.81, 0.0208, 0.0413, 0.0205, 0.228, 0.0203, 0.0263, 0.0999, 0.46, 0.143, 0.0407, 1.1, 0.0224, 0.0629, 0.318, 0.552, 0.0432, 0.919, 0.514, 0.125, 0.152, 0.485, 7.73, 0.663, 0.243, 0.101, 0.267, 0.0414, 0.0214, 0.16, 0.843, 0.02, 0.0205, 0.0204, 0.0399, 0.0611, 0.0797, 0.0201, 0.169, 0.0225, 0.0198, 0.0202, 0.0202, 3.94, 0.355, 1.9, 0.238, 0.701, 0.118, 0.0842, 0.0201, 0.0432, 0.0205, 0.0636	0.201
Navicula_sp.	1, 101, 102, 103, 104, 105, 107, 108, 109, 110, 111, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 128, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 34, 35, 36, 37, 38, 39, 4, 41, 42, 43, 44, 46, 47, 48, 49, 5, 50, 51, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 63, 64, 65, 66, 67, 68, 69, 70, 72, 73, 74, 75, 77, 78, 8, 80, 81, 82, 83, 84, 85, 86, 9, 90, 91, 92, 93, 93b, 94, 95, 96, 98, 99	0.963, 0.244, 0.0817, 0.0609, 0.0215, 0.138, 0.376, 0.123, 0.0801, 0.0612, 0.0205, 0.0205, 0.02, 0.021, 0.0602, 0.0608, 0.217, 0.334, 0.301, 0.255, 0.266, 0.0217, 0.198, 0.183, 0.184, 0.2, 0.423, 0.0411, 0.22, 0.0611, 0.654, 0.436, 0.24, 0.178, 0.278, 0.139, 0.239, 0.161, 0.22, 0.0602, 0.127, 0.1, 0.02, 0.0209, 0.0215, 0.26, 0.0591, 0.0983, 0.123, 0.177, 1.23, 0.02, 0.269, 0.179, 0.0219, 2.81, 0.259, 0.061, 0.0447, 0.201, 0.0229, 0.216, 0.0262, 0.269, 0.113, 0.124, 0.0202, 0.519, 0.0649, 0.0624, 0.0827, 0.0821, 0.061, 0.0814, 0.131, 0.148, 0.08, 0.0209, 0.164, 0.183, 0.268, 0.105, 0.179, 2.92, 0.0216, 0.0296, 0.0617, 0.209, 0.0427, 0.0871, 0.274, 0.241, 0.567, 0.0603, 0.328, 0.313, 0.101, 0.205, 0.0207, 0.0858, 0.14, 0.0798, 0.103, 0.08, 0.0592, 0.0411, 0.183, 0.12, 0.02, 0.12, 0.181, 0.0421, 0.79, 0.0593, 0.0204, 0.0404, 0.337, 0.0833, 0.644, 0.693, 0.931, 0.22, 0.157, 0.0402, 0.231, 0.0223, 0.2, 0.275, 0.324, 0.0996, 0.168, 0.205, 0.0406, 0.14	0.19
Planothidium_sp.	1, 10, 11, 12, 120, 121, 125, 129, 13, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 153, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 32, 34, 35, 36, 37, 38, 39, 4, 41, 43, 44, 45, 48, 49, 5, 50, 51, 53, 54, 57, 58, 59, 6, 60, 68, 7, 73, 77, 8, 80, 81, 82, 83, 84, 85, 88, 9, 92, 93, 93b, 95	0.399, 0.0824, 0.12, 0.0592, 0.0201, 0.0392, 0.0204, 0.0805, 1.03, 0.06, 0.0204, 0.306, 0.0792, 0.0799, 0.0396, 0.238, 0.0199, 0.0435, 0.0806, 0.541, 0.181, 0.276, 0.0803, 0.12, 0.0215, 0.18, 0.0197, 0.157, 0.947, 0.0394, 0.145, 0.12, 2.15, 0.0398, 0.161, 0.181, 0.407, 0.0987, 1.21, 0.916, 0.42, 0.393, 0.113, 0.557, 0.485, 0.893, 0.108, 0.0624, 0.165, 0.144, 0.0254, 0.142, 0.105, 0.0211, 0.14, 0.105, 0.041, 0.0611, 0.134, 0.0199, 3.37, 0.255, 0.0206, 0.418, 0.0427, 2.39, 0.232, 0.181, 0.263, 0.0223, 0.101, 0.103, 0.228, 0.0429, 0.0204, 2.75, 0.0602, 0.0198, 0.0202, 0.277, 0.229, 1.73, 0.291, 0.974, 0.12, 0.0211, 0.0602, 0.0599, 0.0393, 0.0432, 0.0209	0.189

Taxons	Echantillons	Abondance relative (%)	%
Surirella_elliptica	1, 10, 103, 108, 11, 110, 12, 120, 122, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 33, 35, 36, 37, 38, 39, 4, 40, 41, 42, 44, 45, 47, 48, 49, 5, 50, 53, 54, 55, 57, 58, 59, 6, 60, 61, 69, 7, 73, 75, 8, 80, 82, 84, 85, 9, 90, 92, 93, 93b, 95, 96, 99	1.62, 0.0412, 0.0203, 0.0739, 0.399, 0.0204, 0.631, 0.0201, 0.0205, 0.119, 0.0204, 0.0205, 0.042, 0.0401, 0.0805, 0.699, 0.12, 0.163, 0.0817, 0.099, 0.0799, 0.139, 0.0398, 0.392, 0.464, 0.841, 0.201, 1.4, 0.1, 0.361, 0.396, 0.108, 0.0197, 0.315, 0.494, 0.138, 0.0623, 0.18, 2.03, 0.0199, 0.0439, 0.0401, 0.207, 0.529, 0.395, 0.737, 0.0402, 0.0229, 0.0539, 0.105, 0.124, 0.203, 0.392, 0.303, 0.145, 0.0433, 0.166, 0.93, 0.226, 0.02, 0.0263, 0.0211, 0.18, 0.251, 0.307, 1.1, 0.424, 0.648, 0.021, 0.112, 0.701, 0.0296, 0.0411, 1.3, 0.149, 0.61, 0.161, 0.162, 0.0805, 0.223, 0.121, 0.0205, 0.228, 0.0429, 0.08, 0.12, 0.823, 0.0802, 0.101, 0.222, 0.0198, 0.0222, 0.52, 0.02, 0.221, 0.162, 0.0799, 0.059, 0.691, 0.126, 0.0819, 0.0199	0.176
Nitzschia_pusilla	1, 10, 102, 107, 108, 11, 110, 112, 113, 114, 12, 121, 122, 123, 126, 128, 129, 13, 130, 131, 132, 134, 136, 137, 138, 139, 14, 140, 141, 142, 143, 144, 144b, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 3, 30, 31, 32, 34, 35, 36, 37, 38, 4, 41, 42, 43, 44, 45, 46, 47, 48, 49, 5, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 6, 62, 63, 64, 65, 66, 67, 69, 7, 70, 72, 73, 74, 76, 77, 78, 8, 80, 81, 82, 83, 84, 85, 86, 88, 89, 9, 92, 93, 93b, 96, 98	0.587, 0.742, 0.0204, 0.0594, 0.0985, 0.0998, 0.0204, 0.02, 0.573, 0.14, 0.158, 0.0392, 0.205, 0.0217, 0.0205, 0.0401, 0.101, 0.103, 0.24, 0.0611, 0.45, 0.0399, 0.178, 0.0398, 0.5, 0.222, 0.22, 0.12, 0.0212, 0.1, 0.0209, 0.086, 0.02, 0.0197, 0.0197, 0.37, 0.0985, 0.498, 0.799, 0.0414, 0.0199, 0.0219, 0.281, 0.259, 0.0813, 0.178, 0.0447, 0.367, 0.296, 0.184, 0.186, 0.473, 0.165, 0.768, 0.0208, 0.0866, 0.0624, 0.703, 0.144, 0.0203, 0.431, 0.0203, 0.0263, 0.0422, 0.08, 0.0209, 0.387, 0.313, 0.105, 0.338, 0.729, 0.0212, 0.0216, 0.178, 0.165, 1.21, 0.171, 0.0435, 0.0211, 0.563, 1.19, 0.162, 0.0201, 0.0218, 1.25, 0.0201, 0.226, 0.228, 0.0208, 0.02, 0.0822, 0.04, 0.0197, 0.103, 0.14, 0.0772, 0.16, 0.0598, 0.1, 0.169, 0.0449, 0.0593, 0.0204, 0.121, 0.119, 0.25, 3.07, 0.38, 0.498, 0.1, 0.0196, 0.0632, 0.021, 0.241, 0.0599, 0.0197, 0.13, 0.102, 0.0406	0.167
Surirella_solea	1, 10, 108, 11, 111, 113, 114, 115, 12, 121, 122, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 134, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 3, 30, 32, 33, 35, 37, 38, 39, 4, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 5, 51, 53, 54, 55, 56, 57, 58, 59, 6, 61, 62, 67, 69, 7, 72, 73, 76, 77, 8, 82, 84, 85, 86, 9, 90, 93b, 99	2.23, 0.103, 0.0739, 0.18, 0.0205, 0.0409, 0.02, 0.042, 0.0789, 0.0196, 0.0818, 0.218, 0.122, 0.0205, 1.09, 0.381, 0.101, 0.329, 0.26, 0.469, 0.429, 0.319, 0.0398, 0.283, 0.222, 0.441, 0.0401, 0.445, 0.0201, 0.02, 0.125, 0.043, 0.0197, 0.0393, 0.0412, 0.158, 0.0623, 0.459, 0.559, 0.0199, 0.0439, 0.12, 0.44, 1.63, 0.178, 0.29, 0.0201, 0.183, 0.0269, 0.919, 0.207, 0.451, 0.351, 0.545, 0.602, 0.0216, 0.661, 0.451, 0.304, 0.02, 0.0525, 0.64, 0.334, 0.041, 0.57, 0.0282, 0.201, 0.649, 0.0199, 0.645, 0.0637, 0.0865, 0.0889, 0.0617, 1.11, 0.0213, 0.0422, 0.744, 0.101, 0.0201, 0.0437, 0.0223, 0.0603, 0.164, 0.145, 0.02, 0.0208, 0.0205, 0.0199, 0.463, 0.0199, 0.0802, 0.0225, 0.0396, 0.242, 0.0889, 0.13, 0.02, 0.0588, 0.161, 0.162, 0.216, 0.0199	0.161
Didymosphenia_geminata	101, 103, 104, 121, 135, 54, 65, 66, 73, 86, 88	0.0204, 0.203, 0.775, 17, 5.53, 0.0202, 0.08, 0.0395, 0.181, 0.0392, 0.147	0.155

