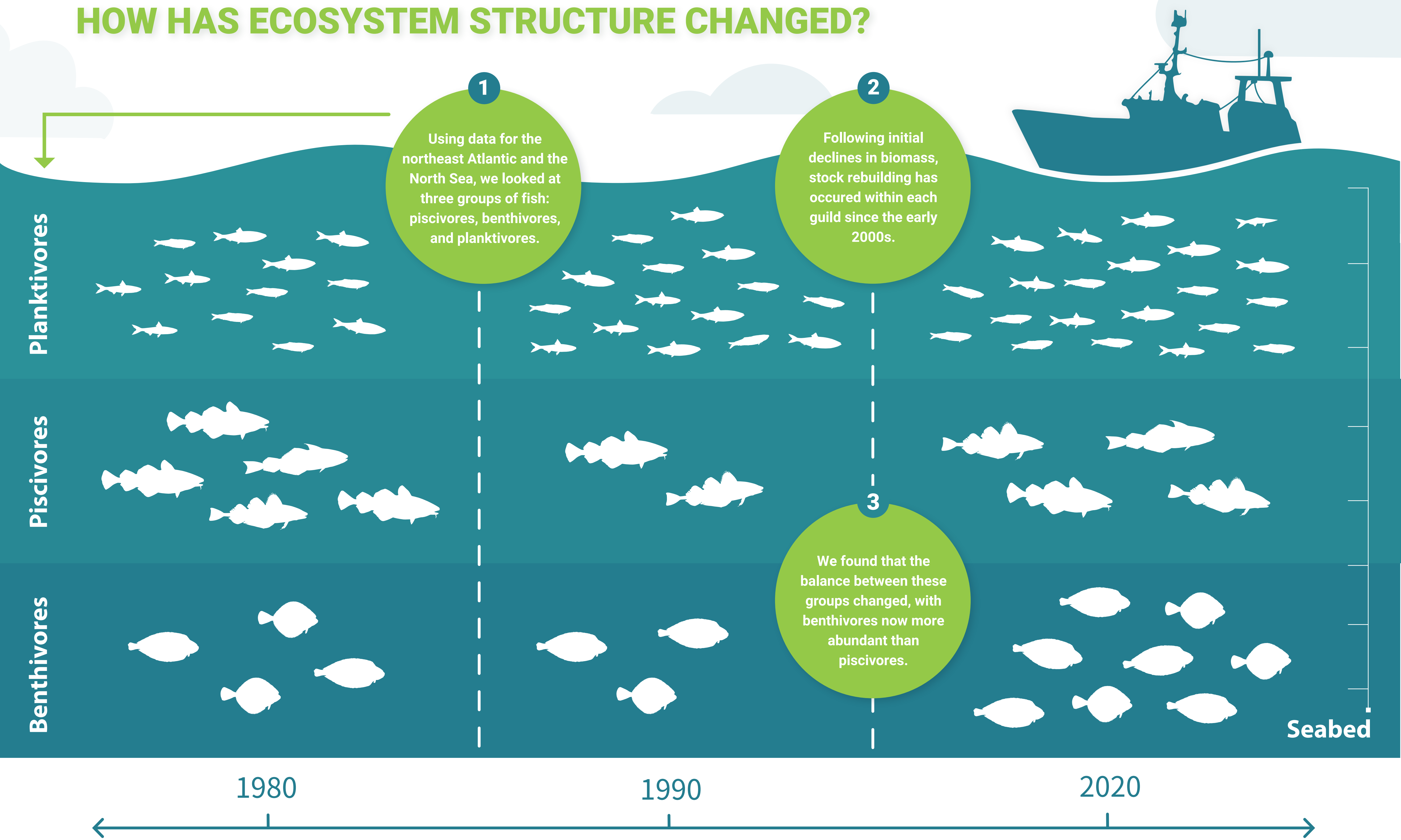


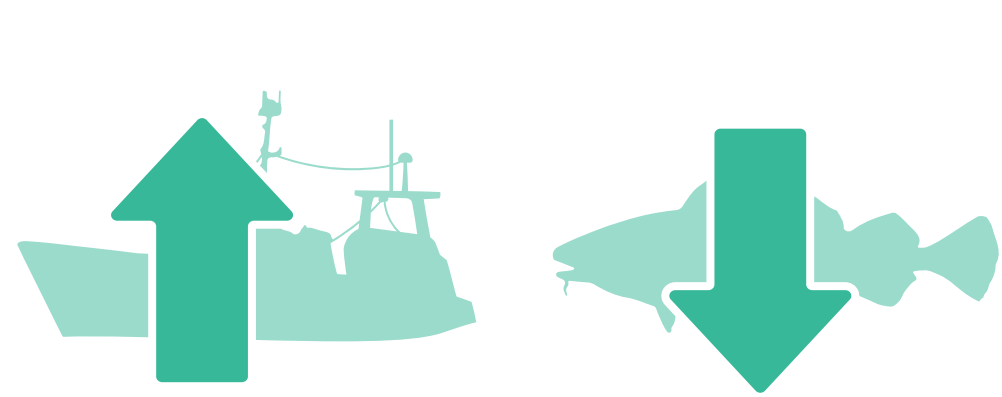
# FISHING AND FOOD WEBS

## HOW HAS ECOSYSTEM STRUCTURE CHANGED?

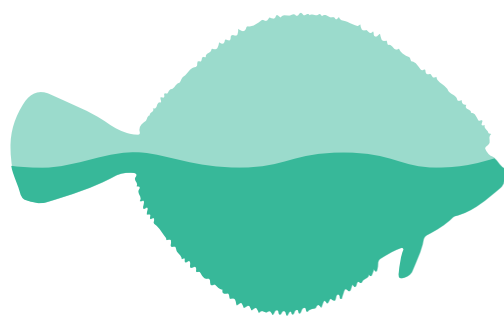


## HOW MIGHT THEY CHANGE IN THE FUTURE?

We drew on case studies across the Northeast Atlantic and the Mediterranean to explore this further and determine which of our indicators might be most useful to fisheries managers. Working from an 'unfished' baseline and using ecosystem models to test how indicators responded to fishing and evaluate risks of depletion, we explored a range of fishing scenarios.



These showed a clear relationship between **fishing levels** and depletion risk within the ecosystem, and indicated that the **abundance of species high up in the food web** decreases as fishing increases.



They also showed that as the **proportion of large (often more fertile) fish** living and feeding at the seabed decreases, risk to the ecosystem increases.

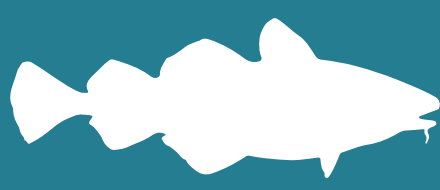


