February 11, 2019

The Honorable Michael Dembrow
Environment and Natural Resources, Chair
900 Court St. NE, S-407

RE: Support Senate Bill 260, establish ODFW program for strategic investments in initiatives related to ocean acidification and hypoxia

Dear Senator Dembrow and Environment and Natural Resources Committee Members:

On behalf the Audubon Society of Portland representing over 15,000 members we are writing in support of Senate Bill 260 to appropriate funds to help our state begin to take action regarding the risks of ocean acidification and hypoxia in Oregon's nearshore waters.

The science has shown that Oregon is ground zero for the impacts of ocean acidification (OA). As a case in point strong evidence indicates that OA played a key role in the 2007 oyster fishery crash in Oregon[1]. Since that time this has had negative economic implications as other Oregon oyster aquaculture producers have moved elsewhere.

A comprehensive meta-analysis[2] synthesizing the results of 228 studies examining biological responses to ocean acidification has found many marine organisms will be directly negatively impacted or impacted through cascading effects via the interconnected food web. The results reveal decreased survival, calcification, growth, development and abundance in response to acidification amongst a broad range of marine organisms. Shellfish larvae are particularly vulnerable to impacts. Commercially important shellfish in Oregon (like the Dungeness crab and oyster) are already feeling the impacts and higher trophic level predators that eat larval shellfish (e.g. suite of slow-growing rockfish species that are important to Oregon's economy) may be the next species to be impacted.

Birds species of conservation concern in Oregon that depend almost entirely on ocean shellfish like the Black Oystercatcher and Harlequin Duck, both listed as "strategy species" in Oregon's nearshore strategy, are extremely vulnerable to such impacts. The Audubon network has identified 37 Important Bird Areas (IBAs) along Oregon's coast. IBAs are internationally recognized sites with exceptional importance to the conservation of bird populations. Oregon's coast supports over 1.3 million breeding colonial nesting seabirds representing over half of the

[1] https://www.nrdc.org/stories/great-oyster-crash

[2] Kroeker KJ, Kordas RL, Crim R, et al. Impacts of ocean acidification on marine organisms: quantifying sensitivities and interaction with warming. *Glob Chang Biol*. 2013;19(6):1884-96.

breeding colonial seabirds on the entire West Coast[3]. Seabirds are experiencing the most dramatic declines of any bird group[4] and impact from OA and hypoxia provide a double-whammy of negative impacts on this, already imperiled group of birds.

Hypoxic events off Oregon waters have been occurring more frequently over the past 15 years resulting in dramatic die-offs of commercially important species like Dungeness crab[5,6,7]. A growing body of evidence suggests that emerging marine environment phenomena, including ocean acidification, harmful algal blooms, and hypoxic dead zones," pose increasing threats and challenges for Oregon's seabirds including the Endangered Marbled Murrelet. *Pseudo-nitzschia* blooms along the Pacific Coast have killed at least some number of Marbled Murrelets in the past due to domoic acid poisoning[8]. Hypoxic events may have played a role in recent massive seabird mortality events (some events documenting tens of thousands of mortalities) including in Oregon[9].

SB 260 also includes a directive to develop "Public information tools and strategies to increase awareness of ocean acidification and hypoxia science, impacts and solutions for Oregon". This is hugely important as OA and its impacts are largely under the radar of the public in the U.S.[10] and around the world[11].

Opportunity for Oregon environmental leadership

OA and hypoxia research is in its infancy and Oregon is a key place in the world to get a handle on its impacts so effective strategies can be implemented to minimize negative impacts. The Oregon Coordinating Council on Ocean Acidification and Hypoxia (OAH Council) that was established in 2017 has set out recommendations and it is clear that passage of SB 260 will help move these recommendations forward. Now is a golden opportunity for Oregon to show real environmental leadership on a global issue with an epicenter here in Oregon.

Oregonians have consistently made it known that their priority is long-term use and protection of renewable resources which is exemplified in Oregon's Statewide Land use Planning Goal 19

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[3] https://nctc.fws.gov/resources/knowledge-resources/pdf/Oregon-Catalog-seabirds.pdf
[4] http://www.stateofthebirds.org/2016/habitats/oceans/
[5] https://www.sciencedaily.com/releases/2006/07/060727090749.htm
[6] https://today.oregonstate.edu/news/2018-one-worst-low-oxygen-years-ocean-oregon-which-now-has-%E2%80%9Chypoxia-season%E2%80%9D
[7] https://www.bizjournals.com/portland/news/2017/10/06/scientists-warn-of-hypoxia-season-threatening.html
[8] USFWS. 2009. Marbled Murrelet (*Brachyramphus marmoratus*): 5-year review. U.S. Fish and Wildlife Service, Washington Fish and Wildlife Office, Lacey, Washington.
[9] https://phys.org/news/2017-02-pacific-vast-seabird-die-off.html
[10] https://www.state.gov/e/oes/ocns/opa/ourocean/248165.htm
[11] https://www.labnews.co.uk/news/majority-public-unaware-ocean-acidification-24-05-2016/

which states, “To conserve marine resources and ecological functions for the purpose of providing long-term ecological, economic, and social value and benefits to future generations.” Senate Bill 260 is in line with these values cherished by Oregonians.

Thank you for your consideration and leadership on this issue.

Sincerely,

Joe Liebezeit, MS, Staff Scientist
Bob Sallinger, Conservation Director
Paul Engelmeyer, Tenmile Creek Sanctuary Manager

Audubon Society of Portland