Taxons	Echantillons	Abondance relative (%)	%
Nitzschia_sigmoidea	1, 10, 102, 104, 105, 108, 11, 111, 113, 114, 115, 116, 118, 12, 121, 122, 123, 124, 126, 127, 128, 130, 131, 132, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 144, 144b, 149, 15, 150, 151, 153, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26, 27, 3, 32, 38, 39, 4, 40, 41, 42, 44, 45, 46, 47, 49, 5, 50, 51, 52, 53, 54, 56, 57, 58, 59, 6, 61, 62, 67, 68, 69, 7, 70, 72, 73, 74, 75, 77, 8, 80, 82, 83, 84, 85, 86, 88, 89, 90, 93, 93b, 94, 95, 96, 97, 98	0.658, 0.0618, 0.347, 0.0646, 0.0395, 0.517, 0.02, 0.0205, 0.184, 0.02, 0.021, 0.0201, 0.0197, 0.0986, 0.0588, 0.184, 0.0435, 0.139, 0.164, 1.09, 0.421, 0.2, 0.245, 0.266, 0.0799, 0.0198, 0.0793, 0.0199, 0.0218, 0.101, 0.1, 0.0401, 1.19, 0.281, 0.215, 0.0599, 0.104, 0.0599, 0.186, 0.0199, 0.0803, 0.0259, 0.203, 0.0197, 0.648, 0.115, 0.0808, 0.577, 0.406, 0.0413, 0.101, 0.125, 0.103, 0.127, 0.293, 0.328, 0.163, 0.254, 0.47, 1.89, 0.673, 0.0425, 0.238, 0.0296, 0.335, 0.064, 0.523, 0.0632, 0.0296, 0.241, 0.182, 0.197, 0.67, 0.0402, 0.0616, 0.0414, 0.06, 0.0208, 0.0205, 0.0204, 0.0399, 0.54, 0.0599, 0.0398, 0.0201, 0.0211, 0.203, 0.0198, 0.0605, 0.0396, 0.244, 0.112, 1.08, 0.58, 0.137, 0.0421, 0.0838, 0.185, 0.0197, 2.68, 0.0199, 0.251, 0.0615, 0.0212, 0.122	0.153
Iconella_sp.	1, 102, 103, 108, 11, 113, 122, 124, 128, 13, 134, 137, 138, 139, 14, 140, 141, 141b, 143, 144, 144b, 146, 147, 149, 150, 17, 18, 19, 22, 23, 24, 25, 27, 3, 30, 35, 37, 4, 40, 42, 46, 49, 5, 50, 53, 56, 57, 61, 66, 69, 7, 75, 84, 85, 86, 88, 9, 90, 93b, 95, 96, 98	1.39, 0.102, 0.0406, 0.0985, 0.299, 0.0205, 0.0205, 0.0198, 0.02, 0.411, 0.02, 0.0795, 0.0435, 0.0403, 0.04, 0.0201, 4.37, 0.261, 0.0417, 0.172, 0.02, 0.059, 0.0617, 0.208, 3.38, 0.0203, 0.0395, 0.357, 0.0525, 0.0207, 0.0225, 0.0413, 0.0831, 0.0207, 0.0205, 0.0525, 0.06, 0.0611, 0.0565, 0.126, 0.0216, 0.0209, 0.0213, 0.0218, 0.0804, 0.0218, 0.492, 0.02, 0.0197, 0.0199, 0.129, 0.0203, 0.909, 0.02, 0.0196, 0.0211, 0.0201, 0.139, 6.8, 0.0838, 0.0205, 0.0406	0.137
Navicula_gregaria	10, 113, 114, 122, 123, 124, 127, 128, 129, 130, 131, 132, 140, 141, 143, 144, 15, 16, 18, 20, 24, 27, 32, 38, 4, 40, 41, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 59, 6, 60, 61, 62, 64, 7, 71, 74, 75, 82, 84, 85, 88, 89, 90, 91	0.0206, 0.266, 0.0802, 0.0205, 0.217, 0.0198, 1.49, 0.301, 0.0201, 0.04, 1.61, 0.593, 0.0201, 0.0212, 0.0209, 0.473, 0.0399, 0.103, 0.0197, 0.115, 0.451, 0.0208, 0.0761, 0.0418, 0.0407, 1.3, 0.425, 0.112, 0.0425, 0.778, 2.25, 0.123, 0.23, 0.0653, 0.653, 2.19, 0.704, 0.81, 0.205, 0.103, 0.0214, 0.02, 0.0416, 0.0206, 0.694, 0.0814, 0.126, 0.0203, 0.0444, 0.152, 0.04, 0.947, 0.0838, 0.0231, 0.0223	0.119
Achnanthidium_eutrophilum	1, 10, 101, 105, 107, 108, 118, 121, 122, 128, 129, 132, 133, 136, 139, 140, 141, 141b, 148, 149, 150, 153, 17, 19, 23, 25, 26, 27, 28, 30, 35, 36, 37, 38, 39, 4, 40, 43, 48, 49, 50, 54, 56, 57, 58, 61, 65, 66, 68, 69, 75, 78, 81, 93, 93b, 94, 95, 98	0.564, 0.0206, 0.0407, 0.0198, 0.0198, 10.6, 0.0788, 0.0196, 0.0205, 0.02, 0.0805, 0.0204, 0.0198, 0.0793, 0.0202, 0.0401, 0.0848, 0.0602, 0.0197, 0.104, 0.0622, 0.0602, 0.0203, 0.0223, 0.0621, 0.0619, 0.0202, 0.0415, 0.151, 0.0205, 1.08, 0.0211, 0.08, 0.0418, 0.0205, 0.0814, 0.0565, 0.0199, 0.0206, 0.0209, 0.0218, 0.0607, 0.0655, 2.28, 0.121, 0.06, 0.04, 0.0197, 0.0204, 0.0598, 0.0203, 0.0408, 0.0416, 0.118, 0.0648, 0.0199, 0.0209, 0.122	0.11

Taxons	Echantillons	Abondance relative (%)	%
Fragilaria_radians	1, 105, 106, 107, 108, 11, 111, 117, 118, 12, 120, 121, 122, 124, 125, 126, 128, 129, 13, 130, 132, 138, 139, 14, 140, 141, 141b, 142, 144, 144b, 147, 148, 149, 15, 150, 151, 153, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27, 30, 31, 34, 35, 36, 37, 4, 44, 5, 53, 54, 57, 59, 6, 62, 67, 69, 70, 73, 74, 75, 77, 8, 80, 81, 82, 89, 93, 93b, 96	0.0705, 0.0198, 0.0197, 0.0396, 2.91, 0.239, 0.0205, 0.0203, 0.0197, 0.0197, 0.0602, 0.0392, 0.184, 0.0198, 0.142, 0.287, 0.0401, 0.101, 0.164, 0.06, 0.0817, 0.0218, 0.0403, 0.1, 0.0802, 0.361, 0.0602, 0.0401, 0.0215, 0.04, 0.0206, 0.118, 0.145, 0.0399, 0.269, 0.0199, 0.0401, 0.129, 0.264, 0.0197, 0.112, 0.0269, 0.0787, 0.228, 0.0451, 2.85, 0.364, 0.291, 0.103, 0.0203, 0.0203, 0.0525, 0.0422, 0.16, 0.122, 0.028, 0.0427, 0.0402, 0.0202, 1.63, 0.0205, 0.0207, 0.0208, 0.0205, 0.0399, 0.02, 0.321, 0.0632, 0.0608, 0.0593, 0.141, 0.0198, 0.0833, 2.6, 0.021, 0.0197, 0.475, 0.041	0.108
Nitzschia_acicularoides	1, 100, 101, 102, 103, 104, 109, 110, 111, 112, 113, 114, 116, 12, 120, 121, 122, 123, 124, 125, 126, 128, 129, 130, 132, 133, 134, 135, 136, 137, 140, 141b, 142, 143, 144, 145, 146, 147, 148, 149, 15, 151, 152, 153, 16, 17, 21, 23, 27, 3, 32, 33, 34, 35, 36, 37, 39, 40, 42, 44, 48, 5, 52, 53, 54, 55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 72, 73, 74, 76, 77, 78, 8, 80, 9, 91, 92, 93, 93b, 94, 95, 96, 97, 98, 99	0.094, 0.235, 0.0204, 0.102, 0.101, 0.0646, 0.04, 0.102, 0.103, 0.0599, 0.0205, 0.0401, 0.0401, 0.0394, 0.0401, 0.333, 0.0614, 0.0217, 0.0594, 0.0814, 0.082, 0.12, 0.0402, 0.02, 0.0204, 0.0198, 0.779, 0.595, 0.0991, 0.179, 0.0201, 0.0201, 0.581, 0.167, 0.151, 0.0591, 1.63, 0.185, 2.74, 0.0415, 0.14, 0.0398, 0.0658, 0.321, 0.0776, 0.0203, 0.0539, 0.103, 0.0831, 0.0413, 0.254, 0.12, 0.061, 0.0788, 0.0633, 0.0999, 0.041, 0.0282, 0.021, 0.028, 0.0411, 0.769, 0.0593, 0.0201, 0.0202, 0.0603, 0.0218, 0.447, 0.523, 0.0822, 0.124, 0.15, 0.36, 0.104, 0.0599, 0.164, 0.08, 0.079, 0.267, 0.265, 0.18, 0.0599, 0.0598, 0.0401, 0.19, 0.0225, 0.138, 0.0204, 0.161, 0.0198, 0.141, 0.0223, 0.04, 0.0197, 0.0432, 0.0796, 0.0419, 0.615, 0.0212, 0.0406, 0.0399	0.107
Reimeria_sinuata	104, 111, 113, 114, 122, 124, 127, 131, 132, 134, 137, 138, 14, 143, 15, 152, 17, 20, 21, 22, 23, 24, 26, 27, 28, 3, 30, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 45, 46, 47, 48, 49, 51, 52, 53, 54, 59, 6, 64, 66, 67, 68, 69, 7, 71, 72, 74, 75, 76, 8, 83, 86, 88, 97	0.237, 0.082, 0.0409, 0.14, 0.0614, 0.0594, 0.797, 0.0815, 0.102, 0.2, 0.0199, 0.0218, 0.12, 0.0417, 0.0599, 0.0219, 0.0813, 0.0458, 0.431, 0.157, 0.145, 0.0225, 0.0606, 0.623, 1.02, 0.0413, 0.369, 0.127, 0.02, 0.0407, 0.0525, 0.317, 0.2, 0.105, 1.76, 0.0282, 0.403, 0.0425, 0.259, 0.652, 0.288, 0.0209, 0.358, 2.55, 0.0402, 0.344, 0.473, 1.06, 0.103, 0.0197, 0.185, 0.143, 0.539, 0.0514, 0.0204, 0.0598, 0.0843, 0.0203, 0.0225, 0.0202, 0.537, 0.0196, 0.253, 0.148	0.106
Navicula_lanceolata	114, 117, 122, 123, 124, 125, 127, 128, 129, 131, 132, 140, 143, 144, 17, 46, 47, 51, 52, 54, 59, 6, 7, 82, 86, 88, 89, 91	0.0401, 0.0203, 0.0409, 0.978, 0.0594, 0.0204, 1.32, 0.681, 0.0201, 0.591, 0.123, 0.0602, 0.0417, 0.473, 0.0203, 0.108, 0.267, 0.105, 0.77, 0.202, 0.0205, 0.0207, 0.746, 0.0444, 0.0784, 8.17, 0.189, 0.0891	0.0987
Nitzschia_soratensis	118, 147, 18, 23, 27, 28, 39, 52, 53, 59, 64, 83, 88, 97, 99	0.0197, 0.0206, 0.0197, 0.0414, 0.0623, 14.5, 0.0205, 0.0593, 0.0402, 0.0205, 0.0411, 0.0224, 0.0211, 0.0212, 0.0199	0.0963

