



Analiza potențialului de utilizare durabilă
a vegetației specifice sistemului
Dunare-Delta Dunării-Marea Neagră

Evaluarea si monitorizarea procesului natural de biofiltrare

Maria Paraschiv
maria.paraschiv@incdsb.ro

Echipa de implementare INCDSB:

Corina ITCUS
Elena BERTEANU
Iris TUSA
Mihaela PAUN
Alexandra HILLEBRAND
Manuela SIDOROFF
Elena CRISTIAN

Laura POPA
Octavian PACIOGLU
Daniela FLOREA
Liviu Theodor ENE
Ovidiu VRANCIANU
Diana GABOREANU
Gheorghe BOBE

Carmen CONSTANTIN
Georgiana GAVRIL
Maria PARASCHIV
Georgiana GRIGORE
Maria Iasmina MOZA
Daniela PARTENE



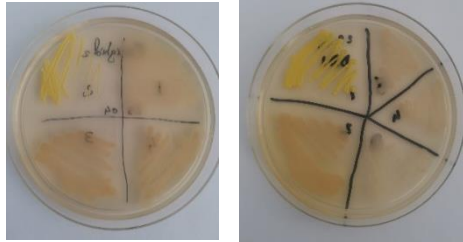
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OBIECTIVE D3MN - INCDSB

- Identificarea **căilor de valorificare** sustenabilă a bioresurselor din sistemul Dunăre-Delta Dunării-Marea Neagră
- Evaluarea **mecanismelor naturale** de intervenție și adaptare la provocările generate de schimbările climatice precum și a celor induse de activitățile umane

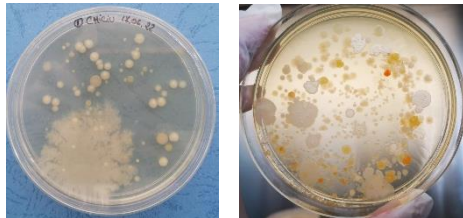
SCOP: **înțelegere** - dezvoltarea ulterioară de biotehnologii bazate pe modele naturale pentru domenii critice - protejarea mediului, agricultură, bioenergie, etc.

Biofiltrarea naturală - microbiota / vegetația acvatică



Microorganisme prelevate din apa

+



Microorganisme prelevate de pe
radacinile plantelor acvatice



Sursa: AquaBiofilter - Advanced Biofiltration Research and Technology - City of Wagga



Sursa: Australian Government, Murray-Darling Basin Authority, "Biofiltration in action"



Citometria în flux - metoda de evaluare și monitorizare procesului natural de biofiltrare



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Stadiul actual: Investigarea microbiotei - - Funcționalitatea ecosistemelor

** relațiile existente între comunitățile de microorganisme și radacinile vegetației acvatice - - - interacțiunile cu factorii abiotici, răspunsul comunităților*

Collect

Colectare de informații despre comunitățile microbiene, diversitate, viabilitate [fiziologie] și capacitatea / nivelul de grupare

Detect

Detectare rapidă a modificărilor, identificarea tendințelor de variație prin analiza automată a compoziției microbiene

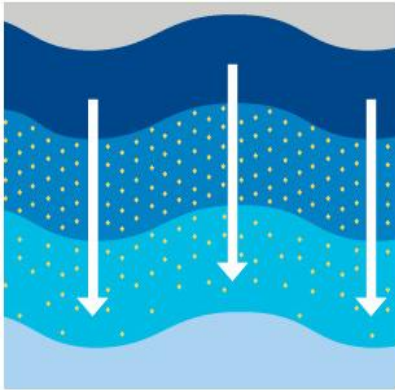
Monitor

Monitorizarea abundenței și creșterea fito- și zooplanctonului, bacteriilor, înfloririi de alge dăunătoare (starea ecologică a apelor de suprafață și observarea oceanului)

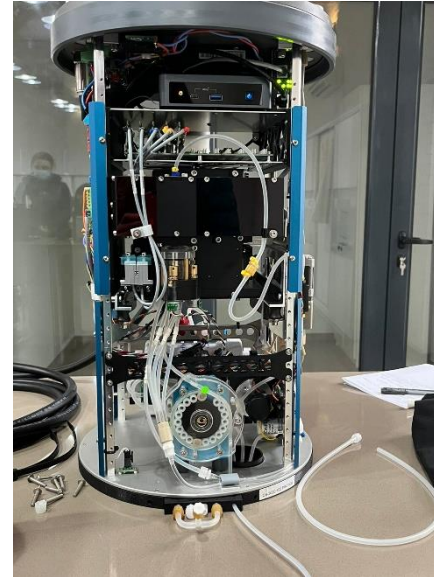
Screening

Screening ușor / rapid asupra modelelor de organisme uni- și multicelulare - în studii

Eutrofizare?!

