

South Sound Shellfish History, Status Challenges & Opportunities

Bill Dewey
Director, Public Policy
& Communications



Native American shellfish harvest



Photo: NW Indian Fisheries Commission

Native American shellfish harvest

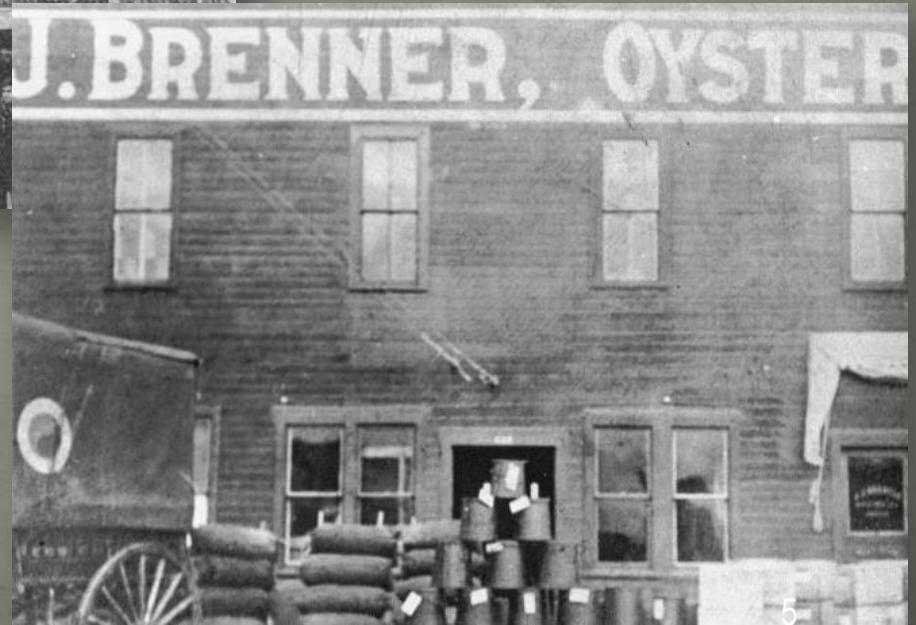


Photos: NW Indian Fisheries Commission

Olympia Oyster Company's 1st plant on 4th Ave, Olympia, WA ~ 1893



J.J. Brenner plant #1, 4th Ave., Olympia, WA built 1898



J.J. Brenner Oyster Company, Plant #2 4th Ave. Olympia, Washington, built 1927



Olympia Oyster Company plant #2 on 4th Ave.
~ built 1924 (The Oyster House Restaurant)



Opening Olympia oysters at the 2nd Brenner plant #2 on 4th Avenue, Olympia, WA



Olympia oyster dikes at Bayshore in Oakland Bay. Early 1900's



Eld Inlet Olympia oyster dikes ~ September 19, 1910 (Asahel Curtis)