Taxons	Echantillons	Abondance relative (%)	%
Epithemia_sp.	1, 101, 108, 11, 113, 116, 120, 121, 122, 125, 127, 13, 130, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141, 141b, 142, 143, 144, 145, 146, 147, 148, 149, 15, 150, 152, 17, 18, 19, 23, 25, 27, 28, 29, 3, 31, 34, 35, 38, 39, 41, 5, 53, 58, 59, 65, 69, 73, 75, 79, 81, 82, 9, 92, 93b, 95	0.141, 0.0204, 0.148, 0.0399, 0.0205, 0.0401, 0.14, 0.118, 0.0818, 0.163, 0.021, 0.123, 0.02, 0.0204, 0.713, 0.0998, 0.436, 0.0991, 0.914, 1.02, 1.51, 0.12, 0.241, 0.148, 0.181, 0.241, 0.0834, 0.0645, 0.138, 0.0787, 0.144, 0.0197, 0.125, 0.02, 0.145, 0.0219, 0.325, 1.24, 0.268, 0.0621, 0.186, 0.104, 0.0216, 0.0208, 0.31, 0.0203, 0.122, 0.131, 0.314, 0.0205, 0.0224, 0.0213, 0.0201, 0.0201, 0.0411, 0.06, 0.0598, 0.0201, 0.0203, 0.0202, 0.0208, 0.0444, 2.25, 0.02, 0.108, 0.0209	0.0876
Gomphonema_saprophilum	1, 102, 106, 123, 124, 127, 131, 138, 14, 142, 143, 144, 15, 152, 16, 20, 23, 24, 28, 30, 37, 38, 40, 41, 42, 43, 47, 48, 5, 51, 52, 53, 54, 56, 57, 60, 61, 64, 71, 73, 74, 77, 78, 79, 8, 81, 82, 83, 88, 89, 9	0.094, 0.0204, 0.0197, 0.0652, 0.0198, 0.021, 0.102, 0.0218, 0.02, 0.02, 0.834, 0.194, 0.02, 0.0219, 0.259, 0.115, 0.0207, 0.0451, 1.84, 0.0821, 0.04, 0.0209, 2.01, 0.0447, 0.021, 3.74, 0.296, 0.0206, 0.0213, 0.105, 0.741, 0.0201, 0.0202, 0.0218, 0.112, 0.0214, 0.02, 0.329, 0.0204, 0.0201, 0.0211, 0.0396, 0.0204, 0.0202, 0.0404, 0.167, 0.0889, 0.0447, 0.105, 0.021, 0.0402	0.078
Diploneis_subovalis	1, 104, 106, 108, 109, 112, 122, 123, 124, 127, 128, 132, 138, 139, 14, 141, 143, 144, 146, 152, 19, 20, 21, 23, 24, 36, 37, 41, 42, 46, 56, 57, 58, 7, 71, 72, 75, 84, 88, 89, 93, 93b, 98	0.047, 0.043, 0.0197, 7.68, 0.02, 0.02, 0.102, 0.587, 0.0396, 0.042, 0.02, 0.0204, 0.0218, 0.0202, 0.04, 0.0212, 0.125, 0.194, 0.0197, 0.0219, 0.0447, 0.0687, 0.0539, 0.0207, 0.0901, 0.0211, 0.04, 0.0224, 0.021, 0.0432, 0.262, 0.0447, 0.0201, 0.0257, 0.0204, 0.0199, 0.122, 0.0217, 0.0211, 0.0838, 0.059, 0.173, 0.0203	0.0673
Encyonema_sp.	100, 101, 103, 104, 105, 106, 107, 109, 11, 110, 111, 112, 113, 114, 115, 116, 117, 118, 12, 120, 121, 122, 123, 124, 125, 126, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 14, 140, 141b, 142, 143, 144, 144b, 145, 148, 149, 15, 152, 153, 16, 18, 19, 24, 25, 26, 27, 3, 30, 31, 33, 35, 36, 38, 39, 4, 41, 42, 45, 48, 52, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 68, 71, 72, 73, 75, 76, 77, 78, 8, 80, 81, 84, 85, 88, 9, 90, 91, 93, 94, 95, 96, 97, 98, 99	0.171, 0.122, 0.0406, 0.043, 0.0593, 0.118, 0.0198, 0.0801, 0.02, 0.225, 0.103, 0.14, 0.0819, 0.02, 0.084, 0.0803, 0.304, 0.0591, 0.118, 0.261, 0.176, 0.164, 0.0217, 0.0792, 0.0407, 0.164, 0.1, 0.201, 0.44, 0.143, 0.0409, 0.0198, 0.02, 0.0595, 0.0595, 0.0596, 0.109, 0.0806, 0.04, 0.0401, 0.0201, 0.1, 0.0834, 0.043, 0.0999, 0.0394, 0.0394, 0.0623, 0.02, 0.0219, 0.0201, 0.233, 0.0395, 0.0894, 0.0225, 0.289, 0.101, 0.0208, 0.0207, 0.123, 0.0203, 0.04, 0.0788, 0.0422, 0.0418, 0.143, 0.0204, 0.0671, 0.021, 0.127, 0.123, 0.0593, 0.0874, 0.0447, 0.141, 0.0205, 0.129, 0.08, 0.0624, 0.22, 0.0206, 0.06, 0.118, 0.0407, 0.0204, 0.0598, 0.0602, 0.0608, 0.0898, 0.0396, 0.0611, 0.0202, 0.0198, 0.0416, 0.108, 0.0801, 0.0842, 0.0402, 0.139, 0.0668, 0.0787, 0.159, 0.0209, 0.041, 0.403, 0.203, 0.219	0.0621
Cyclotella_meneghiniana	113, 135, 142, 143, 144, 28, 43, 45, 46, 52, 64, 7, 74, 80, 93b	0.0205, 0.0198, 0.0401, 3.02, 4.06, 0.26, 0.0796, 0.0212, 0.13, 0.0296, 0.123, 0.0257, 0.0211, 0.0198, 0.0216	0.0509

Taxons	Echantillons	Abondance relative (%)	%
Encyonopsis_microcephala	1, 101, 104, 108, 115, 116, 117, 12, 121, 122, 124, 126, 129, 13, 130, 132, 133, 134, 135, 137, 138, 139, 140, 141b, 142, 143, 144, 145, 146, 147, 149, 152, 16, 18, 19, 2, 24, 25, 26, 29, 3, 34, 35, 38, 39, 4, 45, 49, 50, 57, 59, 6, 63, 65, 66, 70, 72, 73, 77, 81, 9, 90, 92, 93, 94, 95, 96, 98, 99	0.611, 0.0611, 0.0215, 0.0246, 0.021, 0.0401, 0.0608, 0.0197, 0.0392, 0.0205, 0.099, 0.0615, 0.0805, 0.0617, 0.04, 0.0409, 0.376, 0.0599, 0.119, 0.0398, 0.261, 0.161, 0.301, 0.241, 0.0601, 0.0417, 0.043, 0.552, 0.0787, 0.0206, 0.187, 0.439, 0.0259, 0.0395, 0.0223, 0.121, 0.0225, 0.0206, 0.0202, 0.0208, 0.186, 0.0814, 0.105, 0.209, 0.041, 0.0204, 0.0212, 0.125, 0.0218, 0.0447, 0.0205, 0.0207, 0.02, 0.02, 0.0197, 0.16, 0.179, 0.0401, 0.0593, 0.0208, 0.462, 0.162, 0.0999, 0.0393, 0.139, 0.105, 0.225, 0.0609, 0.0598	0.0474
Gomphonema_rosenstockianum	12, 122, 131, 136, 14, 16, 19, 21, 22, 24, 25, 26, 27, 35, 39, 51, 54, 55, 58, 59, 61, 63, 64, 68, 71, 77, 79, 8, 82, 83, 84, 85, 88, 9, 90	0.0394, 0.102, 0.0204, 0.297, 0.02, 1.5, 0.0223, 0.216, 0.472, 0.0225, 0.165, 0.848, 0.0831, 0.0263, 0.041, 0.0422, 0.101, 0.0201, 0.0402, 1.17, 0.02, 0.02, 0.0206, 0.0204, 0.0204, 0.0396, 0.121, 0.0202, 0.0444, 0.716, 0.0866, 0.02, 0.0211, 0.141, 0.0231	0.0425
Caloneis_amphisbaena	127, 128, 130, 131, 132, 133, 14, 141, 153, 23, 25, 27, 30, 31, 42, 44, 49, 53, 54, 63, 82, 83	0.042, 0.0401, 0.02, 0.122, 0.756, 0.0198, 0.02, 0.0212, 0.0602, 1.86, 0.206, 0.166, 0.431, 0.0406, 0.0629, 0.813, 0.0209, 0.402, 0.324, 0.02, 0.178, 0.0671	0.0367
Neidium_sp.	1, 126, 130, 131, 132, 134, 149, 150, 16, 19, 23, 24, 25, 27, 28, 30, 37, 44, 49, 50, 51, 53, 54, 7, 81, 82	0.047, 0.0205, 0.02, 0.0408, 0.347, 0.02, 0.0208, 0.0207, 0.0259, 0.0223, 0.0827, 0.0225, 0.0413, 0.125, 0.0866, 0.0821, 0.08, 2.02, 0.0209, 0.0218, 0.0211, 0.0201, 0.101, 0.0257, 0.0416, 2.27	0.0364
Melosira_varians	1, 108, 113, 114, 118, 119, 128, 129, 130, 131, 132, 136, 14, 142, 143, 144, 16, 20, 32, 38, 4, 41, 43, 45, 46, 47, 49, 51, 52, 53, 54, 57, 58, 6, 7, 71, 75, 79, 88, 89, 90, 91, 93b	0.0235, 0.0246, 0.0819, 0.0401, 0.0197, 0.0589, 0.0601, 0.0201, 0.14, 1.47, 0.0817, 0.0198, 0.04, 0.1, 0.271, 0.774, 0.0259, 0.183, 0.33, 0.251, 0.122, 0.0224, 0.299, 0.0212, 0.108, 0.0889, 0.0209, 0.0632, 0.0296, 0.121, 0.0405, 0.179, 0.0402, 0.0207, 0.0514, 0.0204, 0.0405, 0.0202, 0.0632, 0.0419, 0.0462, 0.0445, 0.0432	0.0359
Cymbella_lanceolata	1, 101, 103, 104, 108, 11, 114, 12, 120, 121, 122, 126, 127, 128, 13, 133, 134, 135, 136, 137, 138, 139, 140, 141b, 144b, 148, 149, 150, 16, 17, 18, 19, 21, 22, 25, 3, 31, 33, 35, 42, 43, 5, 54, 56, 57, 6, 60, 61, 66, 69, 8, 9, 90, 92, 93b, 96, 97	0.047, 0.0407, 0.0203, 0.043, 0.0492, 0.02, 0.02, 0.0986, 0.0803, 0.137, 0.573, 0.123, 0.0839, 0.02, 0.0206, 0.0198, 0.0799, 0.0595, 0.0396, 0.0596, 0.109, 0.161, 0.0602, 0.0602, 0.0599, 0.0591, 0.415, 0.207, 0.259, 0.346, 0.0987, 0.067, 0.0269, 0.105, 0.103, 0.331, 0.0406, 0.02, 0.0525, 0.0629, 0.0398, 0.0427, 0.0405, 0.0218, 0.156, 0.0414, 0.0214, 0.02, 0.079, 0.0199, 0.0605, 0.0402, 0.0231, 0.2, 0.389, 0.0205, 0.0212	0.0356
Craticula_subminuscula	143, 28, 40, 41, 43, 46, 47, 48, 51, 52, 61, 64	0.0209, 0.0433, 2.06, 0.0224, 0.0398, 0.13, 2.49, 0.0206, 0.105, 0.533, 0.02, 0.0206	0.0355

