INÉS O' FARRELL

1961, ARGENTINA

Argentine limnologist, Vice President of the International Society of Limnology (SIL) and former Deputy Director of the Institute of Ecology, Genetics and Evolution of the University of Buenos Aires.

She works on the ecology of river and lagoon phytoplankton, with a particular focus on cyanobacterial blooms.

She uses her research to urge governments to take action to preserve inland waters.

HERSTORY

She plays a very active role in encouraging young researchers in developing countries to continue their careers on issues of the status and conservation of fresh water and access to good quality water.

DYNAMIC EFFECT OF FREE-FLOATING PLANTS ON PHYTOPLANKTON ECOLOGY

Field experiment with mesocosms aiming to study the composition, diversity and production of phytoplankton.

Three scenarios in a warm shallow lake:

1) ***Free-floating plants dominance***
   light interception triggered a complex response by the phytoplankton: species were lost and biomass was low, yet high diversity and productivity potential were maintained.

2) ***Free-floating plants absence***:
   light was sufficient but nitrogen was limiting.

3) ***Free-floating plants fluctuation***:
   plant cover brought periodic shifts between these two limiting resources for the phytoplankton, which most probably explain the maintenance of richness, diversity and production in these shallow lakes.

Top image: *Free-floating Lemna minima Phil. ex Hegelm.*

Inés O' Farrell et al. (2009). Freshwater Biology.

CYANOBACTERIAL BLOOMS

Cyanobacteria can form dense and sometimes toxic blooms, which threaten ecosystem functioning and degrade water quality (e.g. recreation, drinking water, fisheries).

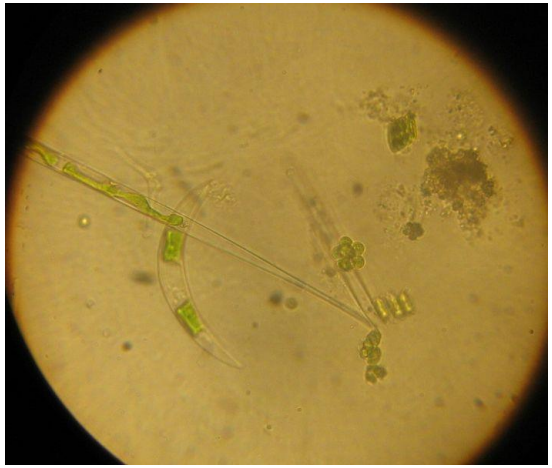
Cyanobacterial blooms are globally increasing in frequency, magnitude and duration.

They are formed by nitrogen-fixing eco-strategists (e.g. Dolichospermum and Microcystis).

Their distribution was highly affected by fluctuating hydrological conditions and the morphology of the reservoir.

The successful adaptation to the prevailing environment mostly by means of buoyancy control validates their classification as scum-forming eco-strategists.

Cyanobaterial blooms



Phytoplankton (Microcystis and others).

Inés O'Farrell, et al. (2012). Phytoplankton responses to human impacts at different scales.

RELEVANT CONTRIBUTIONS

O'Farrell, I., Lombardo, R. J., de Tezanos Pinto, P., Loez, C. (2002). The assessment of water quality in the Lower Luján River (Buenos Aires, Argentina): phytoplankton and algal bioassays. Environmental Pollution, 120, 207-218.

de Tezanos Pinto, P., Allende, L., **O'Farrell, I.** (2007). Influence of free-floating plants on the structure of a natural phytoplankton assemblage: an experimental approach. Journal of Plankton Research, 29, 47-56.

O'Farrell, I., De Tezanos Pinto, P., Rodriguez, P. L., Chaparro, G., Pizarro, H. N. (2009). Experimental evidence of the dynamic effect of free-floating plants on phytoplankton ecology. Freshwater Biology, 54, 363-375.

O'Farrell, I., Izaguirre, I., Chaparro, G., et al. (2011). Water level as the main driver of the alternation between a free-floating plant and a phytoplankton dominated state: a long-term study in a floodplain lake. Aquatic Sciences, 73, 275-287.

O'Farrell, I., Bordet, F., Chaparro, G. (2012). Bloom forming cyanobacterial complexes co-occurring in a subtropical large reservoir: validation of dominant eco-strategies. In: Phyto-plankton responses to human impacts at different scales (pp. 175-190). Springer, Dordrecht.

LOOKING FOR MORE?

You can find more information about her story and research at:

ResearchGate O'Farrell; https://ri.conicet.gov.ar/author/5487