

# Researchers find instance of jellyfish benefitting top predators in an ocean ecosystem

August 27 2015, by Bob Yirka

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Drifters-in-the-sea: salps bloom off the coast of New Zealand. Credit: Seacology

(Phys.org)—A team of researchers from Japan and the U.S. has found an instance of jellyfish offering a benefit to a top ocean predator. In their paper published in the journal *The Royal Society – Biology Letters*,

the team describes a field study they conducted with diving birds, juvenile fish and jellyfish, and why they believe their findings suggest that the increase in jellyfish populations may not be as harmful as thought.

As the planet warms, the oceans have warmed along with it, and that has caused the plants and animals that live in the sea to adapt or perish. Many scientists believe that many such organisms will likely fail to flourish and thus will disappear. One species that does not appear to be having any problems adjusting is jellyfish—indeed, as the oceans warm, their numbers have been going up. This development has led some ocean scientists to worry that they will crowd out other species, particularly other top predators. But, the researchers with this new effort have found at least one instance where an increase in jellyfish appears to be helping at least one top predator.

The instance was found when studying the thick-billed murre—a type of bird that dives under the sea to catch fish to eat. The team attached small cameras to eight of the [birds](#) to see what they were doing under the water—in studying the tape, they found that four of the birds repeatedly made their way to crowds of northern sea nettle, aka, brown jellyfish, where juvenile fish were hiding among the tentacles. The birds were able to snatch the fish and eat them. Prior research had found that some types of [juvenile fish](#) were also apparently finding some benefit to living among the jellyfish—eating plankton that became attached to the jellyfish tentacles or perhaps to help them hide from predators. Because the birds made the maneuver approximately 20 percent of the time when they went diving, the researchers believe it is a learned behavior that is providing a true benefit for them. They also suggest that it might be an indication that [jellyfish](#) are actually providing a benefit to a multitude of diving birds by concentrating prey, making it easier to feast.

**More information:** The jellyfish buffet: jellyfish enhance seabird

foraging opportunities by concentrating prey, *Biology Letters*, Published 26 August 2015. [DOI: 10.1098/rsbl.2015.0358](https://doi.org/10.1098/rsbl.2015.0358)

## **Abstract**

High levels of jellyfish biomass have been reported in marine ecosystems around the world, but understanding of their ecological role remains in its infancy. Jellyfish are generally thought to have indirect negative impacts on higher trophic-level predators, through changes in lower trophic pathways. However, high densities of jellyfish in the water column may affect the foraging behaviour of marine predators more directly, and the effects may not always be negative. Here, we present novel observations of a diving seabird, the thick-billed murre, feeding on fish aggregating among the long tentacles of large jellyfish, by using small video loggers attached to the birds. We show that the birds encountered large jellyfish, *Chrysaora melanaster*, during most of their dives, commonly fed on fish associated with jellyfish, and appeared to specifically target jellyfish with a high number of fish aggregating in their tentacles, suggesting the use of jellyfish may provide significant energetic benefits to foraging murre. We conclude that jellyfish provide feeding opportunities for diving seabirds by concentrating forage fish, and that the impacts of jellyfish on marine ecosystems are more complex than previously anticipated and may be beneficial to seabirds.

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