Taxons	Echantillons	Abondance relative (%)	%
Surirella_minuta	10, 11, 113, 114, 12, 123, 124, 127, 128, 13, 131, 132, 14, 141b, 142, 143, 144, 153, 16, 17, 2, 20, 24, 25, 26, 31, 32, 38, 4, 40, 41, 43, 46, 47, 48, 49, 51, 52, 53, 6, 7, 71, 8, 85, 86, 88, 9, 90, 93b	0.0618, 0.0399, 0.102, 0.0802, 0.0197, 0.0435, 0.0594, 0.021, 0.18, 0.0206, 0.347, 0.0613, 0.0801, 0.0201, 0.0601, 0.0834, 0.215, 0.0201, 0.0259, 0.0203, 0.0201, 0.0458, 0.901, 0.0206, 0.0202, 0.0203, 0.0507, 0.0209, 0.122, 0.282, 0.0671, 0.0199, 0.108, 0.267, 0.0206, 0.0209, 0.0422, 0.474, 0.0402, 0.0621, 0.849, 0.0407, 0.0605, 0.04, 0.0196, 0.0421, 0.0201, 0.0231, 0.0432	0.0344
Gomphonema_capitatum	1, 10, 101, 11, 114, 118, 12, 122, 13, 141b, 143, 148, 149, 15, 150, 153, 16, 17, 18, 2, 20, 21, 22, 25, 30, 39, 42, 53, 56, 57, 58, 59, 6, 66, 71, 74, 75, 77, 8, 80, 82, 85, 86, 9, 93b, 96, 99	0.728, 0.0206, 0.0204, 0.0399, 0.02, 0.0197, 0.0592, 0.0409, 0.0206, 0.0803, 0.0209, 0.0197, 0.0208, 0.02, 0.0207, 0.0803, 0.155, 0.0203, 0.0197, 0.0201, 0.0917, 0.108, 0.131, 0.0206, 0.041, 0.0205, 0.922, 0.0201, 0.0218, 0.246, 0.0201, 0.0205, 0.0621, 0.0592, 0.0204, 0.0211, 0.081, 0.0396, 0.0807, 0.0198, 0.111, 0.06, 0.0196, 0.0602, 1.32, 0.102, 0.0199	0.0335
Staurosira_venter	1, 121, 124, 125, 13, 130, 14, 145, 147, 148, 149, 150, 152, 20, 21, 22, 25, 3, 30, 32, 33, 34, 37, 39, 4, 42, 44, 45, 49, 50, 51, 53, 54, 55, 58, 69, 70, 80, 81, 82, 83, 84, 85, 86, 93, 93b	0.047, 0.0392, 0.0198, 0.0204, 0.0206, 0.04, 0.04, 0.0197, 0.0206, 0.0197, 0.685, 1.18, 0.0219, 0.0458, 0.0269, 0.0262, 0.0206, 0.455, 0.0205, 0.0254, 0.02, 0.0203, 0.04, 0.0205, 0.0407, 0.0629, 0.196, 0.0637, 0.0209, 0.174, 0.0843, 0.0402, 0.0405, 0.0201, 0.0201, 0.18, 0.0798, 0.258, 0.0208, 0.444, 0.0224, 0.0866, 0.02, 0.0392, 0.059, 0.281	0.0332
Diatoma_vulgaris	10, 106, 112, 122, 123, 124, 126, 128, 130, 131, 15, 20, 43, 5, 6, 61, 7, 70, 71, 74, 75, 76, 8, 88	0.124, 0.0197, 0.02, 0.0409, 0.13, 0.0396, 0.0205, 0.301, 0.02, 0.0204, 0.779, 0.0687, 0.0398, 0.0213, 0.0828, 0.02, 0.0257, 0.02, 0.0204, 0.758, 0.0203, 0.0225, 0.141, 2.38	0.0331
Gomphonema_pumilum_var._rigidum	123, 127, 131, 143, 144, 23, 24, 40, 47, 52, 67, 7	0.261, 0.189, 0.102, 1.86, 0.108, 0.0414, 2.1, 0.0565, 0.0593, 0.178, 0.0205, 0.0514	0.0324
Amphora_sp.	1, 110, 120, 121, 122, 127, 129, 130, 131, 132, 135, 136, 138, 139, 14, 141, 141b, 142, 143, 144, 144b, 149, 150, 151, 16, 17, 19, 20, 25, 26, 27, 30, 34, 37, 38, 39, 41, 42, 44, 45, 46, 47, 48, 50, 53, 54, 57, 67, 69, 7, 73, 80, 81, 82, 84, 90, 92, 93b	0.188, 0.0204, 0.0201, 0.0392, 0.0409, 0.021, 0.0402, 0.0999, 0.0611, 0.123, 0.0198, 0.0991, 0.0218, 0.0202, 0.04, 0.0212, 0.0201, 0.0401, 0.209, 0.129, 0.04, 0.0415, 0.476, 0.0398, 0.0259, 0.0407, 0.067, 0.0458, 0.0413, 0.0404, 0.145, 0.0821, 0.0203, 0.14, 0.146, 0.0205, 0.134, 0.0629, 0.0561, 0.0425, 0.843, 0.0593, 0.0823, 0.0435, 0.121, 0.0202, 0.0447, 0.0205, 0.0199, 0.0772, 0.0201, 0.0396, 0.0416, 0.311, 0.065, 0.0231, 0.02, 0.13	0.032
Navicula_capitatoradiata	11, 13, 130, 131, 132, 134, 136, 139, 14, 141, 141b, 143, 144, 148, 149, 15, 150, 153, 21, 23, 24, 25, 26, 27, 28, 3, 30, 37, 4, 41, 42, 43, 44, 45, 47, 49, 53, 54, 57, 58, 59, 6, 7, 76, 8, 81, 82, 83, 84, 86, 88, 9, 92	0.02, 0.0411, 0.14, 0.102, 0.163, 0.02, 0.0198, 0.0202, 0.04, 0.0212, 0.0201, 0.459, 0.043, 0.0985, 0.145, 0.0599, 0.0829, 0.201, 0.0269, 0.0621, 0.0451, 0.0206, 0.0202, 0.208, 0.0216, 0.0413, 0.0615, 0.12, 0.0611, 0.112, 0.126, 0.0199, 0.028, 0.0425, 0.0593, 0.0418, 0.141, 0.0405, 0.0223, 0.0804, 0.0205, 0.0414, 0.0257, 0.0225, 0.0605, 0.0208, 1.22, 0.291, 0.0433, 0.0196, 0.0211, 0.0402, 0.02	0.0319

Taxons	Echantillons	Abondance relative (%)	%
Ulnaria_ulna	10, 104, 106, 119, 123, 131, 144, 146, 148, 15, 20, 21, 22, 23, 24, 3, 32, 38, 48, 70, 71, 74, 75, 79, 8, 84, 88, 93b	0.68, 0.0215, 0.0197, 0.0982, 0.0217, 0.0204, 0.043, 0.0197, 0.0197, 0.02, 1.47, 0.0808, 0.0262, 0.0621, 0.158, 0.0207, 0.0254, 0.0209, 0.0206, 0.2, 0.896, 0.0632, 0.0203, 0.0202, 0.0404, 0.0433, 0.526, 0.108	0.0307
Sellaphora_minima	1, 10, 101, 102, 104, 106, 113, 115, 122, 123, 127, 128, 130, 131, 132, 137, 142, 143, 144, 15, 153, 17, 19, 23, 24, 25, 26, 27, 28, 30, 32, 4, 41, 42, 44, 46, 47, 48, 49, 52, 53, 57, 59, 6, 63, 64, 68, 72, 73, 83, 84, 88	0.0235, 0.0412, 0.0204, 0.225, 0.0861, 0.0197, 0.0409, 0.021, 0.0409, 0.0217, 0.189, 0.02, 0.02, 0.0408, 0.0204, 0.0199, 0.0802, 0.0417, 0.0215, 0.02, 0.0401, 0.0203, 0.0223, 0.103, 0.0225, 0.0206, 0.0202, 0.104, 1.56, 0.0205, 0.0507, 0.0204, 0.0224, 0.0419, 0.028, 0.735, 0.148, 0.247, 0.0209, 0.119, 0.0402, 0.0223, 0.0205, 0.0207, 0.02, 0.0617, 0.0407, 0.0199, 0.0201, 0.0447, 0.0217, 0.0421	0.0307
Caloneis_sp.	10, 101, 104, 108, 113, 114, 115, 117, 12, 122, 123, 127, 128, 131, 132, 137, 138, 14, 143, 144, 144b, 147, 149, 153, 16, 19, 20, 21, 22, 23, 24, 28, 30, 32, 38, 39, 4, 40, 41, 42, 44, 46, 47, 49, 50, 52, 53, 54, 56, 57, 59, 6, 61, 64, 69, 7, 70, 72, 73, 74, 75, 80, 82, 84, 85, 88, 90, 93b, 95, 96, 98	0.0412, 0.0407, 0.194, 0.0492, 0.184, 0.02, 0.021, 0.0203, 0.0197, 0.0205, 0.5, 0.231, 0.0801, 0.102, 0.0613, 0.0199, 0.0218, 0.04, 0.0834, 0.0645, 0.16, 0.0206, 0.0623, 0.0201, 0.0517, 0.0223, 0.0229, 0.0539, 0.0262, 0.0207, 0.0225, 0.0433, 0.041, 0.0254, 0.0209, 0.0205, 0.0407, 0.169, 0.0447, 0.0629, 0.0561, 0.173, 0.119, 0.0209, 0.0435, 0.0296, 0.0402, 0.142, 0.0437, 0.0223, 0.0411, 0.0207, 0.02, 0.103, 0.0199, 0.0772, 0.02, 0.0199, 0.0201, 0.105, 0.0608, 0.0594, 0.0444, 0.108, 0.04, 0.0211, 0.0231, 0.0216, 0.0209, 0.348, 0.0406	0.0303
Achnanthidium_saprophilum	1, 10, 23, 26, 28, 30, 48, 64, 79, 88	0.0235, 0.0412, 0.0207, 0.0202, 3.96, 0.0205, 0.0823, 0.123, 0.182, 0.0211	0.029
Epithemia_hyndmanii	1, 108, 134, 57	0.258, 3.72, 0.02, 0.156	0.0268
Planothidium_caputium	10, 11, 12, 121, 122, 125, 129, 13, 132, 140, 142, 143, 144, 19, 20, 21, 23, 28, 3, 34, 35, 36, 37, 40, 41, 46, 48, 50, 51, 52, 54, 6, 69, 7, 74, 77, 84	0.0412, 0.02, 0.0197, 0.0588, 0.0205, 0.0204, 0.101, 0.0206, 0.0204, 0.0201, 0.0401, 0.0834, 0.215, 0.0223, 0.0229, 0.0808, 0.0827, 1.13, 0.0207, 0.224, 0.105, 0.0211, 0.02, 0.141, 0.514, 0.108, 0.103, 0.0218, 0.0422, 0.148, 0.0607, 0.0828, 0.0199, 0.36, 0.0211, 0.0593, 0.0217	0.0265
Discostella_sp.	107, 111, 115, 153, 18, 20, 23, 43, 5, 51, 6, 60, 7, 74, 77, 8, 80, 82, 83, 90, 91, 92, 93, 93b, 96	0.336, 0.0205, 0.021, 0.0201, 0.0197, 0.115, 0.0207, 0.0199, 0.0213, 0.0211, 0.0207, 0.0214, 0.129, 0.0211, 0.415, 0.0605, 0.0396, 0.0222, 0.0224, 0.0231, 0.0223, 0.46, 0.0393, 1.86, 0.0205	0.0245
Nitzschia_linearis	1, 10, 102, 113, 114, 115, 123, 125, 127, 128, 131, 132, 138, 139, 141, 143, 144, 153, 16, 17, 2, 20, 24, 3, 32, 38, 4, 40, 41, 44, 45, 49, 50, 53, 54, 7, 74, 76, 82, 85, 93b, 98	0.117, 0.0618, 0.0204, 0.0409, 0.0401, 0.021, 0.0217, 0.0204, 0.168, 0.0601, 0.122, 0.102, 0.131, 0.101, 0.0212, 0.0417, 0.0645, 0.0201, 0.0259, 0.0203, 0.0201, 0.0917, 0.293, 0.269, 0.583, 0.146, 0.0204, 0.282, 0.268, 0.028, 0.0212, 0.0418, 0.0218, 0.0201, 0.0202, 0.0772, 0.0211, 0.0225, 0.111, 0.02, 0.0648, 0.0203	0.0238
Craticula_cuspidata	1, 11, 131, 132, 141b, 144, 150, 153, 23, 24, 25, 26, 27, 28, 30, 31, 37, 40, 41, 42, 47, 53, 54, 6, 88, 93b	1.27, 0.02, 0.0204, 0.0613, 0.0201, 0.0645, 0.29, 0.0401, 0.0621, 0.135, 0.0206, 0.0202, 0.229, 0.0216, 0.0205, 0.0203, 0.26, 0.0282, 0.0447, 0.0838, 0.0296, 0.121, 0.081, 0.0207, 0.0211, 0.0864	0.0199

