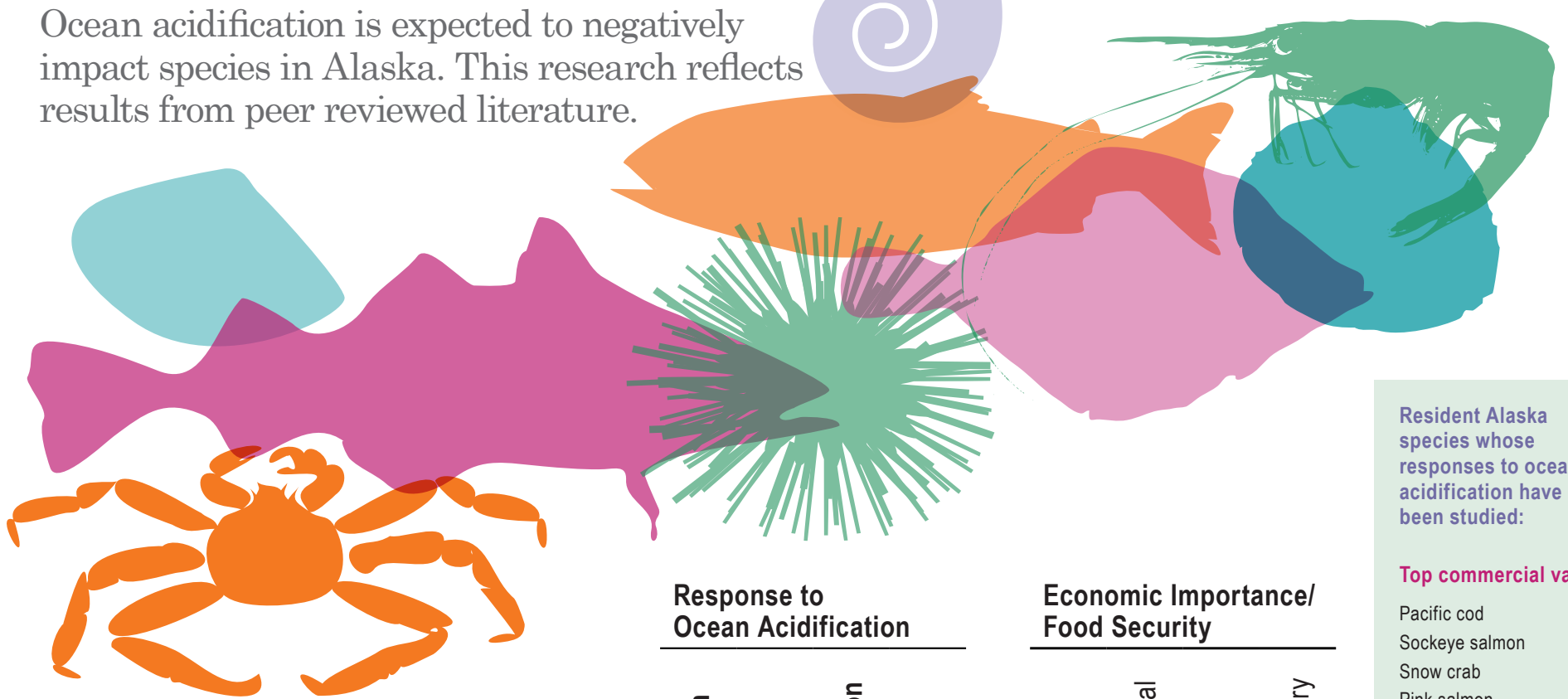




Impacts of Ocean Acidification on Alaska Fish & Shellfish

Ocean acidification is expected to negatively impact species in Alaska. This research reflects results from peer reviewed literature.



Ecosystem Role	Resident marine species	Response to Ocean Acidification				Economic Importance/ Food Security			
		Calcification	Growth	Reproduction	Survival	Commercial	Sport/personal	Subsistence	Closed Fishery
Predator	Southern Tanner crab	↓	↓	↓	↓	●	●	●	◐
	Red king crab	↓	↑	↓	↓	●	●	●	◐
	Pink salmon*	N/A	↓	↓		●	●	●	
	Dungeness crab*	U	↓	—	↓	●	●	●	
	Blue king crab		↓	U	↓	●		●	◐
Food Web Link	Northern rock sole*	N/A	↓	U	↓	●		●	
	Walleye pollock*	N/A	—	U	—	●		●	
	Northern shrimp*	U	↓	U	↓	●		●	
Chemical / Nutrient Cycling	Pteropod*	↓	↓	U	U				
Habitat Forming	Baltic clam*	↓	↓	↓	↓		●	●	
	Pinto abalone* (endangered)	U	U	U	↓				●
	Common cockle*	↓	↓	U	U		●	●	
Ecosystem Engineer	Red sea urchin*	U	U	↓	U			●	

*Non-Alaska populations studied

KEY: ↑ Increase ↓ Decrease — Equilibrium N/A Not applicable U Unknown ◐ Only certain populations

NOTE: The species listed in the table above are the *only* Alaska species that have been studied to date.

Resident Alaska species whose responses to ocean acidification have not been studied:

Top commercial value

- Pacific cod
- Sockeye salmon
- Snow crab
- Pink salmon
- Pacific halibut
- Sablefish
- Chum salmon
- Atka mackerel
- Yellowfin sole
- Pacific rockfish
- Chinook salmon
- Coho salmon
- Rock sole
- Rockfishes
- Pacific herring

Highest biomass in bottom trawl surveys

- Pacific ocean perch
- Giant grenadier
- Atka mackerel
- Pacific sleeper shark
- Salmon shark
- Yellowfin sole
- Redstripe rockfish
- Canary rockfish
- White sea urchin
- Arrowtooth flounder
- Pacific hake
- Shortaker rockfish
- Clonal plumose anemone
- Sharpshin rockfish
- Silvergray rockfish

Other important species

- Broad whitefish
- Capelin
- Crescent gunnel
- Dolly varden
- Longfin smelt
- Ninespine stickleback
- Pacific sand lance
- Rainbow smelt
- Threespine stickleback
- Sidestriped shrimp

References:

Commercial, recreational, and subsistence listing: ADFG Subsistence Reporting 2014 Statewide: <http://www.adfg.alaska.gov/sb/CSIS/index.cfm?ADFG=main.home>.
Commercial value data: NMFS. 2015 Fisheries of the United States. Current Fishery Statistics No. 2015. National Marine Fisheries Service Office of Science and Technology. Alan Lowther & Michael Liddel, Editors. Silver Spring, MD.
Trawl survey data: Alaska Fisheries Science Center, National Marine Fisheries Service, National Oceanic and Atmospheric Administration.

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