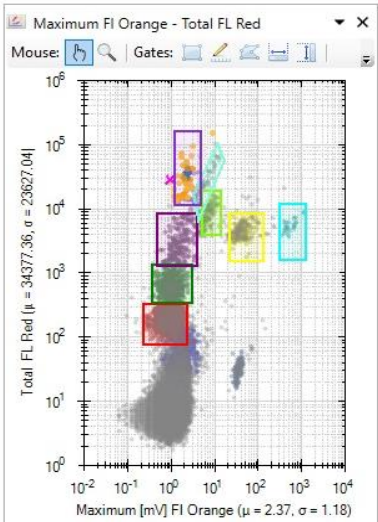
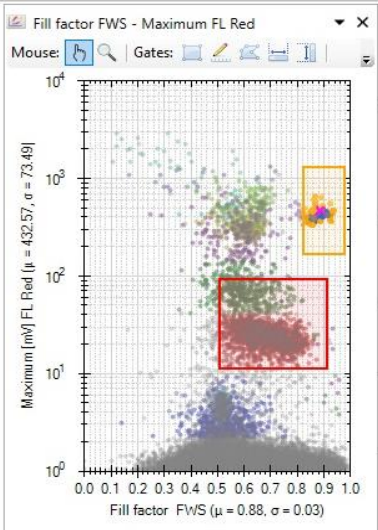
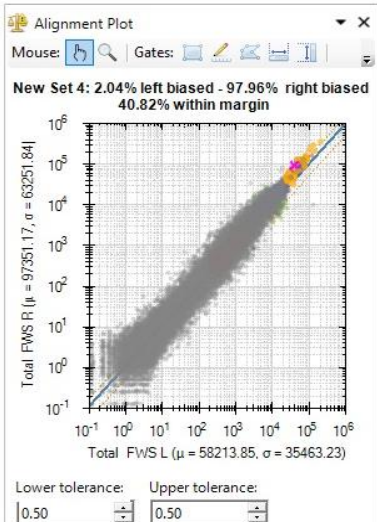
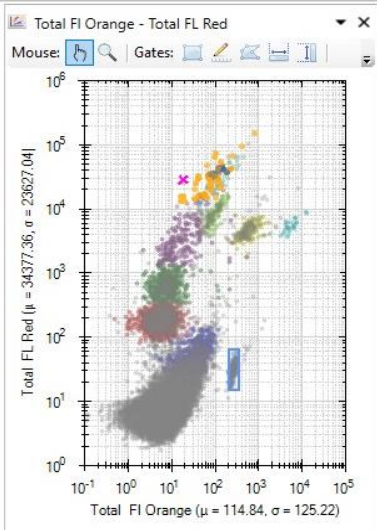
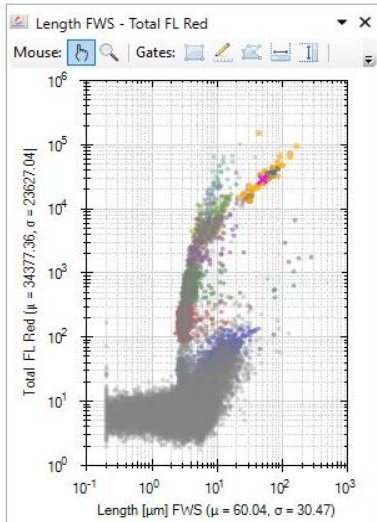
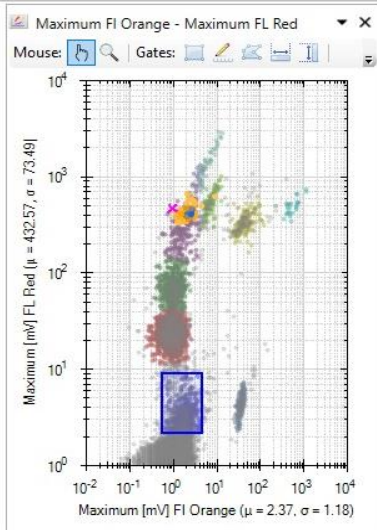
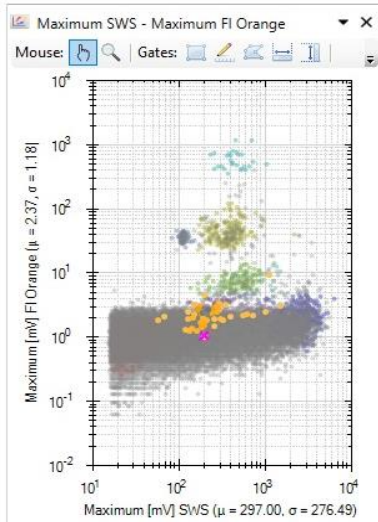
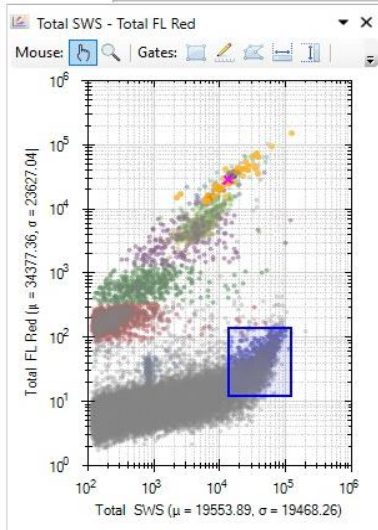
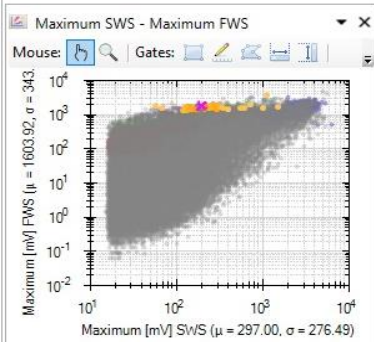
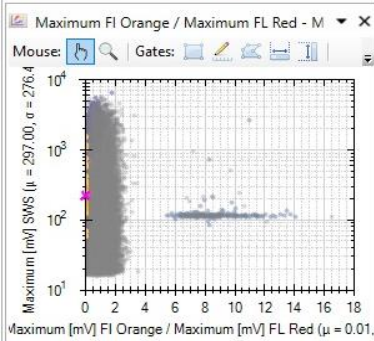
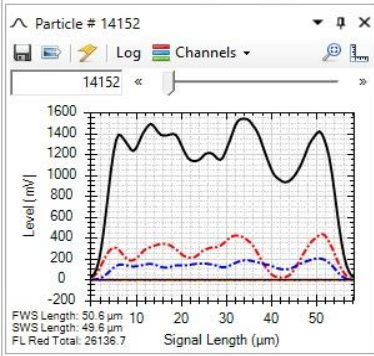


