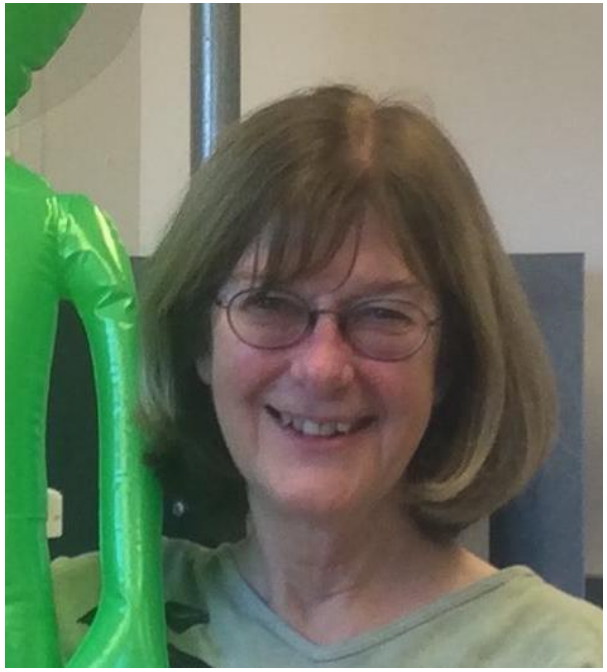


MARY E. POWER

1949, UNITED STATES

Limnologist known for her research on food webs, community ecology and landscape ecology.

She mostly worked in temperate and tropical rivers, where her outputs influenced theory on the importance of food webs in ecosystem functioning.

She has received many awards, including: the Kempe Medal for distinguished ecologist, the Hutchinson Award (American Society of Limnology and Oceanography), and the Award of Excellence (Society of Freshwater Science).

HERSTORY

She was fascinated since childhood by snorkeling in clear water and watching at close range as invertebrates, amphibians, reptiles, and fish wend their ways through landscapes of algae, macrophytes, and rocks.

DOMINANT VS. KEYSTONE SPECIES

Dominant species: species with a low impact on its community or ecosystem, relative to its abundance.

Keystone species: species with a disproportionately large impact on its community or ecosystem, and relative to its abundance.

Keystone species characteristics:

- Do occur in all the world's major ecosystems
- Do not have to be a top predator
- Can affect its community or ecosystem through consumption, competition, mutualism, dispersal, pollination, disease and by modifying habitats and abiotic factors.

Largemouth bass is a top predator and considered a keystone species.

Adapted from:Mary E. Power et al. (1996). Bioscience

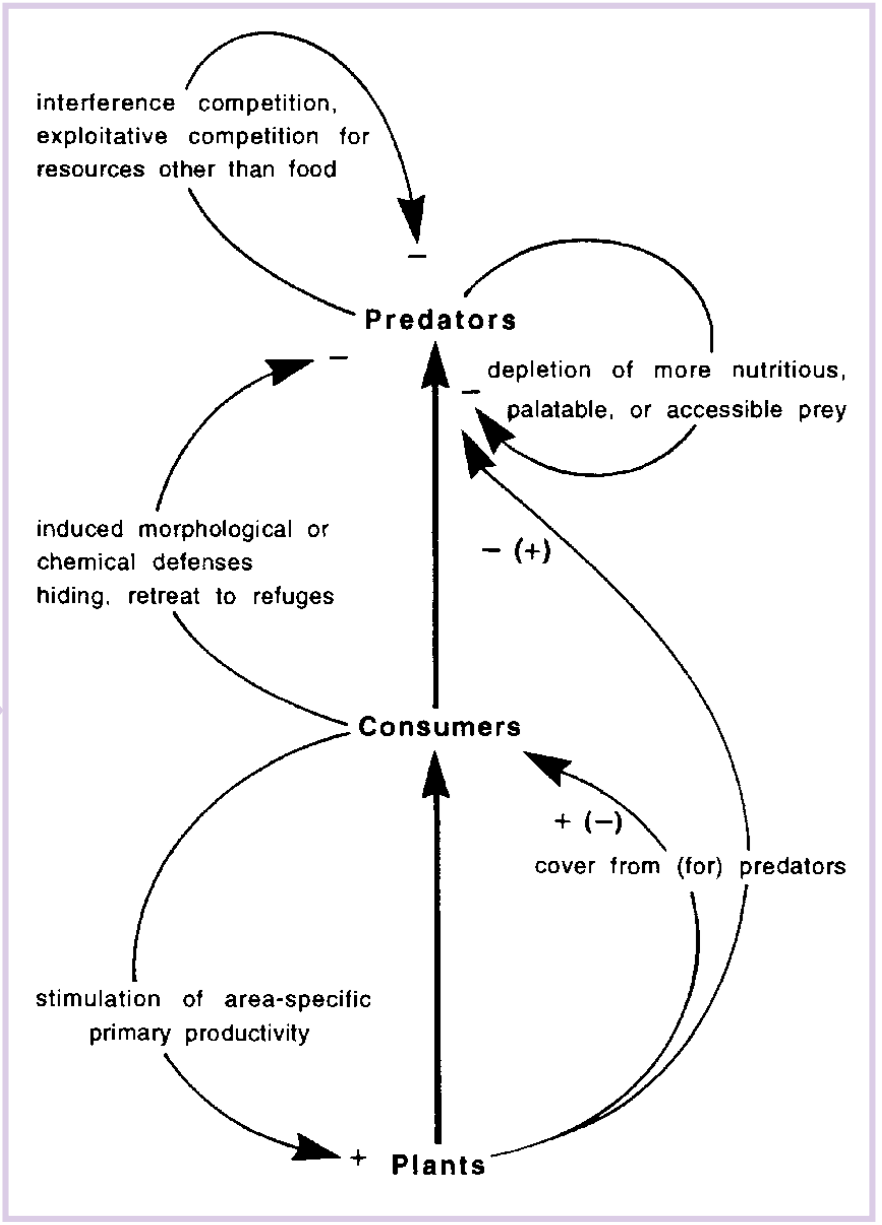
TOP-DOWN VS. BOTTOM-UP

Top down: resources are the primary control determining distributions and abundances of organisms in food webs.

Bottom up: predators are the primary control determining distributions and abundances of organisms in food webs.

Example

Mechanisms (curved arrows) modulating top-down and bottom-up forces (straight arrows) in food chains.



Adapted from: Mary E. Power. (1992). Ecology

RELEVANT CONTRIBUTIONS

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Power, M. E., Tilman, D., Estes, J. A., et al. (1996). Challenges in the Quest for Keystones: Identifying keystone species is difficult—but essential to understanding how loss of species will affect ecosystems, BioScience, 46, 609–620.

Power, M. E., Parker, M. S., Dietrich, W.E. (2008). Seasonal reassembly of river food webs under a Mediterranean hydrologic regime: Floods, droughts, and impacts of fish. Ecological Monographs, 78, 263-282.

Power, M. E., Holomuzki, J. R., Lowe, R.L. (2013). Food webs in Mediterranean rivers. Hydrobiologia, 79, 119-136.

LOOKING FOR MORE?

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

https://en.wikipedia.org/wiki/Mary_Eleanor_Power

https://ib.berkeley.edu/labs/power/lab_people.html

'The Serengeti Rules': Film Review. (2019). The Hollywood Reporter.