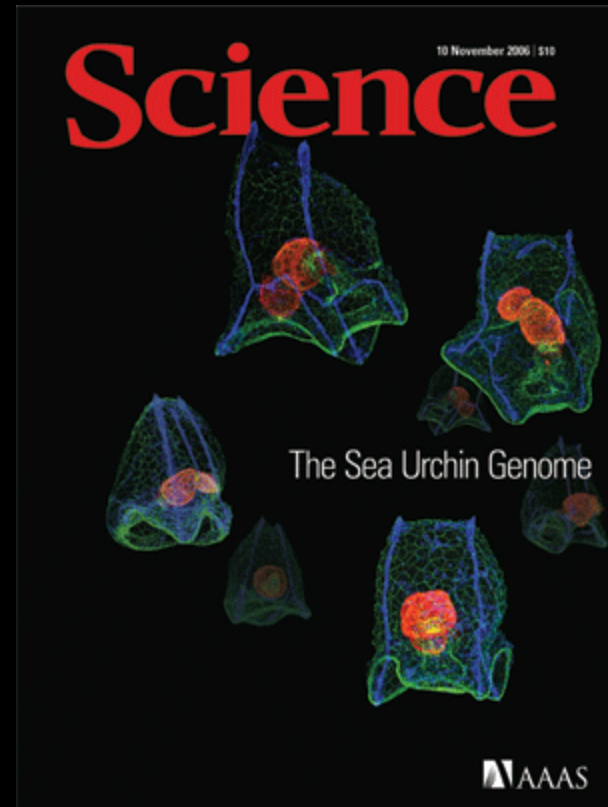


Harvesting the Ocean's Resources



Commercial Fishing

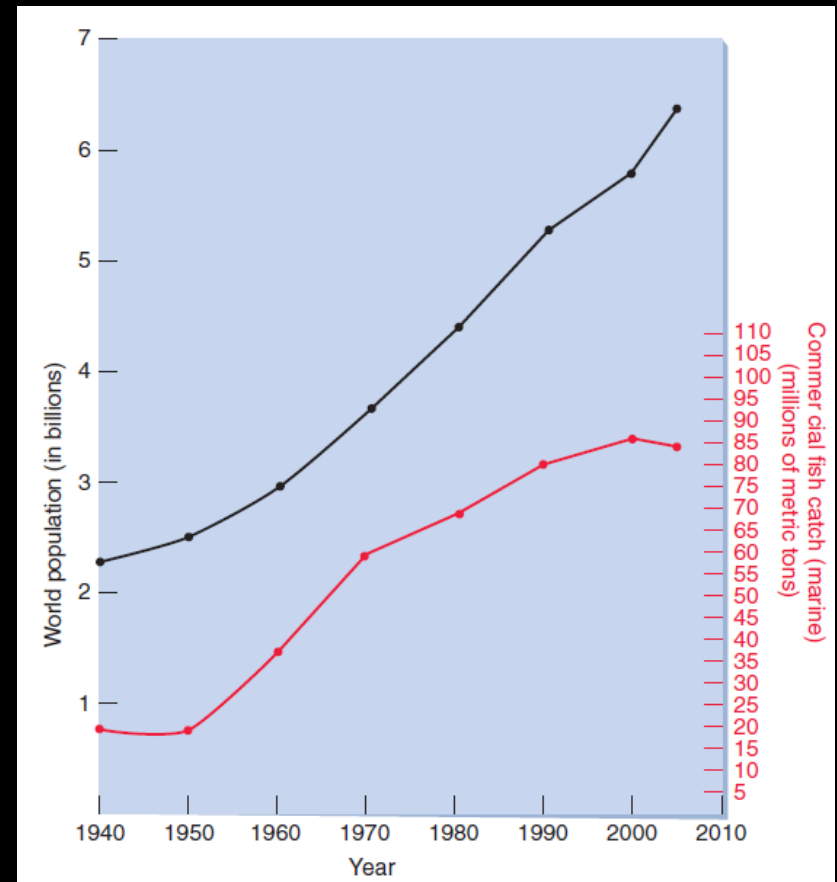


By the year **2048** commercial fishers will have almost nothing left to catch. At least **29%** of fished species have collapsed and several others are on the verge of collapse