Taxons	Echantillons	Abondance relative (%)	%
Amphora_copulata	1, 105, 113, 124, 143, 144, 150, 23, 26, 27, 28, 30, 31, 37, 42, 5, 51, 81, 82, 90, 92, 93, 93b, 97	0.164, 0.0198, 0.102, 0.0198, 0.125, 0.0215, 0.0414, 0.0621, 0.0202, 0.0415, 0.0216, 0.0821, 0.0203, 0.8, 0.021, 0.0213, 0.0211, 0.0208, 0.355, 0.0462, 0.02, 0.059, 0.821, 0.0212	0.019
Cymbopleura_sp.	1, 121, 122, 128, 13, 131, 132, 134, 138, 14, 144b, 147, 149, 150, 16, 19, 21, 22, 23, 24, 25, 26, 28, 3, 30, 37, 38, 4, 44, 49, 50, 53, 54, 81	0.0235, 0.0196, 0.0205, 0.0401, 0.0617, 0.0815, 0.327, 0.0998, 0.0435, 0.02, 0.04, 0.0206, 0.0415, 0.207, 0.0776, 0.067, 0.0269, 0.0525, 0.269, 0.0225, 0.0206, 0.0808, 0.0649, 0.0207, 0.103, 0.28, 0.0418, 0.0204, 0.505, 0.0418, 0.0218, 0.0201, 0.0607, 0.0208	0.0185
Fragilariopsis_kerguelensis	10, 11, 113, 118, 12, 124, 125, 126, 127, 129, 13, 134, 137, 138, 139, 14, 140, 141b, 146, 149, 151, 16, 2, 21, 22, 23, 26, 3, 39, 4, 41, 44, 45, 49, 54, 6, 67, 73, 75, 84, 85, 9, 90, 91	0.0206, 0.02, 0.0205, 0.0197, 0.0986, 0.0198, 0.0204, 0.041, 0.021, 0.0201, 0.103, 0.02, 0.0398, 0.261, 0.141, 0.0601, 0.0201, 0.0401, 0.0197, 0.0415, 0.0398, 0.155, 0.0201, 0.0269, 0.0525, 0.0207, 0.121, 0.165, 0.0205, 0.163, 0.134, 0.0561, 0.0637, 0.418, 0.0202, 0.0207, 0.0205, 0.0401, 0.0203, 0.0866, 0.04, 0.0402, 0.0231, 0.0223	0.0183
Tryblionella_sp.	127, 128, 131, 132, 140, 143, 144, 20, 21, 24, 32, 37, 39, 40, 41, 45, 46, 47, 52, 65, 7	0.105, 0.0401, 0.224, 0.0409, 0.0201, 0.104, 0.323, 0.0229, 0.0269, 0.361, 0.0254, 0.02, 0.0205, 0.593, 0.47, 0.0212, 0.0649, 0.237, 0.0296, 0.02, 0.0257	0.018
Planothidium_frequentissimum	127, 133, 136, 15, 21, 22, 23, 24, 27, 28, 29, 34, 35, 40, 41, 52, 54, 64	0.021, 0.0198, 0.0396, 0.02, 1.75, 0.0262, 0.0207, 0.0225, 0.0415, 0.151, 0.0208, 0.244, 0.0263, 0.0282, 0.0447, 0.148, 0.0405, 0.103	0.0179
Diatoma_moniliformis	102, 104, 114, 123, 70, 71, 77, 88, 92, 97	0.0204, 0.043, 0.02, 0.0217, 0.0798, 0.55, 0.0593, 0.274, 0.02, 1.36	0.0158
Encyonopsis_falaisensis	1, 108, 151, 2, 57, 92	1.79, 0.0246, 0.0398, 0.0402, 0.358, 0.0599	0.0149
Rhoicosphenia_abbreviata	10, 127, 143, 2, 22, 24, 36, 46, 47, 75, 93b	1.24, 0.357, 0.0209, 0.0402, 0.0262, 0.0676, 0.0211, 0.259, 0.0889, 0.0203, 0.0216	0.014
Nitzschia_gracilis	1, 113, 114, 115, 129, 130, 132, 148, 15, 150, 151, 153, 17, 20, 21, 23, 3, 32, 53, 6, 70, 71, 72, 74, 75, 8, 80, 82, 89, 9, 92, 93b, 96, 97	0.094, 0.0205, 0.14, 0.042, 0.0201, 0.02, 0.0204, 0.0591, 0.0799, 0.145, 0.0199, 0.0401, 0.0203, 0.0687, 0.0269, 0.0207, 0.0207, 0.0254, 0.0201, 0.145, 0.0399, 0.0611, 0.0398, 0.0421, 0.0203, 0.0202, 0.0198, 0.178, 0.021, 0.0602, 0.04, 0.345, 0.041, 0.0212	0.0129
Hannaea_arcus	82, 86, 88, 89, 96, 97	0.0222, 0.0588, 0.674, 0.021, 0.0205, 1.1	0.0122
Fragilaria_gracilis	115, 121, 141b, 145, 150, 153, 20, 32, 6, 65, 68, 70, 71, 74, 77, 78, 79, 8, 82, 83, 85, 88, 89	0.021, 0.0196, 0.0803, 0.0394, 0.456, 0.221, 0.0917, 0.0254, 0.0207, 0.04, 0.0204, 0.0399, 0.204, 0.0421, 0.0396, 0.0204, 0.0405, 0.0202, 0.0222, 0.0894, 0.14, 0.105, 0.021	0.0117
Cymbopleura_inaequalis	1, 14, 149, 150, 17, 25, 28, 30, 42, 44, 54, 82, 93b	0.0705, 0.04, 0.0208, 0.932, 0.0203, 0.0206, 0.0866, 0.0205, 0.021, 0.196, 0.081, 0.0222, 0.0432	0.0102
Navicula_veneta	10, 113, 131, 140, 141, 143, 144, 15, 150, 27, 28, 43, 44, 46, 48, 49, 52, 54, 61, 64, 69, 74	0.0206, 0.0205, 0.0815, 0.0201, 0.0212, 0.0626, 0.151, 0.02, 0.0207, 0.0415, 0.346, 0.0398, 0.028, 0.0432, 0.0411, 0.0209, 0.0296, 0.0202, 0.02, 0.206, 0.0199, 0.0211	0.00836

Taxons	Echantillons	Abondance relative (%)	%
Sellaphora_bacillum	1, 10, 125, 132, 134, 14, 141, 144, 149, 15, 150, 16, 19, 22, 23, 26, 27, 28, 30, 37, 45, 50, 53, 54, 82, 84, 93b	0.258, 0.0206, 0.0204, 0.0204, 0.0399, 0.02, 0.0212, 0.0215, 0.0415, 0.02, 0.0414, 0.0517, 0.0223, 0.0525, 0.165, 0.0404, 0.0208, 0.0216, 0.0615, 0.0999, 0.0212, 0.0218, 0.0201, 0.0607, 0.0222, 0.0433, 0.0216	0.0082
Mayamaea_atomus_var._alcimonica	10, 127, 131, 40, 46, 47, 52	0.0412, 0.042, 0.0408, 0.565, 0.0216, 0.267, 0.148	0.00726
Sellaphora_lanceolata	1, 132, 149, 153, 22, 23, 25, 27, 30, 37, 44, 50, 53, 54, 7, 82, 84, 93b	0.141, 0.0409, 0.0415, 0.0201, 0.0262, 0.29, 0.0413, 0.0415, 0.0205, 0.08, 0.028, 0.0435, 0.0603, 0.0405, 0.0257, 0.0444, 0.0217, 0.0432	0.00678
Diatoma_tenuis	107, 118, 128, 153, 2, 5, 51, 6, 70, 77, 80, 82, 85, 92, 96, 99	0.0198, 0.0197, 0.02, 0.0201, 0.0201, 0.0427, 0.0211, 0.0207, 0.02, 0.0198, 0.0198, 0.133, 0.06, 0.0599, 0.512, 0.0199	0.00664
Ulnaria_acus	118, 120, 131, 15, 153, 17, 2, 20, 21, 24, 3, 5, 6, 70, 71, 74, 8, 80, 82, 85, 88, 9, 92, 93b, 95, 96, 98	0.0197, 0.0201, 0.0204, 0.02, 0.0201, 0.0203, 0.0805, 0.0229, 0.0269, 0.0451, 0.0207, 0.0213, 0.0207, 0.0399, 0.0204, 0.0211, 0.0404, 0.0396, 0.0222, 0.32, 0.0421, 0.0201, 0.02, 0.0216, 0.0209, 0.0205, 0.0203	0.00663
Stephanodiscus_sp.	102, 115, 121, 130, 132, 144b, 151, 153, 21, 53, 57, 60, 61, 64, 67, 75, 76, 77, 84, 85, 9, 92, 93b, 94, 95, 96	0.307, 0.021, 0.0196, 0.02, 0.0409, 0.02, 0.0398, 0.0201, 0.0269, 0.0201, 0.0223, 0.0429, 0.02, 0.0411, 0.0411, 0.0203, 0.0449, 0.0396, 0.0433, 0.04, 0.0201, 0.02, 0.0216, 0.0199, 0.0209, 0.0205	0.00654
Caloneis_fontinalis	1, 108, 118, 93, 93b	0.0235, 0.788, 0.0197, 0.0197, 0.13	0.00633
Gomphonema_micropus	113, 114, 122, 123, 131, 32, 7, 70, 71, 79, 88	0.0205, 0.02, 0.0409, 0.0217, 0.0204, 0.0254, 0.103, 0.0599, 0.529, 0.0202, 0.0632	0.00596
Nitzschia_capitellata	1, 131, 132, 143, 144, 24, 40, 43, 47, 48	0.047, 0.102, 0.0409, 0.104, 0.237, 0.0225, 0.0847, 0.199, 0.0296, 0.0206	0.00572
Cymbella_neocistula	108, 113, 149, 150, 153, 20, 6, 74, 75, 8, 85, 88, 93b	0.0492, 0.0614, 0.0208, 0.104, 0.181, 0.0687, 0.0414, 0.0211, 0.0405, 0.0202, 0.04, 0.0421, 0.173	0.00557
Sellaphora_seminulum	113, 116, 149, 24, 28, 43	0.0205, 0.0201, 0.0208, 0.0225, 0.714, 0.0199	0.00528
Iconella_splendida	1, 103, 141, 149, 150, 37, 93b	0.235, 0.0406, 0.0212, 0.0415, 0.166, 0.06, 0.194	0.00489
Karayevia_ploenensis_var._gessneri	21, 41, 44, 45, 46, 54, 57, 6	0.0269, 0.0224, 0.028, 0.0212, 0.562, 0.0202, 0.0223, 0.0207	0.00467
Pantocsekiella_costei	107, 117, 12, 131, 137, 140, 141b, 142, 144b, 147, 2, 3, 43, 57, 80, 83, 85, 90, 94, 96, 98	0.0198, 0.0203, 0.0197, 0.0204, 0.0199, 0.0201, 0.0201, 0.02, 0.02, 0.0206, 0.262, 0.0207, 0.0199, 0.0223, 0.0198, 0.0447, 0.02, 0.0462, 0.0199, 0.0205, 0.0203	0.00463
Iconella_capronii	93b	0.648	0.00418
Nitzschia_supralitorea	143, 144, 40, 41, 43	0.0834, 0.172, 0.113, 0.0447, 0.219	0.00408
Cymbella_tumida	93b	0.626	0.00404
Navicula_cryptocephala	1, 113, 127, 143, 144, 149, 20, 25, 28, 30, 39, 4, 41, 42, 48, 74	0.094, 0.0205, 0.021, 0.0417, 0.0215, 0.0831, 0.0458, 0.0206, 0.0216, 0.0205, 0.0205, 0.0204, 0.0224, 0.0419, 0.0206, 0.0211	0.00347
Tryblionella_apiculata	130, 131, 132, 143, 144, 40, 41, 43	0.02, 0.143, 0.0204, 0.0626, 0.172, 0.0565, 0.0224, 0.0398	0.00346