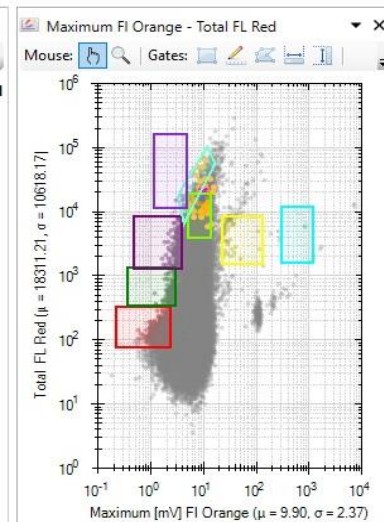
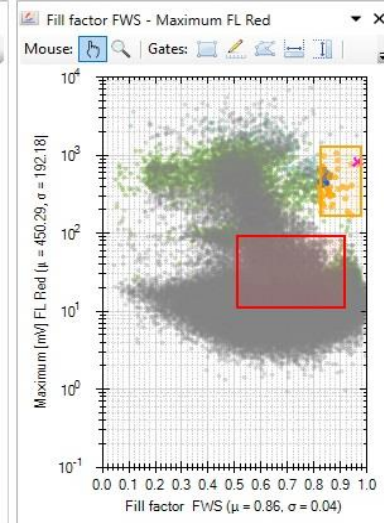
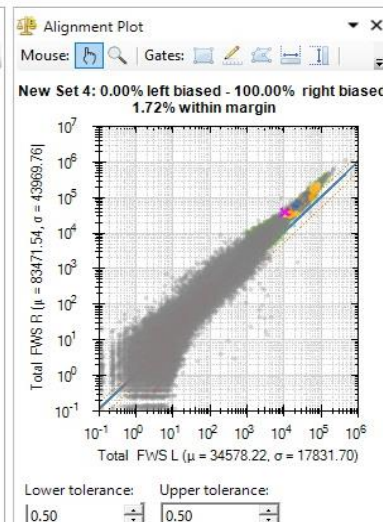
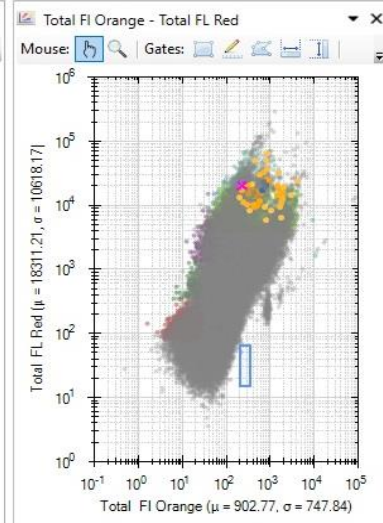
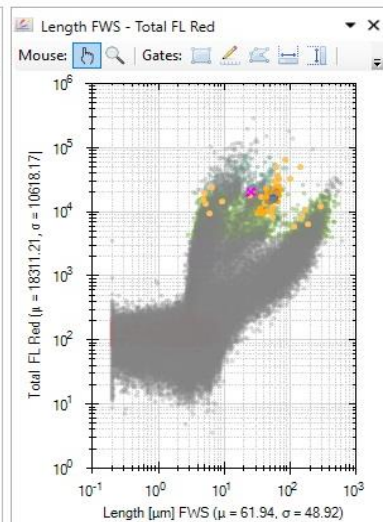
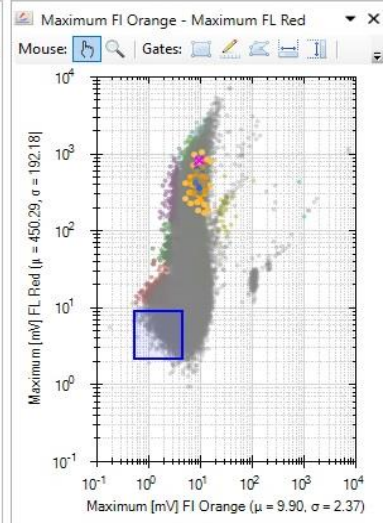
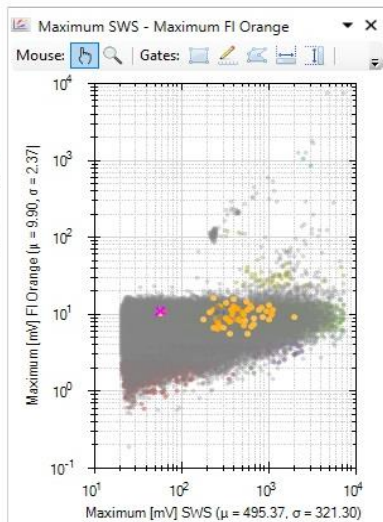
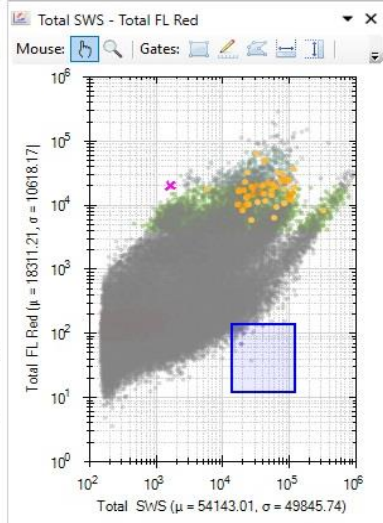
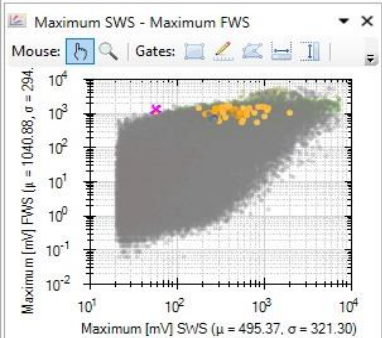
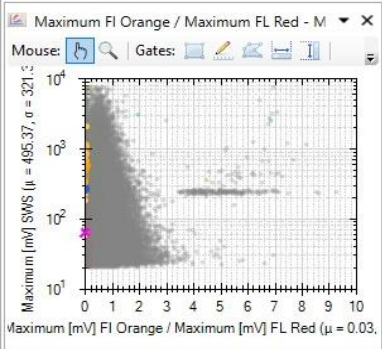
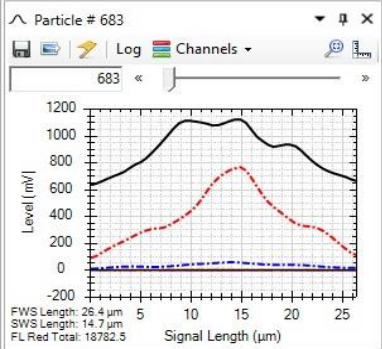
O₂ ?
Lumina?
pH?
t, °C



