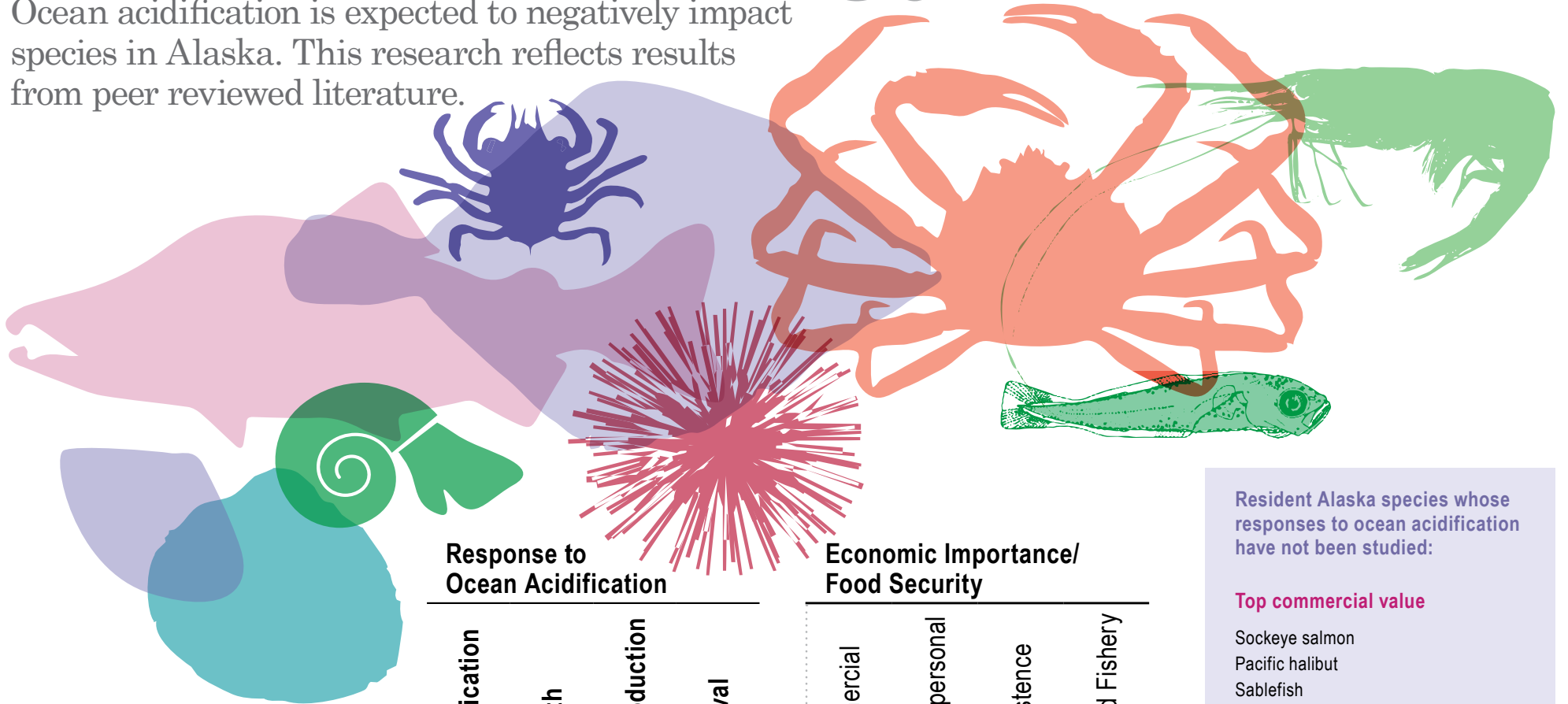




# Impacts of Ocean Acidification on Alaska Fish & Shellfish

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



Resident marine species		Response to Ocean Acidification				Economic Importance/ Food Security			
		Calcification	Growth	Reproduction	Survival	Commercial	Sport/personal	Subsistence	Closed Fishery
Red king crab	Embryo				—				
	Larvae	▲			▼	●	●	●	◐
	Juvenile	—	▼		▼				
	Adult	▲							
Dungeness crab*		▼	▼	—	▼	●	●	●	
Blue king crab	Juvenile	▲	▼		▼	●		●	◐
Golden king crab	Juvenile		▼		▼	●	●		
Tanner crab	Embryo				▼				
	Larvae	▼			▼	●	●	●	
	Juvenile	▼	▼		▼				
	Adult	▼							
Snow crab	Embryo				—				
	Larvae	—			—	●	●		
	Adult	▼							
Pink salmon*	Juvenile	N/A	▼	▼		●	●	●	
Pacific Cod	Larvae		▲▼						
Northern rock sole	Embryo	N/A	—		—	●		●	
	Larvae	N/A	▼		▼				
Walleye pollock*	Embryo	N/A	—		—	●		●	
	Larvae	N/A	—		—				
Northern shrimp*			▼		▼	●		●	
Pteropod	Juvenile, Adult	▼			▼				
Pinto abalone	Adult		▼						●
Baltic clam*		▼	▼	▼	▼		●	●	
Common cockle*		▼	▼				●	●	
Red sea urchin*				▼				●	

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

**Top commercial value**

- Sockeye salmon
- Pacific halibut
- Sablefish
- Chum salmon
- Atka mackerel
- Yellowfin sole
- Pacific rockfish
- Chinook salmon
- Coho salmon
- 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

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**Partners:** Alaska Ocean Observing System, Alaska Fisheries Science Center (NOAA Fisheries), University of Alaska Fairbanks (Kelley Lab)

\*Non-Alaska populations studied

**KEY:** ▲ Increase ▼ Decrease ▲▼ Mixed — Unaffected N/A Not applicable ◐ Only certain populations

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