ASAHEL CURTIS

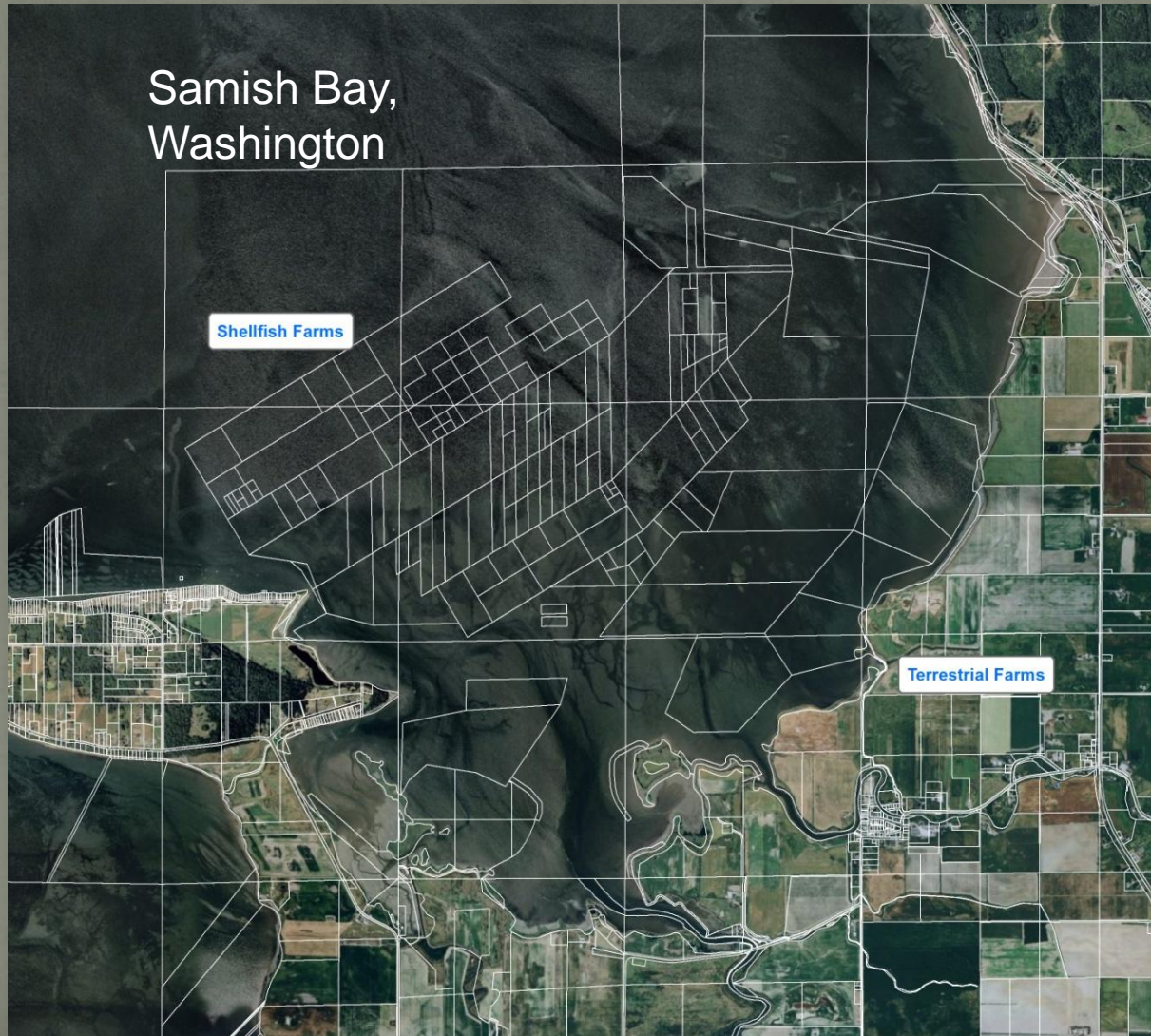
J.Y. Waldrip building oyster dikes



Current status:

- Market demand exceeds our ability to supply in for all our products and has for many years
- Washington leads country in farmed shellfish production
- Slow gradual growth
 - Improved production on existing farms
 - Expansion in Alaska, Canada & California
 - A few new farms (geoduck mostly)
 - Increased direct sales (internet, retail and oyster bars)

Private tideland ownership is key



Bottom culture of clustered oysters



Longline culture of clustered oysters



Single oyster bottom culture



Single oysters – bag on bottom



Single oyster flipping bag culture



Manila clam culture



Mussel raft culture



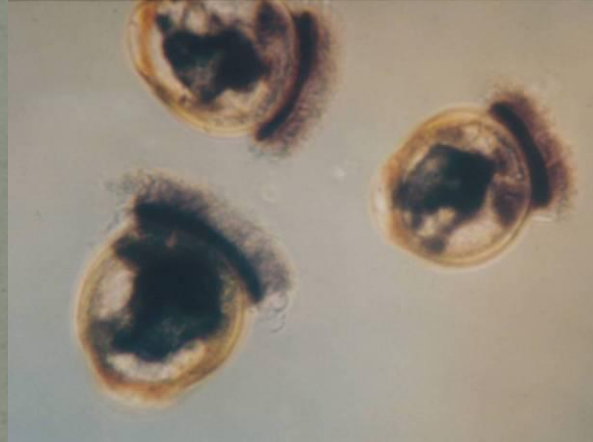
Geoduck culture



Shellfish seed production



Shellfish seed production



Taylor Oakland Bay FLUPSY



Kona hatchery/nursery



Geoduck seed nursery



Taylor fabrication facilities



Taylor fabrication facilities



Challenges:

- Water quality
- Regulations / permitting
 - Army Corps, local shoreline permits, SMP updates
- Ocean acidification / seed availability

Water quality



Shellfish harvest restricted

BY JOHN DODGE
THE OLYMPIAN

THURSTON COUNTY Pollution problems have triggered restrictions on oyster and shellfish harvesting in lower Nisqually Reach, state officials said Wednesday.

An increase in fecal coliform levels in the marine waters will hamper two commercial shellfish companies and halt recreational shellfish gathering at Lohr Beach.

The culprit, fecal coliform, is a product of human and animal waste that can indicate the presence of disease-causing organisms. Typical sources include septic tanks, livestock waste and stormwater runoff.

The increased contamination in Lower Henderson Inlet means oyster grower Jerry Yamashita has stopped harvesting oysters on several acres of prime oyster ground.

For me, it's a noose tightening around my neck," said Yamashita, a grower already plagued by pollution in Henderson Inlet and Burley Legion in Pierce County. "It's a difficult thing when you can't satis-

Affected areas

See SHELLFISH, Page A2

Pollution eats away at shellfish

JOHN DODGE
OLYMPIAN

Some 60 Puget Sound's shellfish are showing contamination pre-2001

Chairwoman of Sound Ac... spearhead... The sound... many and o... liott Norse, a... gist who four... mond-based... Conservation E... tute. "There's t... us, we consume... and we don't va

Scientists estimate that 92,000 acres of mud and sand on the floor of the Lower 48's second-largest estuary are moderately to highly contaminated. That's enough to cover Seattle and Tacoma.