Prodicator: Cytobuoy (Olanda)







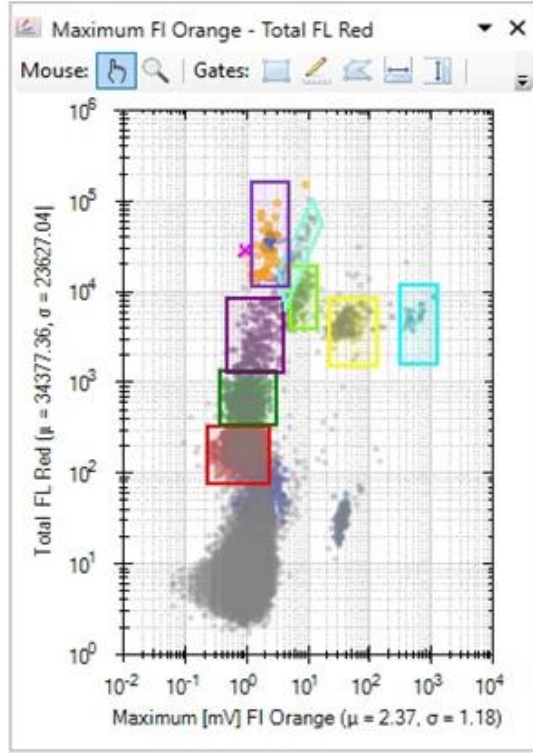
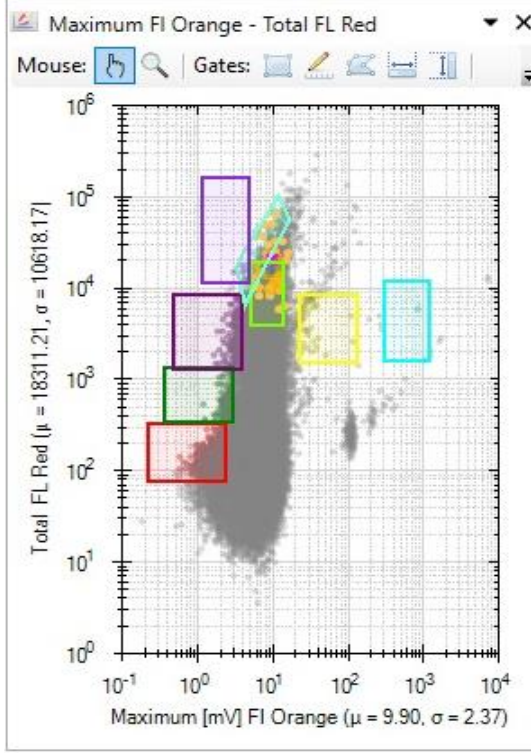
Analiza comparativa – lac / fluviu



