

Appendix C: HS Student Worksheet L2-C

Polar Bears and Arctic Ice

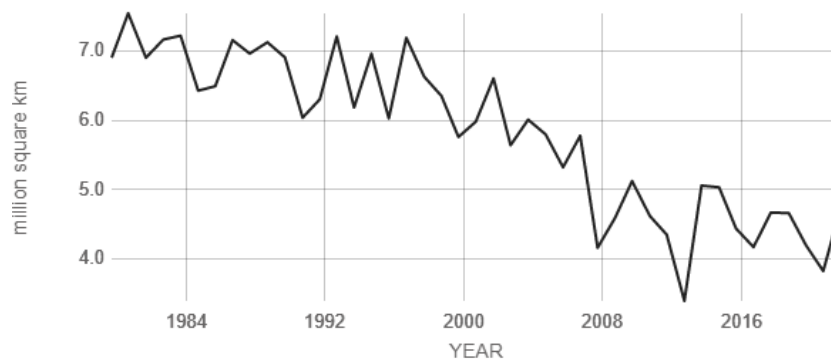
Polar bears are an apex predator in the Arctic ecosystem. They rely on Arctic ice to reach their main prey, which is seals. Arctic seals eat cod fish, which feed on krill (small shrimp-like organisms). The krill eat zooplankton, which in turn feed on ice algae - tiny photosynthetic organisms that live under the Arctic ice.



Below is a graph from NASA's climate division showing measurements of Arctic ice over the several decades. NASA has calculated a rate of decline of 13% per decade.

ANNUAL SEPTEMBER MINIMUM EXTENT

Data source: Satellite observations. Credit: [NSIDC/NASA](#)



Source: climate.nasa.gov

Source: <https://climate.nasa.gov/vital-signs/arctic-sea-ice/>

Use this information to construct an explanation of how the changing climate may cause a significant change in the Arctic ecosystem.

Claim, Evidence, Reasoning Statement

Claim: Climate change will cause changes in the Arctic ecosystem.

Scientific principles:

- Significant changes in climate conditions can cause significant changes in ecosystems.
- In some ecosystems, changes in the population of one species can have a trophic cascade effect on the community.

Evidence: (List data and facts.)

Reasoning: (Use evidence plus scientific principles to support the claim.)