Commercial Fishing



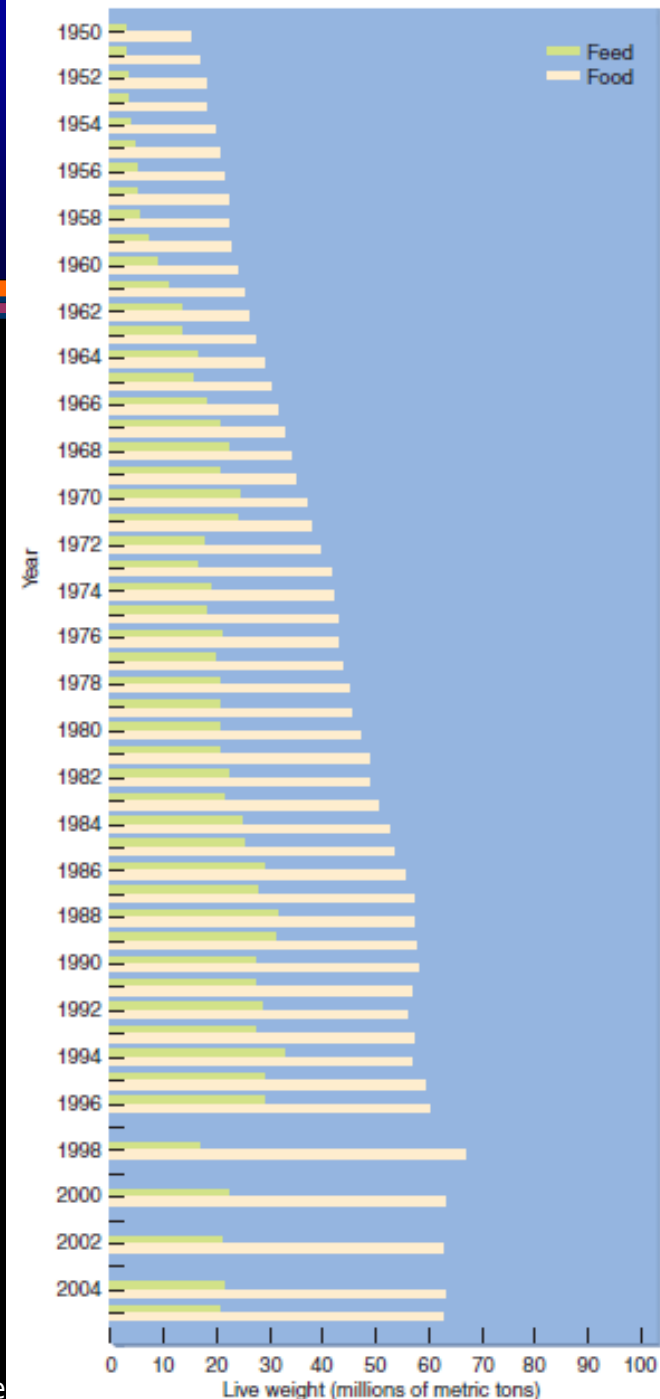
- Sturgeon
- Pacific salmon
- Swordfish
- Grouper
- Red snapper
- Bluefin tuna
- Atlantic cod
- Chilean sea bass
- Most shark species