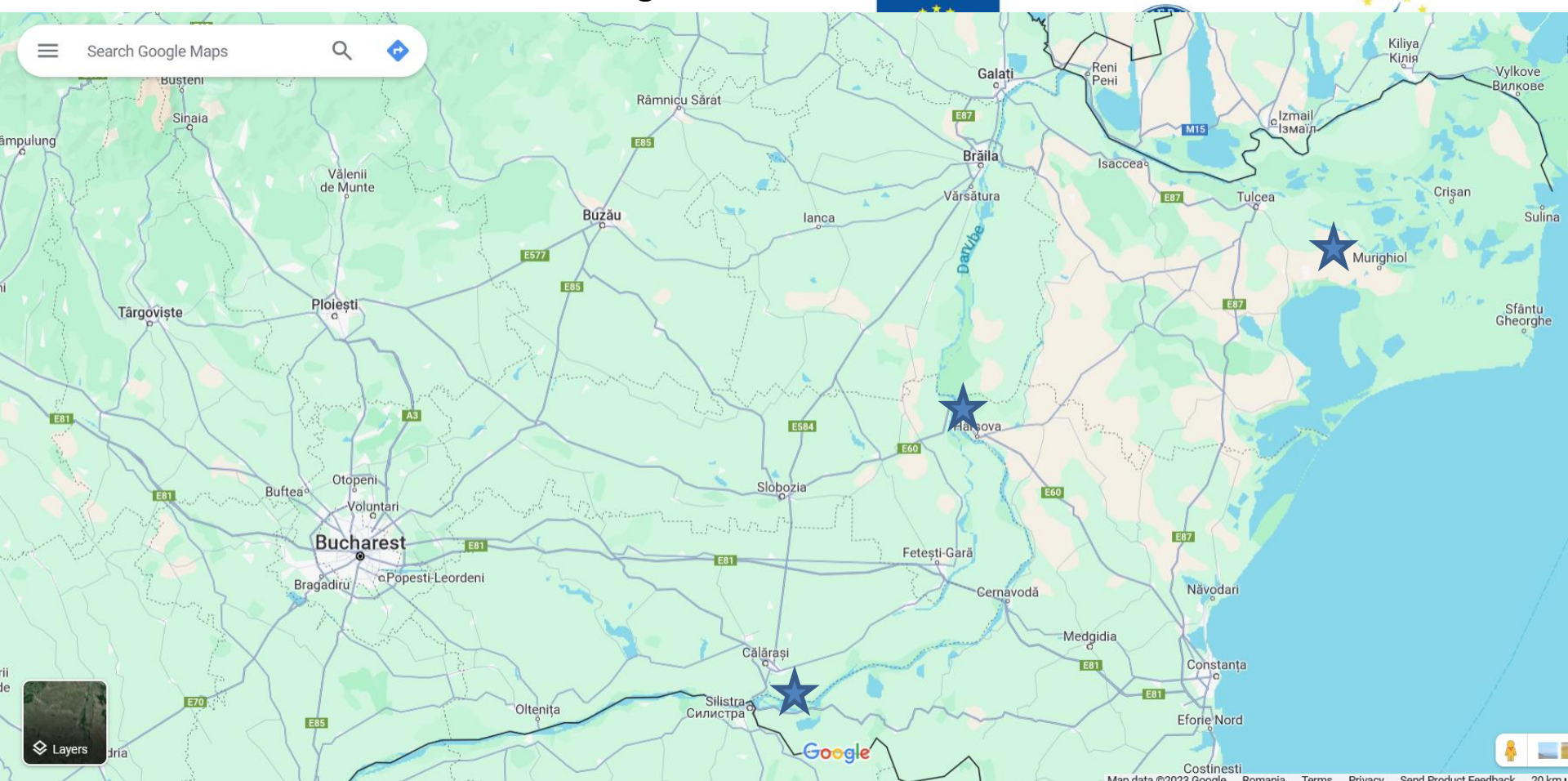
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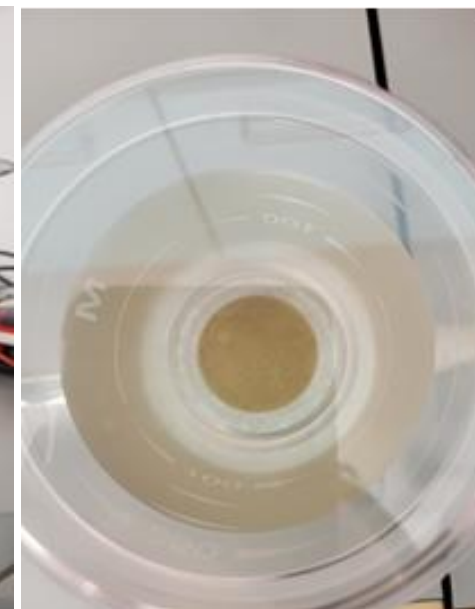


