

The Blue Planet's Health: Bridging Scientific Research and Public Awareness

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Associate Professor

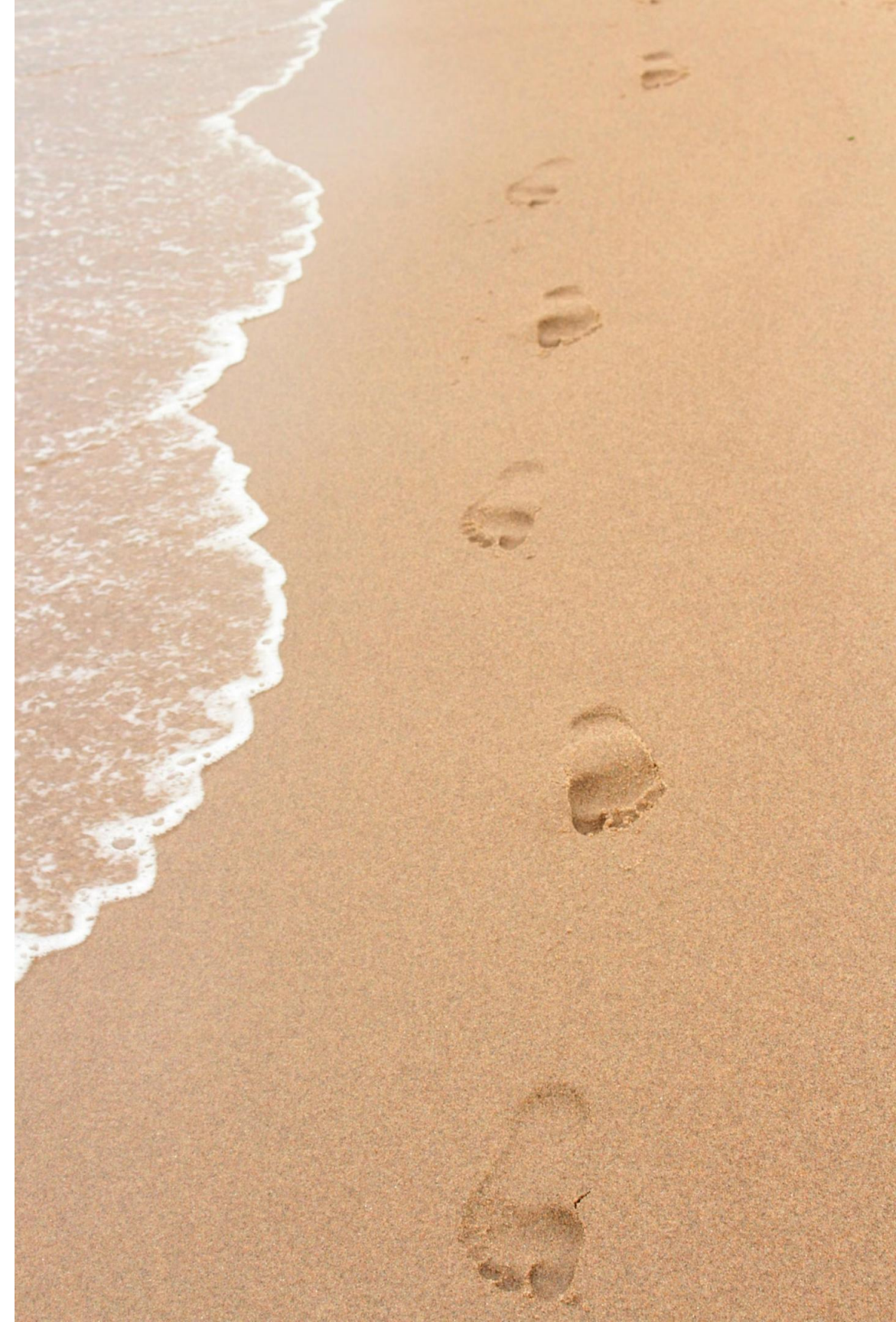
National Institute of Oceanography and Fisheries (NIOF)

Pollution Lab – Egypt



Career

- B.Sc. In Zoology, M.Sc., and Ph.D. in Biology
- National Institute of Oceanography and Fisheries (NIOF).
- Lecturer at the Arab Academy for Science, Technology, and Maritime Transport (AASTMT), College of Fisheries and Aquaculture Technology,
- Reviewer editor within Springer Nature
- Coordinator of the Women in Marine Science (WiMS) Womentoring Program
- Women in Ocean Science (WOS) Ambassador



Research Focus

Bridging Disciplines

My research bridges pollution and aquatic health.