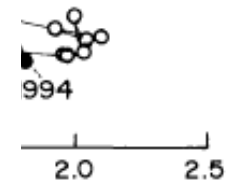
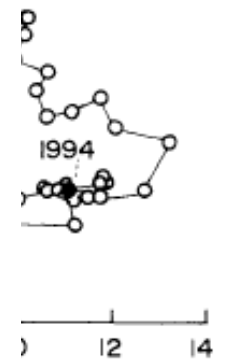
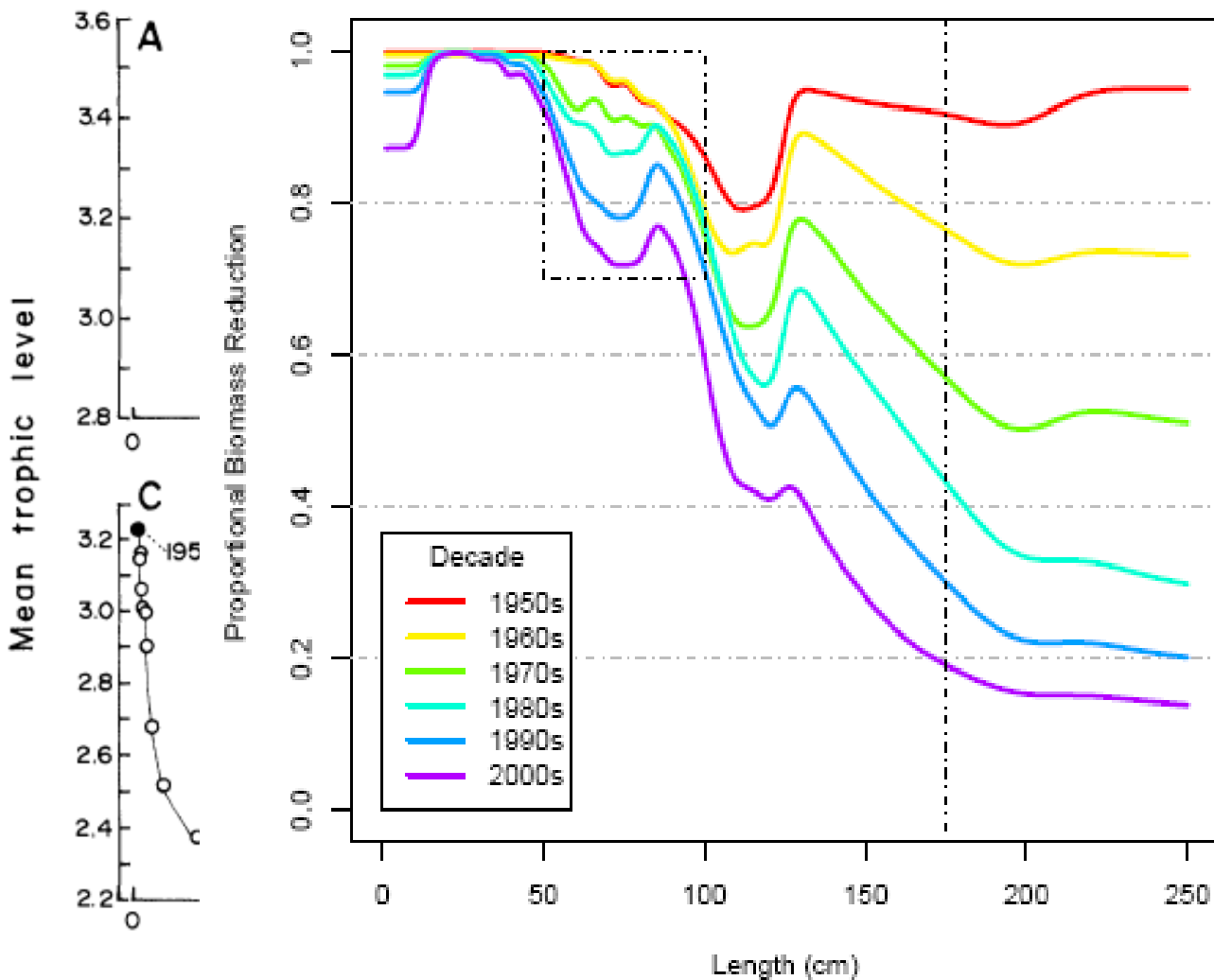
Commercial fish species with population declines of 90% or more

Commercial Fishing

- Greater waste of energy than harvesting fishes at lower trophic levels.
- Today whole ecosystems are being harvested rather than individual species.
- As the more traditional fisheries become depleted, fishers focus their efforts on species farther down the food chain.



Sink or swim?



ners. About 80 per cent of the global blue-fin catch is eaten in Japan.

people to eat more sardines and fewer large predator fish.

Fisheries Management



A *renewable resource* is a resource, such as fisheries, that replenishes itself.

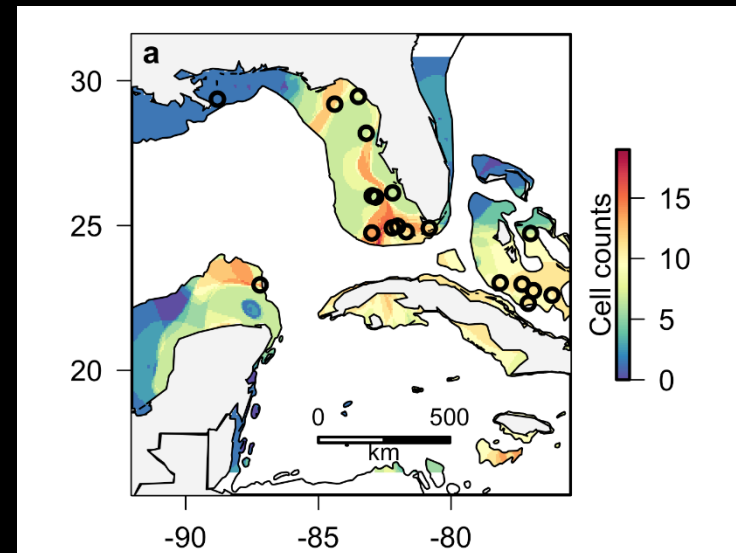
A *stock* is a separate population of commercial fishes or shellfishes within a species' geographical range that is assumed to be reproductively isolated from other stocks.