Taxons	Echantillons	Abondance relative (%)	%
Stephanodiscus_minutulus	121, 139, 2, 5, 63, 68, 72, 83, 85, 90, 99	0.0196, 0.0202, 0.302, 0.0213, 0.02, 0.0204, 0.0199, 0.0447, 0.02, 0.0231, 0.0199	0.00343
Nitzschia_inconspicua	1, 153	0.0235, 0.361	0.00248
Cocconeis_sp.	10, 132, 45, 46	0.0206, 0.0204, 0.297, 0.0216	0.00232
Navicula_radiosa	108, 114, 124, 132, 15, 24, 71, 82, 93b	0.0492, 0.02, 0.0198, 0.0204, 0.02, 0.0225, 0.0204, 0.0889, 0.0864	0.00224
Nitzschia_acidoclinata	118, 119, 144, 28, 56, 74, 83, 93b	0.0394, 0.137, 0.0215, 0.0216, 0.0218, 0.0211, 0.0224, 0.0432	0.00212
Conticribra_weissflogii	143, 144	0.125, 0.172	0.00192
Nitzschia_amphibia	28, 40	0.26, 0.0282	0.00186
Nitzschia_dissipata_var._media	12, 130, 136, 42, 50, 93b	0.0197, 0.02, 0.139, 0.021, 0.0653, 0.0216	0.00185
Navicula_rostellata	1, 111, 114, 127, 128, 144, 27, 7, 93b	0.094, 0.0205, 0.0401, 0.021, 0.02, 0.0215, 0.0208, 0.0257, 0.0216	0.00184
Planothidium_lanceolatum	113, 32, 40, 52, 64, 76	0.0409, 0.0254, 0.0282, 0.0593, 0.0411, 0.0225	0.0014
Cyclostephanos_invisitatus	7	0.206	0.00133
Halamphora_veneta	64, 65	0.185, 0.02	0.00132
Gyrosigma_acuminatum	143, 144, 24, 46	0.0209, 0.0215, 0.135, 0.0216	0.00128
Caloneis_silicula	143, 150, 40, 41	0.0417, 0.0207, 0.0847, 0.0447	0.00124
Placoneis_elginensis	93b	0.173	0.00112
Ellerbeckia_sp.	144b, 38	0.02, 0.105	0.000806
Nitzschia_costei	108, 118	0.0492, 0.0591	0.000699
Fallacia_sp.	93b	0.108	0.000697
Craticula_buderi	64	0.103	0.000665
Lindavia_radiosa	2, 4	0.0805, 0.0204	0.000651
Didymosphenia_sp.	121, 135	0.0588, 0.0198	0.000507
Pinnularia_sp.	127, 59	0.042, 0.0205	0.000403
Sellaphora_auldreekie	27, 28, 37	0.0208, 0.0216, 0.02	0.000403
Asterionella_formosa	113, 96	0.0205, 0.041	0.000397
Craticula_molestiformis	41	0.0447	0.000288
Berkeleya_sp.	84	0.0433	0.000279
Craticula_sp.	28	0.0433	0.000279
Frustulia_vulgaris	84	0.0433	0.000279
Stauroneis_acuta	93b	0.0432	0.000279

Taxons	Echantillons	Abondance relative (%)	%
Halamphora_montana	131, 53	0.0204, 0.0201	0.000261
Discostella_pseudostelligera	2, 75	0.0201, 0.0203	0.000261
Sellaphora_joubaudii	148, 17	0.0197, 0.0203	0.000258
Achnanthidium_delmontii	70	0.0399	0.000257
Navicula_oblonga	1	0.0235	0.000152
Iconella_levanderi	93b	0.0216	0.000139
Navicula_cincta	122	0.0205	0.000132
Mayamaea_sp.	43	0.0199	0.000128

Annexe 3 – Tableau récapitulatif des échantillons de diatomées (Léman)

Le tableau présente la situation des sites d'échantillonnage des biofilms avec leurs coordonnées (EPSG 2056, LV95), la date des prélèvements. La dernière colonne indique si l'échantillon a été contrôlé par microscopie.

Site	Longitude	Latitude	Date	ADN	Microscopie
SYNL1	2501504.86	1118312.86	27/06/2017	X	X
SYNL2	2501086.76	1118444.61	27/06/2017	X	
SYNL3	2500541.23	1120209.53	27/06/2017	X	
SYNL4	2500845.19	1122160.24	27/06/2017	X	
SYNL5	2501902.75	1124236.16	27/06/2017	X	
SYNL6	2502318.66	1125507.85	27/06/2017	X	X
SYNL7	2502282.03	1125612.17	27/06/2017	X	
SYNL8	2502275.29	1125653.97	27/06/2017	X	
SYNL9	2502290.01	1127295.04	27/06/2017	X	
SYNL10	2503166.98	1128843.1	27/06/2017	X	
SYNL11	2504309.69	1130482.72	27/06/2017	X	
SYNL12	2505056.21	1132449.91	27/06/2017	X	X
SYNL13	2505410.82	1133891.68	27/06/2017	X	
SYNL14	2506191.9	1135104.91	27/06/2017	X	
SYNL15	2507107.43	1136120.05	27/06/2017	X	
SYNL16	2508307.97	1137621.84	27/06/2017	X	X
SYNL17	2508461.79	1138047.61	27/06/2017	X	
SYNL18	2508884.25	1138428.37	27/06/2017	X	
SYNL19	2509542.11	1138629.53	27/06/2017	X	X
SYNL20	2509890.54	1138439.76	26/06/2017	X	
SYNL21	2510432.91	1138319.79	26/06/2017	X	
SYNL22	2511141.96	1140171.59	26/06/2017	X	
SYNL23	2511758.32	1141881.48	26/06/2017	X	
SYNL24	2512242.98	1142090.26	26/06/2017	X	X
SYNL25	2512235.92	1142215.46	26/06/2017	X	
SYNL26	2513228.68	1142987.18	26/06/2017	X	
SYNL27	2513981.45	1144161.88	26/06/2017	X	
SYNL28	2516198.08	1146154.43	26/06/2017	X	
SYNL29	2517831.43	1146430.41	26/06/2017	X	X
SYNL30	2519115.11	1146384.86	26/06/2017	X	
SYNL31	2519390.48	1146126.62	26/06/2017	X	X
SYNL32	2519550.06	1145921.35	26/06/2017	X	
SYNL33	2520022.8	1145839.51	26/06/2017	X	
SYNL34	2520618.37	1145926.02	26/06/2017	X	
SYNL35	2521564.82	1146711.33	26/06/2017	X	
SYNL36	2523201.64	1147151.14	26/06/2017	X	
SYNL37	2524077.88	1147611.14	26/06/2017	X	
SYNL38	2526340.35	1149313.64	26/06/2017	X	X
SYNL39	2527439.13	1150690.36	26/06/2017	X	

Site	Longitude	Latitude	Date	ADN	Microscopie
SYNL40	2527534.15	1150738.87	26/06/2017	X	
SYNL41	2527614.75	1150768.05	26/06/2017	X	
SYNL42	2528083.3	1151668.52	26/06/2017	X	
SYNL43	2528987.06	1151954.91	22/06/2017	X	X
SYNL44	2530145.47	1151627.25	22/06/2017	X	
SYNL45	2530929.08	1151075.25	22/06/2017	X	
SYNL46	2530963.86	1151055.56	22/06/2017	X	
SYNL47	2531011.54	1151059.2	22/06/2017	X	
SYNL48	2531028.9	1151074.64	22/06/2017	X	
SYNL49	2532429.09	1151079.99	22/06/2017	X	
SYNL50	2533534.97	1151743.31	22/06/2017	X	
SYNL51	2534516.51	1152174.07	22/06/2017	X	
SYNL52	2534633.52	1152130.07	22/06/2017	X	X
SYNL53	2534725	1152146.94	22/06/2017	X	
SYNL54	2535602.26	1151852.76	22/06/2017	X	
SYNL55	2536393.78	1151464.13	22/06/2017	X	
SYNL56	2537510.28	1150816.73	22/06/2017	X	
SYNL57	2537518.15	1150816.98	22/06/2017	X	X
SYNL58	2538249.95	1150936.62	22/06/2017	X	
SYNL59	2539632.04	1150795.22	22/06/2017	X	
SYNL60	2541232.32	1150584.16	22/06/2017	X	
SYNL61	2542558.66	1150182.6	22/06/2017	X	X
SYNL62	2543304.04	1149908.49	22/06/2017	X	
SYNL63	2544699.64	1148830.5	22/06/2017	X	
SYNL64	2546168.8	1148895.25	22/06/2017	X	
SYNL65	2547251.91	1148566.5	21/06/2017	X	
SYNL66	2548230.53	1147721.28	21/06/2017	X	X
SYNL67	2549810.4	1147174.71	21/06/2017	X	X
SYNL68	2551369.9	1146828.74	21/06/2017	X	
SYNL69	2553112.56	1146521.73	21/06/2017	X	
SYNL70	2553622.95	1145968.42	21/06/2017	X	
SYNL71	2553619.41	1145674.83	21/06/2017	X	X
SYNL72	2554997.54	1145039.77	21/06/2017	X	
SYNL73	2556356.06	1144240.11	21/06/2017	X	
SYNL74	2557746.05	1143304.23	21/06/2017	X	
SYNL75	2558843.5	1143274.81	21/06/2017	X	
SYNL76	2559284.19	1142284.79	21/06/2017	X	X
SYNL77	2560405.73	1141421.28	21/06/2017	X	
SYNL78	2560818.98	1140329.71	21/06/2017	X	
SYNL79	2560504.33	1139126.62	21/06/2017	X	
SYNL80	2559838.51	1138566.16	19/06/2017	X	X
SYNL81	2559133.63	1138722.65	19/06/2017	X	
SYNL82	2557469.98	1138449.94	19/06/2017	X	
SYNL83	2556321.76	1138209.59	21/06/2017	X	

