



Proposed ocean acidification, state budget priorities for 2017-19 biennium

Priority	Blue Ribbon Panel action(s)	Lead(s)	Budget request type	Budget request amount	Ongoing or one-time
Continue facilitation and coordination of the Marine Resources Advisory Council	9.1.1 [KEA]	DNR	New request	\$150,000	Ongoing
Support for work at the Kenneth K Chew conservation hatchery	6.1.1 [KEA], 6.3.1, 6.3.2 [KEA], 6.3.3, 6.3.4, 6.3.5	PSRF, DNR, WDFW	New request	\$400,000	Ongoing
Add total inorganic carbon (TIC) and alkalinity monitoring equipment at all Ecology monitoring stations	7.1.1 [KEA]	ECY	New request, if not funded by EPA	\$333,000	Ongoing
Complete eelgrass restoration as remediation for ocean acidification	6.1.1 [KEA]	DNR	Included in DNR request		One-time
Apply and assess remediation strategies within three specific Washington bays and inlets to proactively develop ocean acidification refuges	6.3.2 [KEA]	DNR	Included in DNR request		One-time
Identify robust shellfish populations	6.3.5	DNR	Included in DNR request		One-time
Support operations of the Washington Ocean Acidification Center	6.2.1 [KEA], 7.1.1 [KEA], 7.4.1 [KEA], 7.2.1 [KEA], 9.1.2 [KEA]	UW	Included in UW request	\$575,000	Ongoing
Sustain the ocean acidification monitoring network	6.2.1 [KEA], 7.1.1 [KEA]	UW	Included in UW request	\$625,000	Ongoing
Continue biological response studies on the effects of ocean acidification on marine species	7.3.2 [KEA]	UW	Included in UW request	\$200,000	Ongoing
Sustain and improve the Ocean Acidification Forecast Model	7.4.1 [KEA]	UW	Included in UW request	\$150,000	Ongoing
Create a forecast model to show how zooplankton losses will impact wild fish populations	7.4.3	DFW	Included in DFW request		One-time

Anticipated ocean acidification funding for priorities (ongoing) \$1,550 million
 New funding requests for ocean acidification priorities \$883,000
 Total proposed budget for ocean acidification priorities \$2,433 million

Continue facilitation and coordination of the Marine Resources Advisory Council: New funds (\$150,000) would support the planning and facilitation of all MRAC meetings and ad hoc committee meetings and support for the MRAC Chair to develop strategy, coordinate, and build consensus among stakeholders to move the MRAC forward in prioritization of actions

Support for work at the Kenneth K Chew conservation hatchery: The Kenneth K Chew Center for Shellfish Research and Restoration (located at NOAA's Manchester Research Station) was established to implement recommendations of both the Blue Ribbon Panel and the Washington Shellfish Initiative. Operating a conservation hatchery that conducts high-priority research on native and cultivated shellfish species requires long-term financial support from the State. Requested funds of \$200,000 per year would cover 50% of annual base operations (125,000), disease and genetic testing costs (\$25,000), and seed propagation (\$50,000). Annual costs include maintaining year-round algae culture, rearing multiple shellfish and kelp species, adaptively managing conservation protocols to ensure genetic diversity, and accommodating multiple research projects.

Add total inorganic carbon (TIC) and alkalinity monitoring equipment at all Ecology monitoring stations: In 2015, Ecology piloted enhancing their current monitoring stations with equipment to measure TIC and alkalinity. This pilot was funded through a one-time NEP grant. State funds (\$333,000) would support continued operation of the pilot and expand the program to include installing equipment at all Ecology monitoring stations. This action is also a Near Term Action in the Puget Sound Partnership's Action Agenda.

Department of Natural Resources is proposing to allocate budget to fund the following ocean acidification related activities:

- Complete eelgrass restoration as remediation for ocean acidification
- Apply and assess remediation strategies within three specific Washington bays and inlets to proactively develop ocean acidification refuges
- Identify robust shellfish populations

Support operations of the Washington Ocean Acidification Center: Ongoing funding (\$575,000) will support FTEs to coordinate science activities; analyze and synthesize data from Washington's ocean acidification monitoring network; provide critical information to legislators, the Governor's office, and the MRAC; build capacity to seek funding from diverse sources; and serve the citizens of Washington State by providing a point-of-contact for ocean acidification research, response, and adaptation.

Sustain the ocean acidification monitoring network: Ongoing funding (\$625,000) will support maintenance and ongoing operations of the ocean acidification monitoring network. The network collects a variety of physical, chemical and biological data. Chemical data collected include parameters of water quality that can help characterize changing ocean acidification conditions. Biological monitoring efforts would also be supported.

Continue biological response studies on the effects of ocean acidification on marine species: WOAC has worked on biological response studies for the past four years. Ongoing funding (\$200,000) will support laboratory studies on additional species, both commercial and managed. These studies will help determine the biological response of these species to ocean acidification, alone and in combination with other stressors such as low dissolved oxygen and increased temperature.

Sustain and improve the Ocean Acidification Forecast Model: Since WOAC completed the Ocean Acidification Forecast Model, they have continued to operate and improve it. Ongoing funding (\$150,000) will support maintenance of the existing model and continue refinement of the model to operate on a, local scale basis for individual basins.

Department of Fish and Wildlife is proposing to allocate budget to fund the following ocean acidification related activities:

- Create a forecast model to show how zooplankton losses will impact wild fish populations