GLOSSARY

- Physical and biological factors that affect an organism's growth and survival.
- Habitat environment
- Feeding habits
- Reproduction strategies
- Migratory patterns

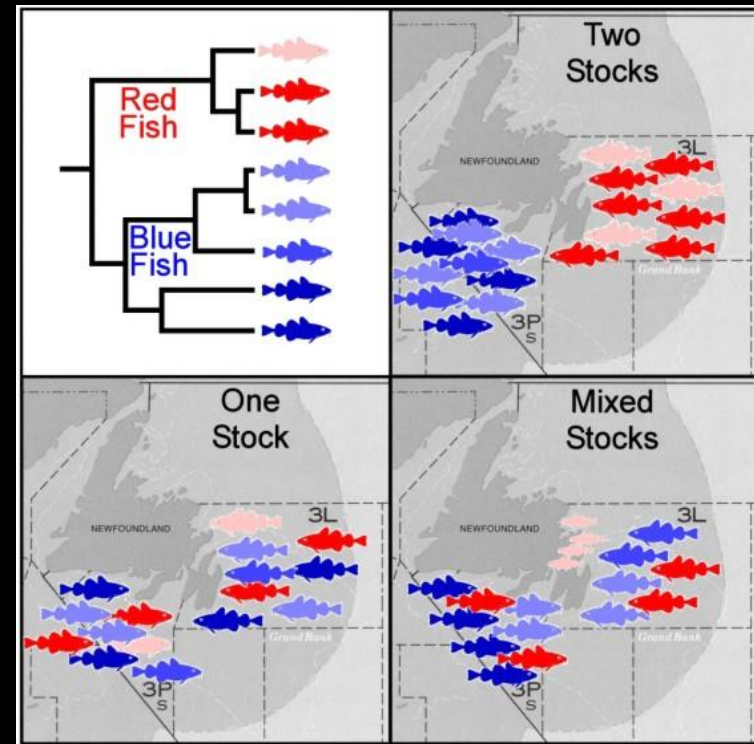
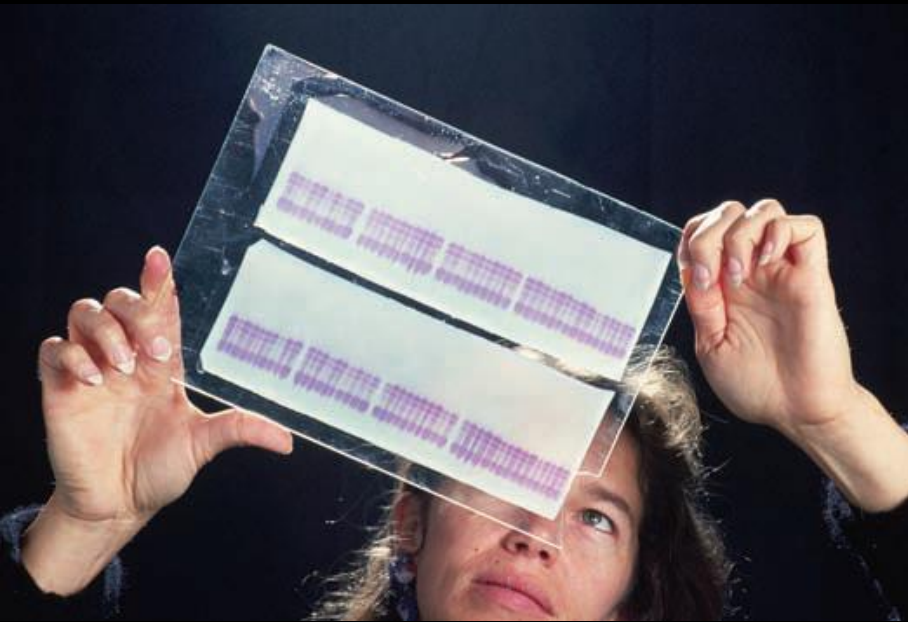
Fish Population