Site	Longitude	Latitude	Date	ADN	Microscopie
SYNL84	2555543.02	1138312.54	21/06/2017	X	X
SYNL85	2555507.79	1138389.51	21/06/2017	X	
SYNL86	2555485.4	1138366.62	19/06/2017	X	
SYNL87	2555477.34	1138315.81	19/06/2017	X	
SYNL88	2555383.27	1138267.26	19/06/2017	X	
SYNL89	2555350.05	1138297.63	19/06/2017	X	
SYNL90	2555318.88	1138300.89	19/06/2017	X	
SYNL91	2555275.98	1138214.47	19/06/2017	X	
SYNL92	2555404.42	1137776.96	19/06/2017	X	
SYNL93	2554793.89	1137487.85	19/06/2017	X	
SYNL93b	2555219.57	1137462.19	19/06/2017	X	
SYNL94	2553665.8	1137442.71	19/06/2017	X	
SYNL95	2552224.38	1137711.8	19/06/2017	X	
SYNL96	2551320	1138248.6	19/06/2017	X	
SYNL97	2551293.73	1138288.72	19/06/2017	X	
SYNL98	2551214.39	1138303.35	19/06/2017	X	
SYNL99	2549817.09	1138309.13	19/06/2017	X	X
SYNL100	2548444.73	1138838.88	14/06/2017	X	X
SYNL101	2545755.02	1139596.6	14/06/2017	X	X
SYNL102	2544033.96	1139861.19	14/06/2017	X	
SYNL103	2542399.27	1139884.24	14/06/2017	X	X
SYNL104	2540728.34	1139588.18	14/06/2017	X	
SYNL105	2538802.69	1139673.91	14/06/2017	X	
SYNL106	2537450.8	1139554.44	14/06/2017	X	
SYNL107	2536043.89	1139418.85	14/06/2017	X	X
SYNL108	2536060.53	1139413.26	14/06/2017	X	
SYNL109	2533419.14	1139080.57	14/06/2017	X	
SYNL110	2531126.42	1138627.2	14/06/2017	X	
SYNL111	2529796.65	1139372.96	14/06/2017	X	
SYNL112	2529528.67	1139551.18	15/06/2017	X	
SYNL113	2529355.01	1139587.79	15/06/2017	X	
SYNL114	2529260.8	1139628.37	15/06/2017	X	X
SYNL115	2529089.43	1139685.06	15/06/2017	X	
SYNL116	2528435.34	1139586.27	15/06/2017	X	
SYNL117	2526806.28	1138659.78	15/06/2017	X	
SYNL118	2526207.14	1136833.51	15/06/2017	X	
SYNL119	2526202.58	1136838.18	15/06/2017	X	
SYNL120	2525783.47	1136364.58	15/06/2017	X	X
SYNL121	2524213.84	1135660.99	15/06/2017	X	
SYNL122	2523421.27	1135248.45	15/06/2017	X	
SYNL123	2523380.55	1135234.33	15/06/2017	X	X
SYNL124	2523335.01	1135211.36	15/06/2017	X	
SYNL125	2520977.98	1134723.44	15/06/2017	X	
SYNL126	2519992.06	1133733.89	15/06/2017	X	

Site	Longitude	Latitude	Date	ADN	Microscopie
SYNL127	2519960.57	1133694.34	15/06/2017	X	
SYNL128	2519950.5	1133559.7	15/06/2017	X	
SYNL129	2519582.07	1133077.12	15/06/2017	X	
SYNL130	2518234.99	1132990.23	15/06/2017	X	
SYNL131	2518168.42	1132972.77	15/06/2017	X	
SYNL132	2518076.73	1133016.44	15/06/2017	X	X
SYNL133	2516752.04	1134148.77	15/06/2017	X	
SYNL134	2516249.01	1135130.77	15/06/2017	X	
SYNL135	2515473.91	1135965.97	15/06/2017	X	
SYNL136	2513779.39	1135919.25	16/06/2017	X	
SYNL137	2512275.48	1135234.63	16/06/2017	X	X
SYNL138	2511060.89	1134226.81	16/06/2017	X	
SYNL139	2510391.77	1132997.61	16/06/2017	X	X
SYNL140	2509189.7	1131273.74	16/06/2017	X	
SYNL141	2508870.83	1130036.1	16/06/2017	X	
SYNL141b	2508847.3	1130017.22	16/06/2017	X	
SYNL142	2507817.1	1128834.88	16/06/2017	X	
SYNL143	2507788.92	1128803.05	27/06/2017	X	
SYNL144	2507707.89	1128741.82	16/06/2017	X	X
SYNL145	2507386.19	1127315.83	16/06/2017	X	
SYNL146	2506330.89	1126140.99	16/06/2017	X	
SYNL147	2505605.48	1125008.86	16/06/2017	X	
SYNL148	2504504.22	1124409.15	16/06/2017	X	
SYNL149	2503973.25	1123209.47	16/06/2017	X	
SYNL150	2503866.15	1121356.35	16/06/2017	X	X
SYNL151	2503316.57	1120369.64	16/06/2017	X	
SYNL152	2502644.99	1119252.46	16/06/2017	X	X
SYNL153	2501520.98	1118300.73	27/06/2017	X	

Annexe 4 – Ensemble des protocoles de laboratoire utilisés pour l'analyse des Diatomées

Extraction ADN : protocole « NucleoSpin®Soil » (Macherey Nagel)

Genomic DNA from soil

Protocol at a glance (Rev. 07)

NucleoSpin® Soil

1	Prepare sample	NucleoSpin® Bead Tube Type A 250–500 mg sample material 700 µL SL1 or ~~SL2~~
2	Adjust lysis conditions	150 µL Enhancer SX
3	Sample lysis	Horizontally vortex 5 min at RT or use other homogenizers according to manufacturers protocol
4	Precipitate contaminants	11,000 x *g*, 2 min 150 µL SL3 Vortex 5 s 0–4 °C, 5 min 11,000 x *g*, 1 min
5	Filter lysate	Load supernatant on NucleoSpin® Inhibitor Removal Column (red ring) 11,000 x *g*, 1 min
6	Adjust binding conditions	250 µL SB Vortex 5 s
7	Bind DNA	Load 550 µL sample on NucleoSpin® Soil Column (green ring) 11,000 x *g*, 1 min Load remaining sample 11,000 x *g*, 1 min
8	Wash silica membrane	1st 500 µL SB 11,000 x *g*, 30 s 2nd 550 µL SW1 11,000 x *g*, 30 s 3rd ~~700~~ 600 µL SW2 ~~Vortex 2 s~~ 11,000 x *g*, 30 s 4th ~~700~~ 600 µL SW2 ~~Vortex 2 s~~ 11,000 x *g*, 30 s
9	Dry silica membrane	11,000 x *g*, 2 min
10	Elute DNA	~~50~~ ~~100 µL~~ SE préchauffé 50 °C RT, 1 min 30 s 11,000 x *g*, 30 s

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Protocole d'échantillonnage des diatomées (INRA)

- Objectif :
  - Suivre les normes Afnor d'échantillonnage
  - Effectuer un sous-échantillonnage du biofilm prélevé pour l'IBD
  - fixer à plus de 70% éthanol et utiliser le flaconnage envoyé par l'INRA
  - Détails :
    - Sortir les 5 pierres (ou plus), les **laisser égoutter** quelques minutes
    - Remplir le fond de la cuvette avec 15 ml d'éthanol à 90% (ou >90%)
    - Brosser les pierres dans la cuvette
    - Récupérer le mélange biofilm/éthanol de la cuvette et remplir le tube jusqu'à 15 ml
    - Compléter le tube avec de l'éthanol 90% (ou > à 90%) jusqu'à 50 ml
    - ur homogénéiser, étiqueter

Annexe 5 – Inventaire en microscopie des oligochètes

		Vengeron	Site 32	Site 53	Site 78	Site 6	Site 36	Site 21
Tubificinae	Tubificinae with hair setae (unidentifiable)	33	18	50	17	36	18	6
	Tubifex tubifex			6	1	2	4	
	Aulodrilus pluriseta		12		2	1	2	
	Psammoryctides barbatus (1)	2			16	10	2	
	Psammoryctides moravicus	3						
	Branchiura sowerbyi							
	Embolocephalus velutinus (1)						18	24
	Spirosperma ferox	5				6	6	4
	Potamothrix heuscheri	1	1		1	3		
	Potamothrix hammoniensis				1	3		
	Potamothrix vejdovskyi	1	5		29		2	1
	Quistadrilus multisetosus			13				
	Potamothrix bavaricus							
	Tubifex ignotus							
	Tubificinae without hair setae (unidentifiable)	25	39	22	18	29	28	25
	Limnodrilus hoffmeisteri	11	2	11	2	4	1	3
	Limnodrilus claparedianus				1	1	2	
	Limnodrilus profundicola		1	1	2	3		1
	Aulodrilus limnobius	3	6					
	Potamothrix moldaviensis	7					6	5
Lumbriculidae	Lumbriculidae (unidentifiable) (1)	1				4	10	3
	Dorydrilus michaelseni (1)							
	Stylodrilus heringianus (1)							
	Stylodrilus lemani (1)					1		
	Lumbriculus variegatus	2			1			
Naidinae	*Ophidonais serpentina* (1)							
	Piguetiella blanci (1)	5	3		1		2	
	Specaria josinae (1)							
	Uncinais uncinata (1)							
	Vejdovskiella intermedia (1)				6			
	Stylaria lacustris (1)		10				2	
	Nais pardalis (1)							
	Dero digitata	1	2					