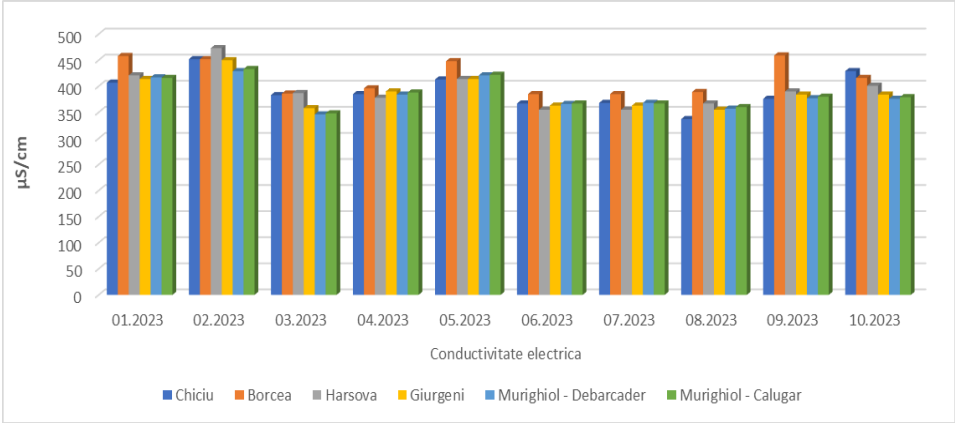
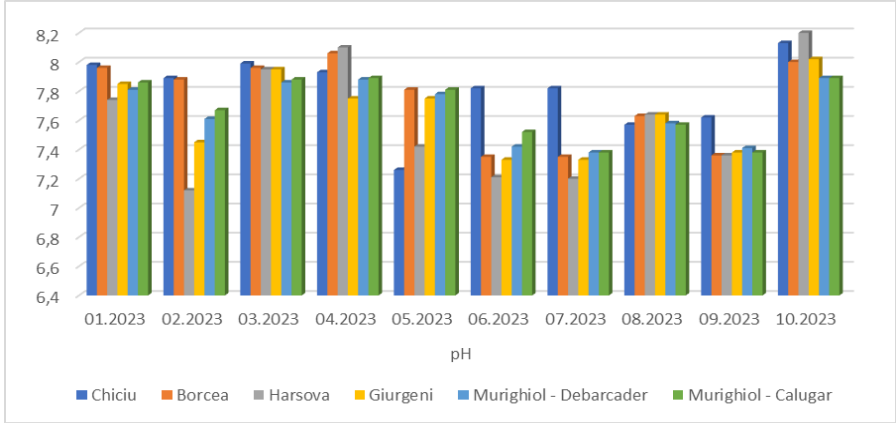
Instrumente Structurale
2014-2020