- Determining Population Distribution and Movement
 - Tagging
 - Stable Isotope



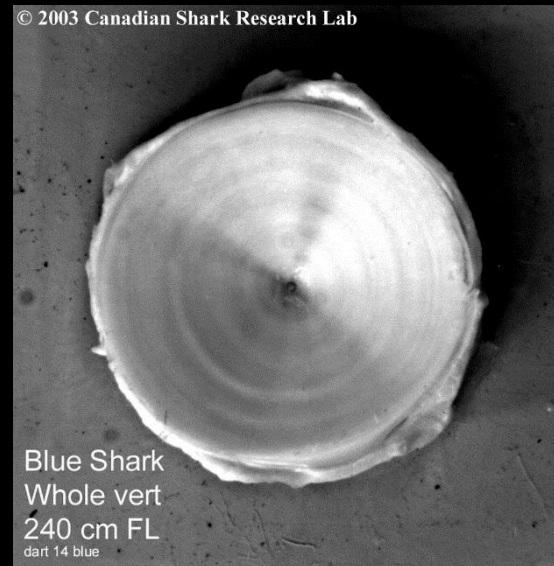
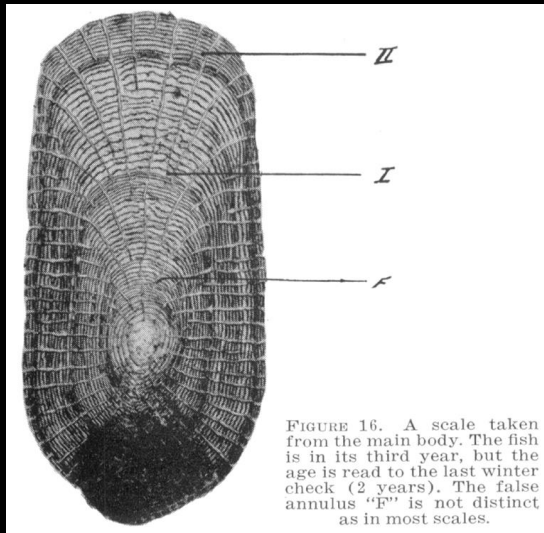
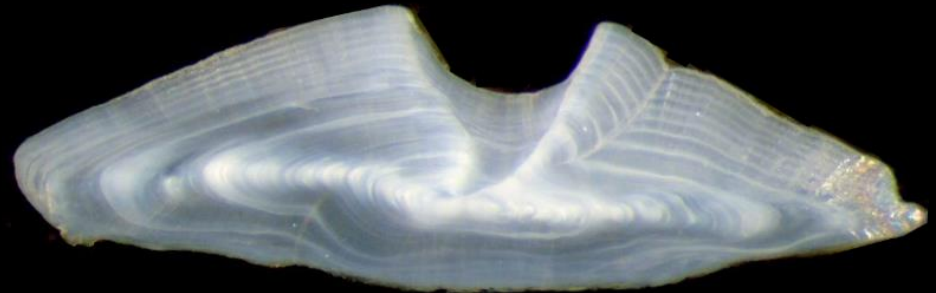
Fish Population