Annexe 6 – Inventaire génétique des oligochètes

		Vengeron	Vengeron	Station 32	Station 53	Station 53	Station 78	Station 78	Station 6	Station 21	Station 36
		33 s	66 s	33 s	33 s	66 s	33 s	66 s	33 s	33 s	33 s
Tubificinae	T2_Tubificinae_sp	6	11	3			5	7		4	2
	T4_Aulodrilus_pluriseta			5							
	T8_Psammoryctides_barbatus		1				4	12	2		
	T9_Tubifex_tubifex				1	3				1	
	T11_Tubifex_tubifex				21	35			1	1	2
	T12_Tubifex_tubifex					1			1		
	T24_Spirosperma_ferox	2	3						2	3	2
	T25_Embolocephalus_velutinus									10	5
	T26_Tubifex_sp	4	7	2							
	T27_Tubifex_tubifex									2	
	T28_Potamothrix_hammoniensis					1	2	2	7		
	T29_Potamothrix_vejdovskyi			2			11	24			
	T31_Potamothrix_heuscheri	4	5				2	2	3	2	1
	Tubificinae sp with hair setae H27						1	1			
	Quistadrilus_multisetosus				5	9					
	T15_Tubificinae_sp	2	6	3		2					
	T17_Limnodrilus_hoffmeisteri	2	4		4	11			3		1
	T18_Limnodrilus_hoffmeisteri	1	4	9						1	
	T19_Limnodrilus_hoffmeisteri	1	1								
	T20_Limnodrilus_hoffmeisteri			3	2	2	2	9	4	6	6
	T30_Potamothrix_moldaviensis	6	14				3	3	4	2	7
	Limnodrilus profundicola					2		1	1		
	Aulodrilus limnobius	2	4	1							
Naidinae	N6_Piguetiella_blanci	1	4	1							2
	N7_Vejdovskyella_intermedia						3	5			1
	N14_Uncinais_uncinata										1
	Stylaria lacustris			5							1
Lumbriculidae	LL3_Stylodrilus_heringianus										1
	Stylodrilus lemani								5		1
Haplotaxidae	H1_Haplotaxis_gordioides									1	

33 s = 33 spécimens séquencés
66 s = 66 spécimens séquencés

Material and methods for the morphological analyses of oligochaete specimens (lake)

The analyses from sediment sampling in the lake to identification of oligochaete specimens were performed according to the IOBL protocol (AFNOR, 2016). Sediment samples were taken at 3 different places at each site (one sample every 10-20 meters). Sediments were collected using a grab sampler. Sediment samples from the same site were combined and fixed with 10% neutral buffered formalin (ThermoFisher Scientific, Ecublens, Switzerland) (final concentration of formaldehyde of 4%). They were preserved at 4°C for 1 to 5 days before sieving.

Sediment samples were sieved through a column of 5 mm and 0.5 mm sieve mesh size sieves. The retained material in the 0.5 mm mesh size sieve was transferred in a Tupperware box and preserved in absolute ethanol at -20°C.

The sieved material (preserved in absolute ethanol at -20oC) was transferred into a subsampling square box (5 x 5 cells). The content of randomly selected cells was transferred into a petri dish and examined under a stereomicroscope until 100 specimens were collected.

Specimens were then mounted on slides in a coating solution composed of lactic acid, glycerol and polyvinylic alcohol (Mowiol 4–88). Oligochaete specimens were identified to the lowest practical level (species if possible) using a compound microscope.

References

AFNOR. 2016. Qualité de l'eau – échantillonnage, traitement et analyse des oligochètes dans les sédiments des eaux de surface continentales. Association française de normalisation (AFNOR), NF T 90-393. France: 14pp. + annexes.

Sampling and sieving of samples

The samples in the lake were collected and sieved according to the IOBL protocol (AFNOR, 2016). Samples were taken at 3 different places at each site (one sample every 10-20 meters). Sediments were collected using a grab sampler. Sediment samples from the same site were combined and fixed with 10% neutral buffered formalin (ThermoFisher Scientific, Ecublens, Switzerland) (final concentration of formaldehyde of 4%). Formalin optimally fixes oligochaete specimens and a study showed that fixation of oligochaetes specimens using 4% neutral buffered formalin and their preservation in this medium for up to 30 days did not prevent subsequent genetic analyses (Vivien et al., 2018). Sediment samples were preserved at 4°C for 1 to 5 days before sieving. They were sieved through a column of 5 mm and 0.5 mm sieve mesh size sieves. The retained material in the 0.5 mm mesh size sieve was transferred in a Tupperware box and preserved in absolute ethanol at -20°C.

Sorting of specimens

The sieved material (preserved in absolute ethanol at -20°C) was transferred into a subsampling square box (5 x 5 cells). The content of randomly selected cells was examined under a stereomicroscope until 33 (4 samples) or twice 33 specimens (3 samples) were collected. We sorted out twice 33 specimens in several samples to study the differences obtained in diversity and biological quality between samples composed of 33 and 66 specimens and to determine if the analysis of only 33 specimens could be sufficient to assess the biological quality of sediments. The posterior region of each specimen was then cut transversally and transferred in an Eppendorf tube containing 0.03 ml of absolute ethanol (1 tube per specimen). The anterior part of about 12 specimens per site was preserved for morphological identification of specimens corresponding to new lineages, unassigned using our Swiss database and Genbank. The tubes (33 or 66 per site) were preserved at -20°C until DNA extraction. Before DNA extraction, the samples were dried for 24 hours at room temperature. The different steps from fixation of specimens to calculation of genetic indices are represented in Figure 1.

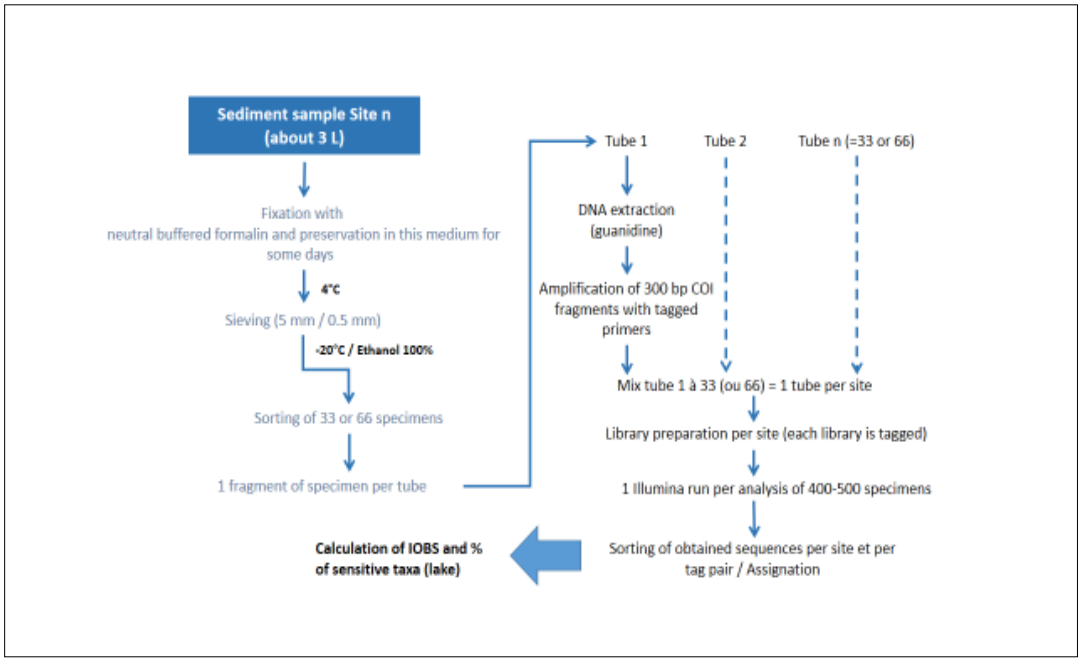

Figure 1: diagram of the different steps of the DNA metabarcoding analysis from fixation of oligochaete specimens to calculation of the genetic indices

DNA extraction, PCR amplification, library preparation and Illumina sequencing

Total genomic DNA was extracted from tissue samples using the guanidine thiocyanate method described by Tkach & Pawlowski (1999). The primers specific to metazoans “mlCOIintF” and “jgHCO2198” (Leray et al., 2013) were used to amplify a COI fragment (313 base pairs) from each DNA extract. PCR amplifications were performed in a total volume of 50 µl containing 0.5 ul of Taq polymerase (Roche, Basel, Switzerland), 5 µl of the 10X buffer (Roche) containing 20 mM of MgCl2, 1.25 µl of each primer (10 mM each), 1 µl of a mix containing 10 mM of each dNTP (Roche) and 2.5 µl of template DNA of undetermined concentration. The PCR reaction comprised an initial denaturation step at 95°C for 5 min, followed by 35 cycles of denaturation at 95°C for 40 s, annealing at 44°C for 45 s and elongation at 72°C for 1 min, with a final elongation step at 72°C for 8 min.
The used metazoan primers were tagged by bearing 8 nucleotides attached at each primer’s 5’ extremity. A unique combination of tagged primers was used for each specimen in order to multiplex all specimens in a unique sequencing library (Esling et al. 2015). PCR product of each specimen were quantified with capillary electrophoresis using QIAxcel instrument (Qiagen, Hilden, Germany). Equimolar concentrations of PCR products were pooled into a single tube (one tube per site) that was purified using High Pure PCR Product Purification kit (Roche Diagnostics). Then, 50 ng of purified PCR products were appended with Illumina PE adapter sequences in order to obtain one functional sequencing library per PCR sample (or site). This was performed using the TruSeq® DNA PCR-Free Library Preparation Kit (Illumina) following the kit instructions to include a unique index as a label for each library. The libraries were quantified with qPCR using KAPA Library Quantification Kit (Roche). Finally, the libraries were sequenced on a MiSeq instrument using paired-end sequencing for 500 cycles with Standard kit v2.
The raw sequences will be deposited in the Short Read Archive during the revision process or after acceptation of our manuscript.

Analysis of sequences

Bioinformatic analyses were performed using an in-house pipeline (SLIM, Cordier et al., unpublished). Raw fastq reads were quality-filtered by removing any sequence with a mean quality score of 30 and also removing all sequences with ambiguous bases or any mismatch in the tagged primer. Paired-end reads were then assembled using simple bayesian algorithm implemented in pandaseq (Masella et al., 2012). Chimera removing and the OTUs clustering at 97% were performed using vsearch (Rognes et al., 2016).
The sequences were assigned using our COI oligochaete database (Vivien et al., 2017) and Genbank. Sequences that could not be assigned using these databases were identified either morphologically to the family, subfamily, genus or species level if the anterior part corresponding to the sequences had been prepared, or to the family or subfamily level using a phylogenetic tree. To construct the phylogenetic tree, the neighbour-joining method as implemented in Seaview v.4.4.0 was applied (Gouy, Guindon & Gascuel, 2010), with 1,000 bootstrap replicates. We used the 10% threshold of COI divergence for distinguishing between species. The sequences diverging by less than 10 % (in COI) were considered as belonging to the same species (Vivien et al., 2017). The genetic distances were calculated using the K2P model in MEGA 5.1 (Tamura et al., 2011).

References

AFNOR. 2016. Qualité de l’eau – échantillonnage, traitement et analyse des oligochètes dans les sédiments des eaux de surface continentales. Association française de normalisation (AFNOR), NF T 90-393. France: 14pp. + annexes.

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Annexe 9 – Tableau récapitulatif des prélèvements d'échantillons de sédiment (oligochètes)

Site	Date	Longitude	Latitude
32	26/10/2017	46°27'58.242" N	6°25'23.376" E
53	26/10/2017	46°30'36.508" N	6°35'17.172" E
78	26/10/2017	46°24'35.945" N	6°53'33.417" E
Vengeron	04/09/2017	46°14′43.360″ N	6°09′27.276″ E
6	22/05/2018	46°17'47.059" N	6°11'33.744" E
21	22/05/2018	46°22'47.461" N	6°19'52.258" E
36	22/05/2018	46°22'15.661" N	6°27'03.507" E