

Press release: Junk food in marine ecosystems

Charismatic top predators in marine ecosystems, such as seabirds and marine mammals, are significantly affected by changes in the fish communities, whether caused by climate change or fisheries. A collaborative study published by researchers at Baltic Nest Institute, Stockholm Resilience Centre and Glasgow University reviewed changes in fish communities and top predators around the world.

The effects on top predators from changing fish abundances range from offspring condition, adult survival and population trends. Similar effects have been documented in marine ecosystems around the world. In the North Sea, starvation rates of Harbour porpoise are higher and breeding success of seabird is lower during years of low fish abundances.

The response to changes differs between species. Some appear to be very sensitive to changes in the abundance of food, whereas other species seem more sensitive to changes in the quality of food. Decreasing quality of fish (i.e. decreasing energy content) has been documented in several ecosystems (e.g. the North Pacific, the North and Baltic Seas), with effects on seabirds and sea lions. This phenomenon is known as “junk food” and can have a large effect on some species with limited digestive capacity and high cost of foraging. Changes in fish quality can be linked to zooplankton dynamics (i.e. the food for fish), which in turn will be affected by climate change.

- “We have seen very few attempts so far to incorporate the needs of top predators into management of fish stocks, partly because these needs can be difficult to determine”, says Prof. Bob Furness.
- “Fishing and climate change will continue to have an impact on marine ecosystems. We need to go from words to action in implementing an ecosystem approach. In practice, this means setting allowable fish catches at levels where ecosystem structure, function and resilience can be sustained”, says Dr. Henrik Österblom.

The article: Junk food in marine ecosystems is published in *Oikos*, a leading scientific journal in ecology. For more information, please contact Dr. Henrik Österblom +46 73 707 88 16, henrik.osterblom@stockholmresilience.su.se