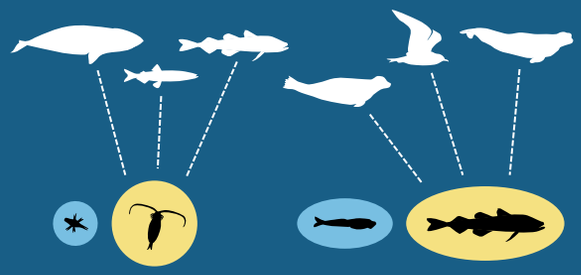
Ups and downs of cod and copepods

The survival of young copepods and Arctic cod depends on multiple conditions in their habitat. Survival to adulthood is highly variable between years.

Arctic cod and copepods are called **forage species**.

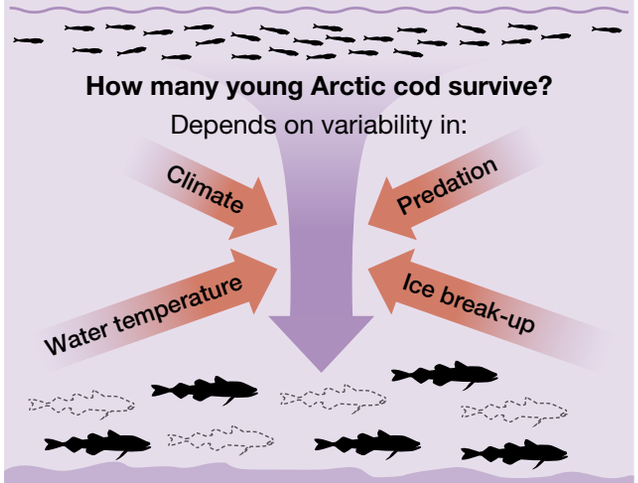
They are important food for many fish, marine mammals, and birds



Larger, more nutritious adults — not younger life stages — are preferred by large predators

It takes more than one year for an adult **Arctic cod** to develop from an egg.

Young cod can be found in upper water layers



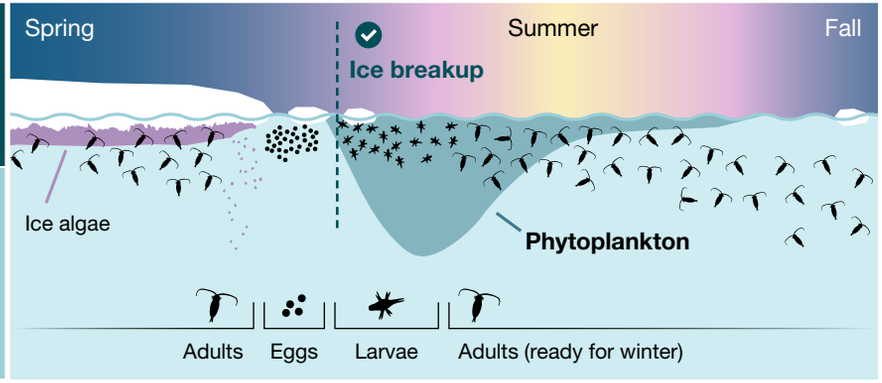
Adults are found closer to the seafloor

Copepods grow from eggs and have many young life stages that look different than adults. Some adult copepods migrate to deep water for winter.

Copepod larvae need the best access to food: the first part of a phytoplankton bloom.

Match

Larvae are developed enough to feed on the best part of the phytoplankton bloom.
More larvae grew into adults.

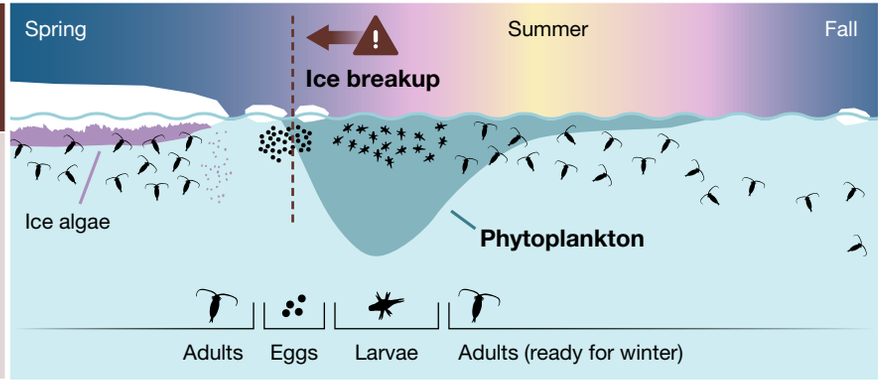


Pressure: Timing

Early ice break-up, earlier phytoplankton bloom.

Mismatch

In the Beaufort Sea, the larvae were not developed enough to benefit from the best part of the phytoplankton bloom.
Fewer larvae grew into adults.

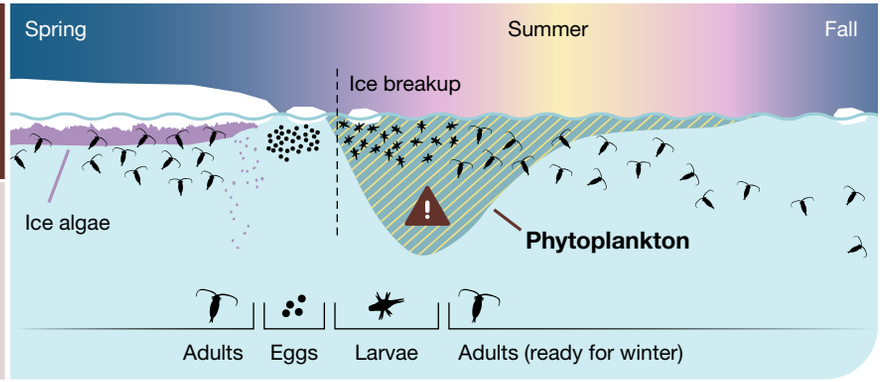


Pressure: Unfavourable food

Larvae are developed enough to use the bloom—the timing is right. However, the phytoplankton species are not beneficial.

Mismatch

In Baffin Bay, a bloom of diatom phytoplankton potentially released toxins and were not eaten by the copepods.
Fewer larvae grew into adults.



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