Workshop

Leveraging Biomolecular Technologies for Supporting Sustainable Fisheries and Aquaculture

2-4 September - FAO Headquarters - Rome, Italy

Day 1: Introduction & Collaboration Kick-off

Morning Session: Setting the Stage

9:00 – 09:10 AM	Welcome - *Manuel Barange, ADG, Director of the Fisheries and Aquaculture Division*
9:10 – 09:30 AM	Workshop overview and objectives
9:30 – 10:15 AM	Challenges in applying biomolecular tools – global perspectives from fisheries and aquaculture managers. - *Hassan Moustahfid, NOAA/US IOOS-Remote presentation via zoom*.
10:15 - 11:00 AM	Introduction to biomolecular technologies in supporting sustainable fisheries and aquaculture - *Michael Bunce, Director of OceanOmics and Ecosystem Intelligence at the Minderoo Foundation.*
11:00 - 11:15 AM	*Coffee break*
11:15 – 12:00 PM	Examples of existing good practices to inspire new approaches in supporting sustainable fisheries and aquaculture. (7 minutes each).

1. *Integration of eDNA-based approaches in fisheries science: insights, experiences, and perspectives from the Mediterranean Sea. - Tommaso Russo*
2. *eDNA in Action: From Biodiversity Assessments to Sustainable Fisheries and Aquaculture in the Red Sea - Susana Carvalho*
3. *Environmental DNA Applications in Türkiye: Bridging Science and Policy for Sustainable Aquatic Resource Management - Emre Keskin*
4. *eDNA Implementation Progress at Fisheries and Oceans Canada - Anaïs Lacoursière-Roussel*
5. *eDNA for fisheries monitoring: insights from the Celtic Sea – Vera Fonseca*
6. *eDNA-based tools to trace sustainability from fishery to fork – Lahsen Ababouch.*
7. *How biomolecular evidence can support conservation of marine fishes – Martin Genner*

12:00 – 12:30 PM	Open discussion (Q&A)
12:30 – 1:30 PM	*Lunch Break*

Day 1 - Afternoon Session: Identify goals, challenges, and obstacles.

1:30 - 1:40 PM	**Breakout session 1-** Introduction to activity
1:40 – 3:00 PM	Participants break into small groups to identify key goals, challenges and obstacles facing the use of biomolecular tools in marine resources management.
3:00 – 3:30 PM	*Coffee Break*
3:30 – 4:30 PM	Q&A and report from Breakout session 1
4:30 – 5:30 PM	Day 1 Feedback and Reflection and Day 2 Objectives
5:30 PM	Day 1 Adjourn
6:00 PM	Social event – FAO building, 8th Floor.

Day 2: Deep Dive into Collaborative Strategy Development

Morning Session: Strategy development

9:00 – 10:15 AM Presentations on strategies for use of biomolecular tools to address sustainable fisheries/aquaculture management based on case studies (7 minutes each)

Introduction: Successes and Challenges by Anaïs Lacoursière-Roussel

1. *'Omics Applications for Fisheries- Kelly Goodwin*
2. *Progress and Roadblocks to Implementation in Aquaculture, and Potential Approaches to Address Them: Perspectives from Norway, New Zealand, and Australia – Nigel Keeley*
3. *Incorporating biomolecular tools into the existing management frameworks - Mark Dimech*
4. *Changing Seas, Changing Fish: What 12 Years of eDNA Tells Us About Shifting Fish Populations and Future Monitoring.- Karen Tait*
5. *Enhancing species detection and monitoring through biomolecular tools to target marine fisheries conservation actions in the Colombian Pacific - Vanessa Yepes*
6. *Integrating fisheries and biomolecular tools for management and sustainability in the Humboldt Current system, with a focus on bycatch reduction. – Giovanna Sotil & Javier Quiñones.*
7. *Fisheries and Aquaculture Management Utilizing Biomolecular Tools in Panama – Yazmin Villareal (Pre-recorded with English Subtitles).*
8. *Developing passive environmental DNA biomonitoring for detecting offshore marine biodiversity in South Africa - Sophie Von der Heyden.*

Q&A - 15 Minutes

10:15 -10:30 AM *Coffee break*

Day 2 - Breakout session 2: Turning ideas into actionable recommendations

10:30 - 12:30 PM Breakout session 2 – Part I

Themes and Facilitators

1. **Aquaculture (Anaïs Lacoursière-Roussel & Nigel Keeley)**
    - Using biomolecular tools to address issues on disease/pathogens, escapement, characterizing food, introduction, and transfer, etc.

2. **Ecosystem-based management approaches (Mark Dimech, Mike Bunce & Hassan Moustahfid)**
    - Tools to address ecosystem and biodiversity assessment and management, including species composition, spatial and temporal resolution of aquatic biology, biodiversity baselines and conservation issues.

3. **Stock assessment (Eiup Mumptas & Warwick Sauer)**
    - Support the estimation of abundance and biomass for improved stock assessments.
    - Reduce labour-intensive taxonomic identification and improve species ID accuracy.

12:30 – 1:30 PM *Lunch Break*

Afternoon session – Breakout 2 (*continuation*)

1:30 – 3:30 PM Breakout session 2 - Part II.

4. **Compliance and enforcement (Kelly Goodwin & Lahsen Ababouch)**
    - Tools to support the reduction of IUU fishing, improve seafood traceability, eco-labelling and track bycatch, Aquaculture introduction and transfer.

5. **Biomolecular data (Susana Carvalho &Claudio Quezada)**
    - Integration, accessibility, access benefit sharing for research and management, following FAIR and CARE principles to maximize benefits.

6. **Capacity Development (Mattie Rodrigue & Martin Genner)**
    - Foster analytical expertise for biomolecular data analysis and synthesis and products development for Management

3:30 – 4:00 PM Coffee Break

4:00 – 5:00 PM Report and discussion from Breakout sessions. Groups will seek feedback to refine their recommendations and incorporate diverse perspectives.

5:15 - 5:30 PM Day 3 Objectives

5:30 PM Day 2 Adjourn

Day 3: Sharing Outcomes and Future Collaboration

08:45 *Morning Coffee*

Working Group Report-Outs

9:00 – 10:30 AM From today's capacity to tomorrow's potential

- Identify Short (5 years) and long term (20 years) recommendations.
- Audience - Who are the recommendations for?
    - Managers
    - Scientists
    - Commercial
    - Policy Makers
    - Other stakeholders

- What can we do to maximise the potential for recommendations
- to be adopted and implemented?
- Priority actions required for implementation.

10:30 – 11:30 AM Final discussion

- Have we addressed the challenges, goals and opportunities identified on Day 1?
- How would this envision future benefit countries?
- Economically, Sustainability, Health, Food Security, etc.

11:30 - 12:00 PM Coffee Break/Steering Committee discussion

Wrap-Up Session: Next Steps and Ongoing Collaboration

12:00 – 1:00 PM Creating a Roadmap for Moving Forward: Plan for Delivering on Workshop Outcomes

Plan for staying connected through ongoing communication channels and discuss opportunities for continued collaboration among participants.

1:00 - 1:30 PM Closing Remarks and Reflections.

End of Workshop