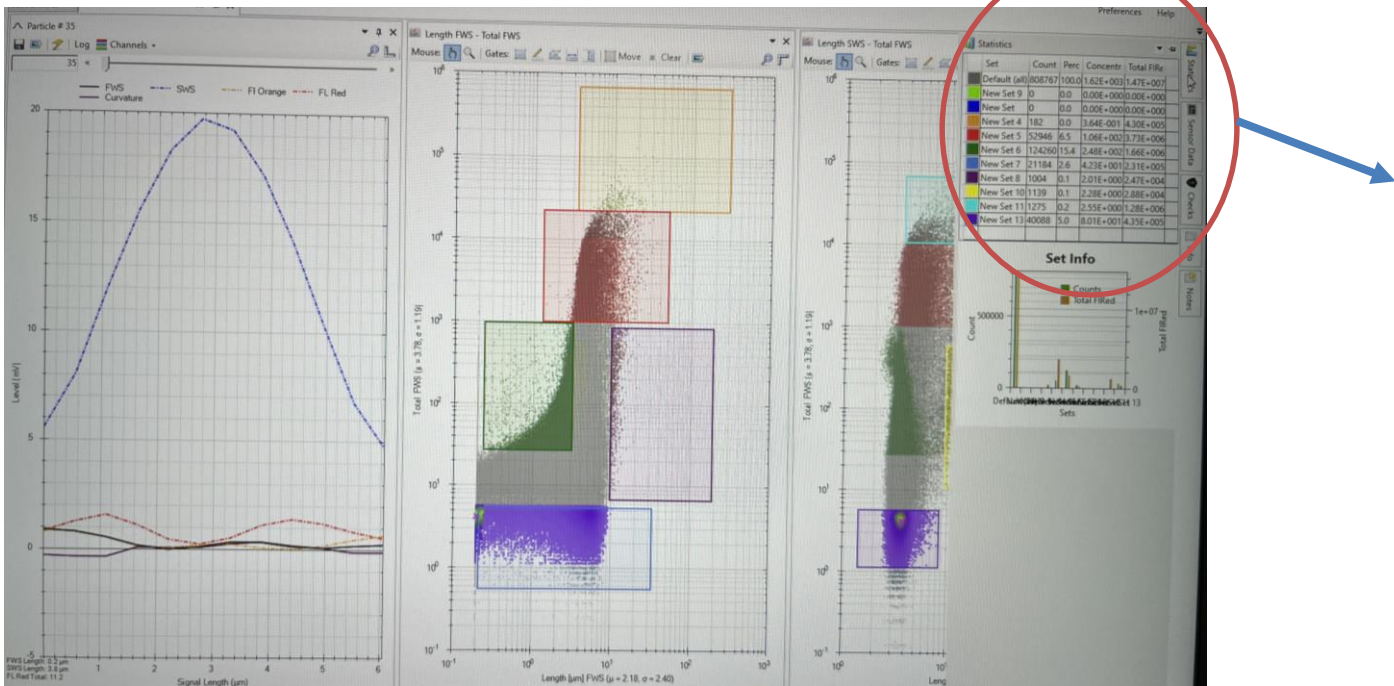


Monitorizare: Calarasi – Harsova - Murighiol









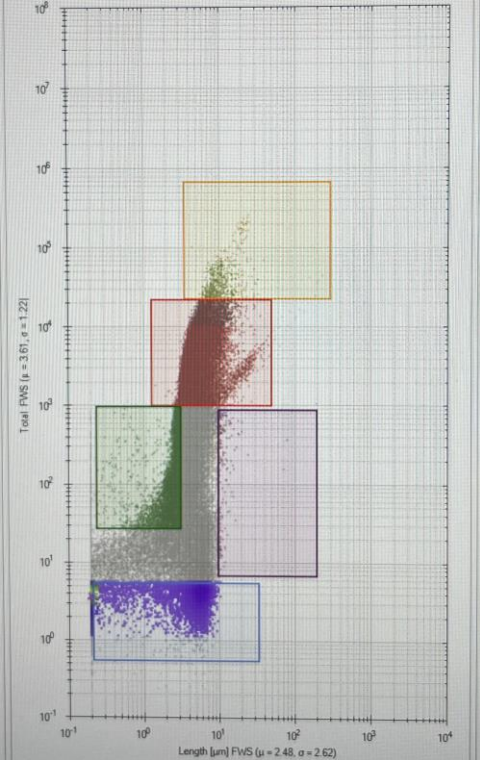
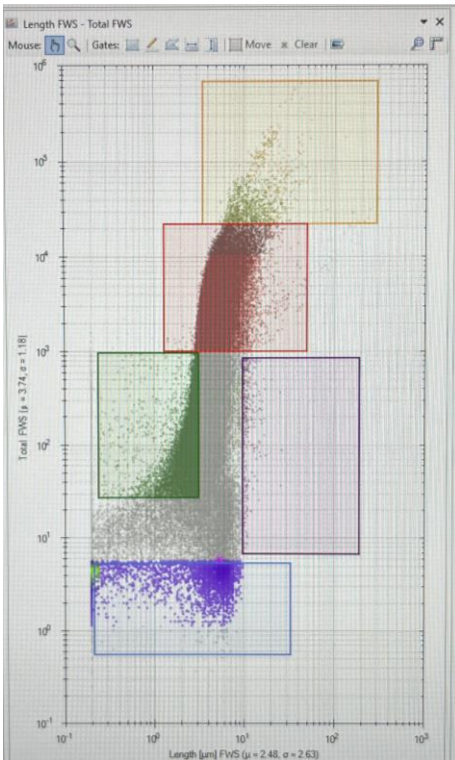
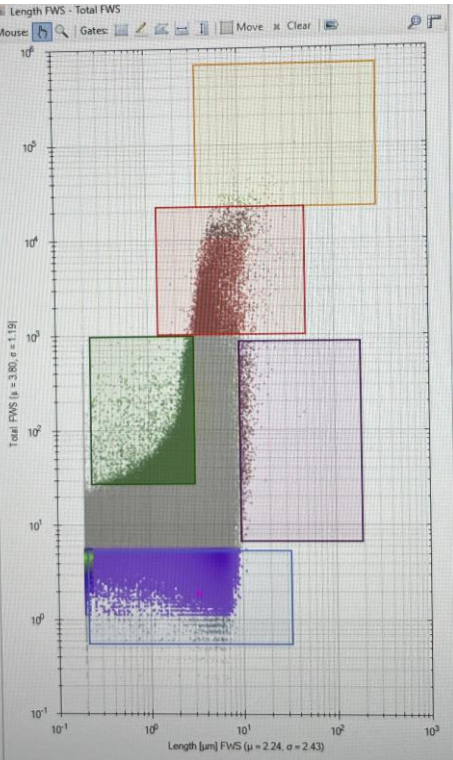
Statistics

Set	Count	Perc	Concetr	Total FIRe
Default (all)	808767	100.0	1.62E+003	1.47E+007
New Set 9	0	0.0	0.00E+000	0.00E+000
New Set 0	0	0.0	0.00E+000	0.00E+000
New Set 4	182	0.0	3.64E-001	4.30E+005
New Set 5	52946	6.5	1.06E+002	3.73E+006
New Set 6	124260	15.4	2.48E+002	1.66E+006
New Set 7	21184	2.6	4.23E+001	2.31E+005
New Set 8	1004	0.1	2.01E+000	2.47E+004
New Set 10	1139	0.1	2.28E+000	2.88E+004
New Set 11	1275	0.2	2.55E+000	1.28E+006
New Set 13	40088	5.0	8.01E+001	4.35E+005