Contaminant Impact

Studying how contaminants (microplastics, heavy metals, oil spills, and persistent organic pollutants) impact fish health with an emphasis on sustainability in aquaculture and health risk.



Key Findings

Findings

■ Pollutant Accumulation

Fish and other aquatic organisms can accumulate Pollutants (heavy metals, pesticides, fertilizers, pharmaceuticals, hydrocarbons, and others).

■ Human Health Risk

When we eat seafood, these pollutants enter our bodies and accumulate, leading to health risks.

■ Impaired Health

Pollutants found in nearly all tissues of aquatic organisms, impairing their health, productivity, and growth performance.

■ Target Organs

In fish, the liver and gills are the primary target organs for pollutant accumulation.

■ Lowest Concentration

Muscle tissues (the edible parts), generally exhibit the lowest concentrations of pollutants.

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Health risks associated with contaminated seafood factors:



Rate of Fish Consumption

daily or weekly intake of fish per person; average 56 g/day, habitual consumers >150 g/day (FAO, 2022).



Fish Habitat

(nearby activities)



Fish Size

(depend on species and duration of exposure)



Feeding Habits

(Fish feeding at higher trophic levels > than herbivorous fish; benthic feeders > pelagic feeders)



Seasonal Variations

(temperature, water levels, other chemical and physical parameters).



Fish Species

(some fish can accumulate more pollutants and survive)



Sex and Reproductive Cycle

(lipid content)



Exposure Duration

(direct relation).

Challenges & Limitations

❖ **Dynamic Environment**

Aquatic environment is dynamic.

❖ **Detection & Quantification**

Accurate detection and quantification of pollutants require advanced analytical instruments and standardized protocols.

❖ **Species-Specific Responses**

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❖ **Complex Effects**

Cumulative and Synergistic Effects of pollutants.

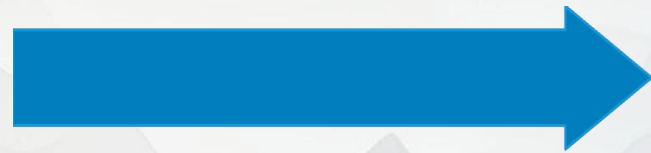
❖ **Data Gaps**

Limited Toxicological and Epidemiological Data.

❖ **Policy Barriers**

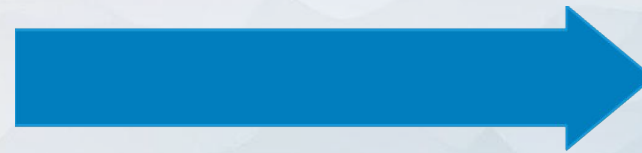
Socioeconomic and Policy Barriers

Recommendations



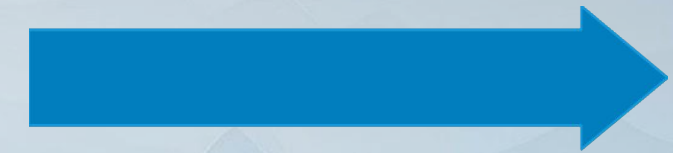
Global Collaboration

Strengthen global and regional collaboration in aquatic pollution management and research.



Sustainable Investment

Invest in sustainable fisheries and aquaculture and eco-friendly practices.



Policy Integration

Connect the scientific research to policymaking; poor communication limits the integration of scientific findings into evidence-based regulations and sustainable development plans.

Recommendations

Public awareness and community engagement also remain limited, particularly among marginalized communities, small-scale fishers, and aquaculture producers who may lack access to scientific data on pollution impacts and safe consumption levels.

□ The Power of Education

Proper education and communication can limit the dependence on contaminated fishery resources, which pose risks to our health and environment.



My Vision

To bridge **scientific research** with **society** and **sustainability** by fostering awareness, education, and innovation.



Thank you

Stay Connected



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Google Scholar

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