- Determining Population Distribution and Movement
DNA sequencing



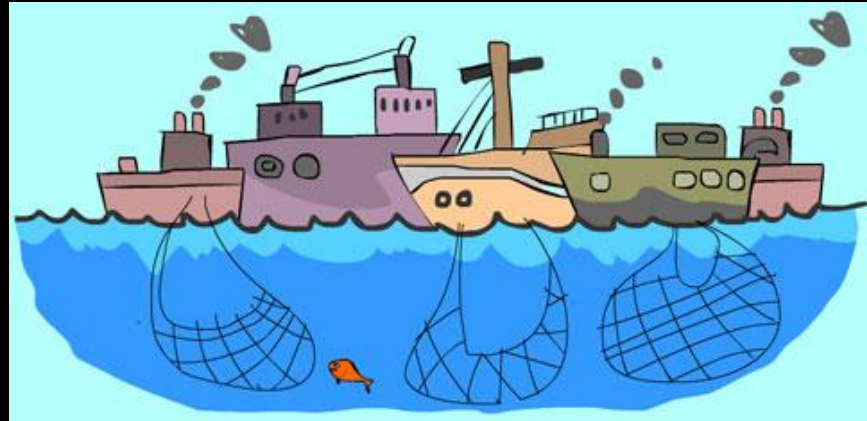
Population Size and Age Structure

- Otolith and Statolith
- Vertebrae
- Scale

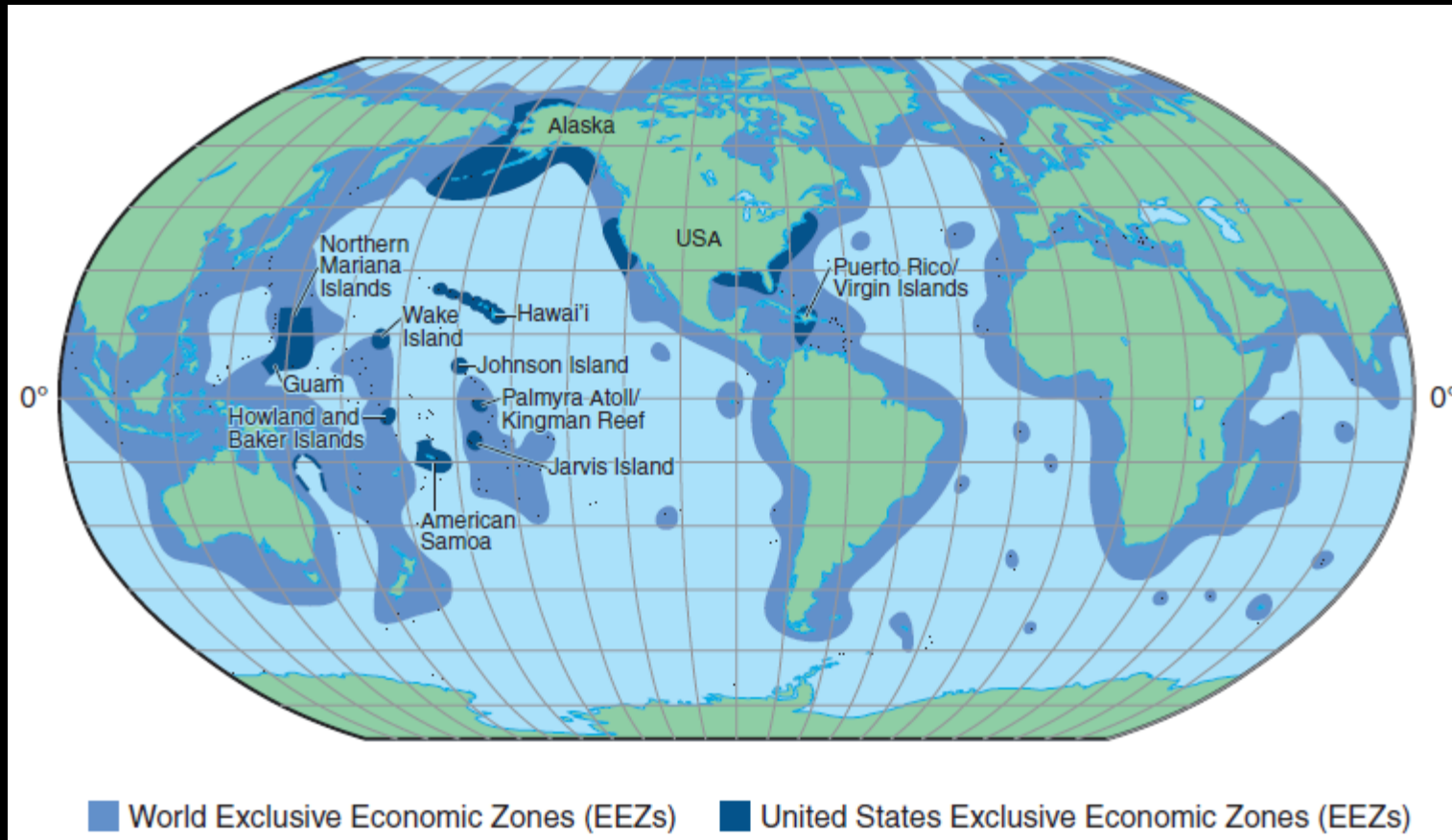


Overfishing

- Fishing a population faster than it can replace itself; the population decreases in size as a result.