Set Info



Evolutie incarcare microbiologica

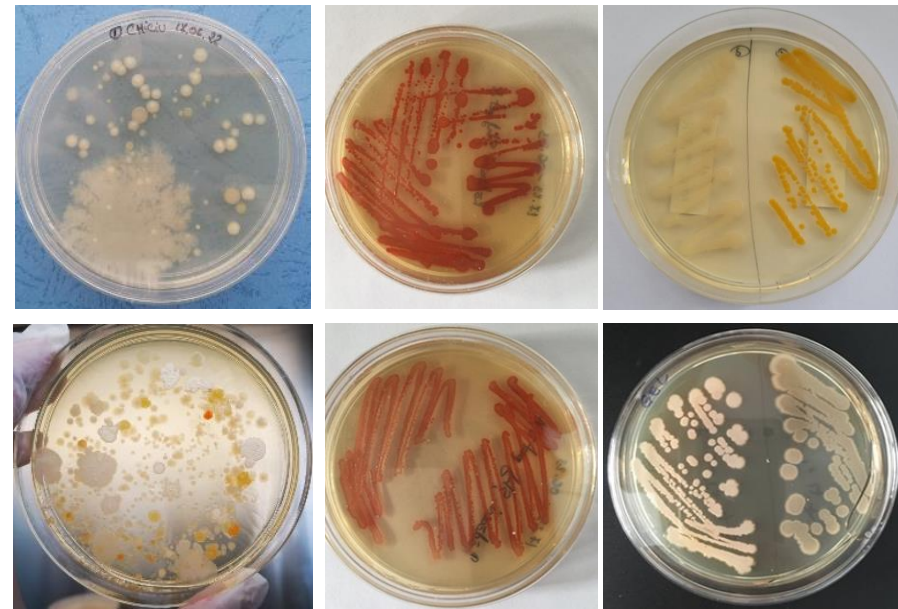
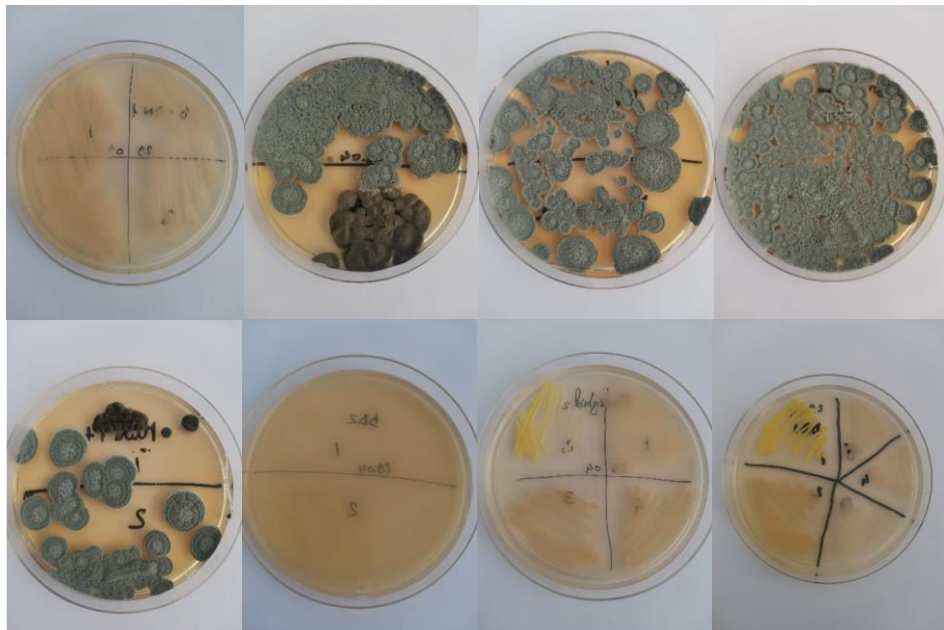


Harsova: iunie,
iulie, august
2023



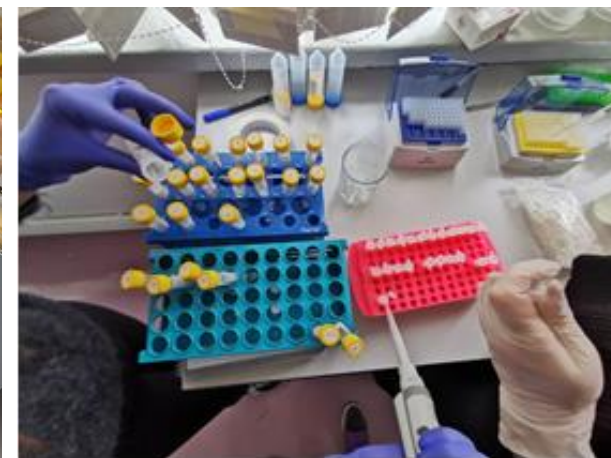
Monitorizare: Calarasi – Harsova - Murighiol

Izolare specii



Monitorizare: Calarasi – Harsova - Murighiol

Calibrare citometru + Extractie ADN



Secventiere AND extras



Activitate in curs: editare si trimming in Bioedit, aliniere-programul BLAST si identificarea cu precizie a speciilor folosind baza de date NCBI (National Center for Biotechnology Information)



Cerere de brevet: Metodă de evaluare a procesului natural de biofiltrare





- Specii recunoscute in literatura ca indicatori biologici pentru procesul de eutrofizare
- Stabilirea nivelelor critice de abundenta microbiana si a dinamicii populatiilor in procesul de eutrofizare
- Dezvoltarea unui system de alerta (*early warning signs*) pentru autoritati

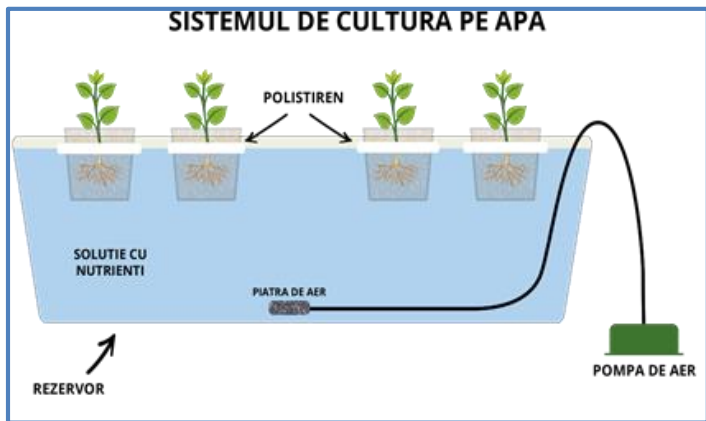
1. Utilizarea compusilor biologic activi din plante specifice Deltei Dunarii
 - 2 cereri de brevet
2. Experimente cu vegetatie hidroponica: vegetatie spontanta (Lintita si salata furajera)



2. Experimente cu vegetatie hidroponica: Lintita



2. Experimente cu vegetatie hidroponica: salata furajera – in curs







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Instrumente Structurale
2014-2020





Mulțumesc!

Echipa management:

Manuela SIDOROFF - Director Proiect, manuela.sidoroff@incdsb.ro

Maria PARASCHIV - Manager Operational, maria.paraschiv@incdsb.ro

Cosmina PANZARU - Responsabil Financiar, cosmina.panzaru@incdsb.ro