## IMPACTS OF OCEAN ACIDIFICATION ON ECONOMICALLY & ECOLOGICALLY VALUABLE MARINE SPECIES IN THE GULF OF MAINE

The potential impacts of ocean acidification (OA) on the Gulf of Maine's marine ecosystem are worrying. While some species will survive or even thrive in more acidic water, research suggests that many others may not. The more we learn about OA's effects on the ecosystem and its inhabitants, the better prepared we will be to respond and adapt to change.

The Gulf of Maine and Canadian fishing industries are worth \$3 billion and support more than 230,000 jobs. Studies to date suggest that OA could damage some of our area's most lucrative species, and a decline in these would have severe consequences for people and the economy.

OA could also threaten species that build habitat and serve as primary food sources. If these key species are less plentiful, the ecosystem will become less resilient.

Fortunately, there are actions we can take to combat OA: support legislation that encourages green energy and reduces our reliance on nonrenewables; enact policies that protect watersheds from runoff and point source pollution; and encourage funding for OA research.

KEY

Ecological Importance

Important

Significant positive effects

Significant negative effects

No observed effect

Unknown; more research needed

Result from a single study

	(Not to scale)	SPECIES	LANDINGS VALUE IN MILLIONS average of 2017-2019)	SAN OF THE SERVICE OF	SPECIES' F ECOSYS Supporting I Food Webs	ROLE IN TEMS Building/ aintaining Habitat	Pan	OF OA ON SUCCES  Growth	N S
SHELLFISH ————————————————————————————————————		LOBSTER Homarus americanus	\$609	#1			?	1 1	?
		SCALLOP Placopecten magellanicus	\$406				•	<b>↓</b> ° <b>↓</b> °	<b>↓</b> °
		OYSTER Crassostrea virginica	\$41.8	## #1			?	↓ ↓	<b>↓</b>
		SOFT-SHELL CLAM Mya arenaria	\$20.9	<b>#</b> III			?	<b>↓ ↓</b>	<b>↓</b> °
		HARD CLAM Mercenaria mercenaria	\$13.0	## <sub> </sub>			?	↓ ↓	<b>↓</b>
		MUSSEL Mytlius edulis	\$3.9	##			?	<b>↓</b> —	<b>\</b>
FISH		HERRING Clupea harengus	\$19.5	ЖI				<b>;</b> ?	?
ZOO- PLANKTON		COPEPOD Calanus finmarchicus	N/A		•		_	<b>— ?</b>	?
PRIMARY PRODUCERS F		EELGRASS Zostera marina	N/A					Early Life Sta	ges
		SUGAR KELP Saccharina latissma	\$.17*		<b>()</b>			<b>†</b>	

<sup>\*</sup>Though sugar kelp aquaculture is increasingly prevalent, valuation data are only available for Maine in 2018.

The ten species profiled here only represent a tiny portion of valuable organisms found in the Gulf of Maine; we based our selections on feedback from regional stakeholders as to which species they felt were the most important to include in this piece.