Indicators such as the balance of feeding guilds and community diversity were more contextual, and were affected by the **type of fishing and fishing gears being used**, suggesting the need for context-specific management.

## WHICH INDICATORS CAN SUPPORT EBFM?

Based on this work several indicators have been suggested as suitable for use by managers to identify risks to stocks and ecosystems, in support of effective implementation of EBFM.

These include measures relating to:



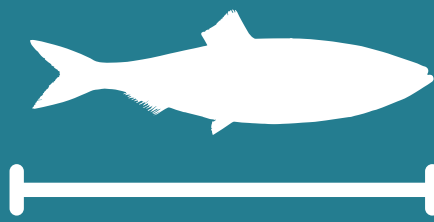
Top predators



Diversity



Landings



Size

## GLOSSARY

**Food Webs:** interconnected food chains depicting who interacts with and who eats who.  
**Feeding Guilds:** groups of species that feed on similar food.  
**Fish Community:** groups of species that share similar habitats.  
**Biomass:** total weight.

**Size-based metrics:** measures of species size (e.g. the length or proportion of large fish).  
**Piscivores:** carnivorous fish that eat other fish e.g. whiting, cod.  
**Planktivores:** smaller fish that eat plankton e.g. herring, sprat.  
**Benthivores:** bottom feeding fish e.g. flatfish such as sole and plaice.