Overfishing



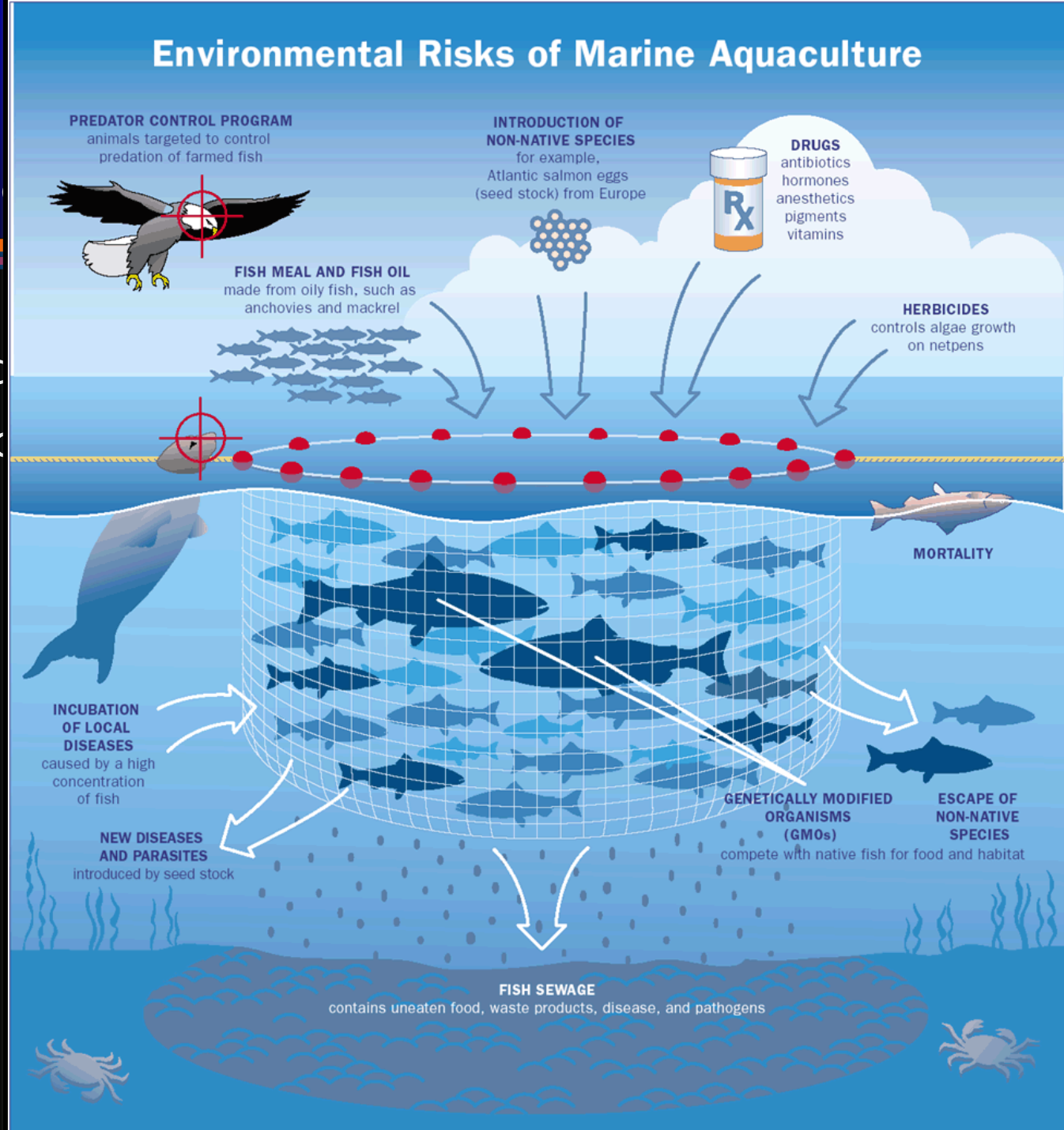
Bycatch

- By catch consists of the noncommercial animals killed during fishing for commercial species. Also known as incidental catch.



Fish Aqu

- In land Aquaculture
- Marine Aquaculture



Key Concepts



- Fish and shellfish are renewable resources that must be properly managed to produce a sustainable yield.
- Overfishing has brought some fisheries to the brink of collapse.
- Techniques such as aquaculture have helped relieve fishing pressure on natural populations, but not without new effects on natural environments.