Toxic chemicals dumped decades ago continue to pose serious threats to marine life. About half the fish stocks of Puget Sound are contaminated enough to cover Seattle and Tacoma.

State tracks in the sound are in trouble, and researchers believe pollution is interfering with reproduction among a wide variety of sources, including dumping, industrial toxins and farm runoff.

See SOUND, Page A6

Despite cleanup efforts, Puget Sound is polluted

Chemicals, runoff contaminate water

The Associated Press

SEATTLE — Looks are deceiving when it comes to Puget Sound.

Despite decades of cleanup efforts, the deep body of blue water remains heavily polluted by industrial toxins, legal dumping, and runoff from streets — and failing septic tanks — and the situation does not appear to be improving much, the Seattle Post-Intelligencer reported in a five-part series that ended Friday.

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Matt Wallis / Skagit Valley Herald

11/03/02 11/27/04 Skagit Valley Herald

Sound have them too?

...zms who have shown leadership in restoring shellfish areas. But too few are taking the steps needed to preserve this unique and precious resource.

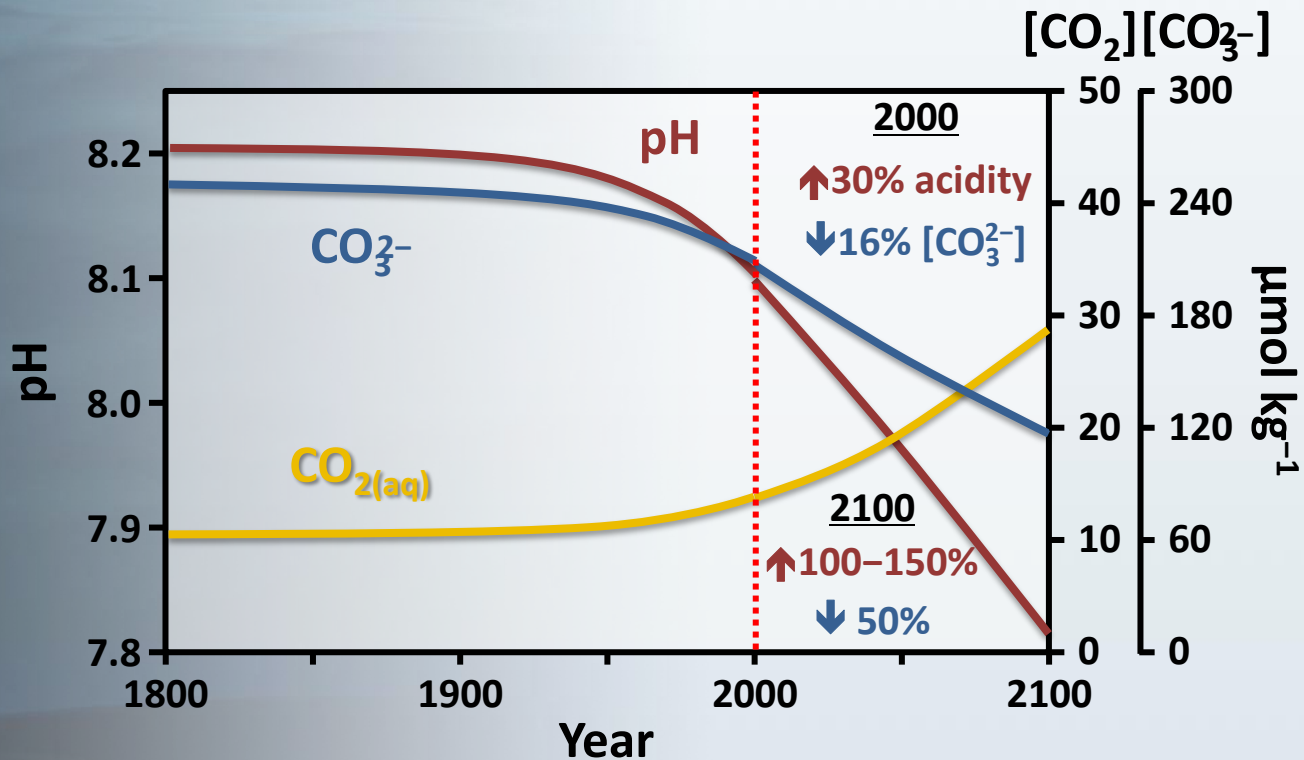
Protecting our prized shellfish means protecting water quality in our water-pollution harming are the sources before the responsibility for the pollution also rests with county officials need to pre-

... can help by maintaining their storm-water preventing pet... the water, protect

... on, more... who... the Puget Sound... the next generation... special to celebrate.

... Nancy McKay is chair of the Puget Sound Action Team (www.wa.gov/puget_sound) and the Puget Sound Council, Bill Drury, is a member of the Puget Sound Council, Bill Drury, is as president of the Pacific Coast Oyster Growers Association.

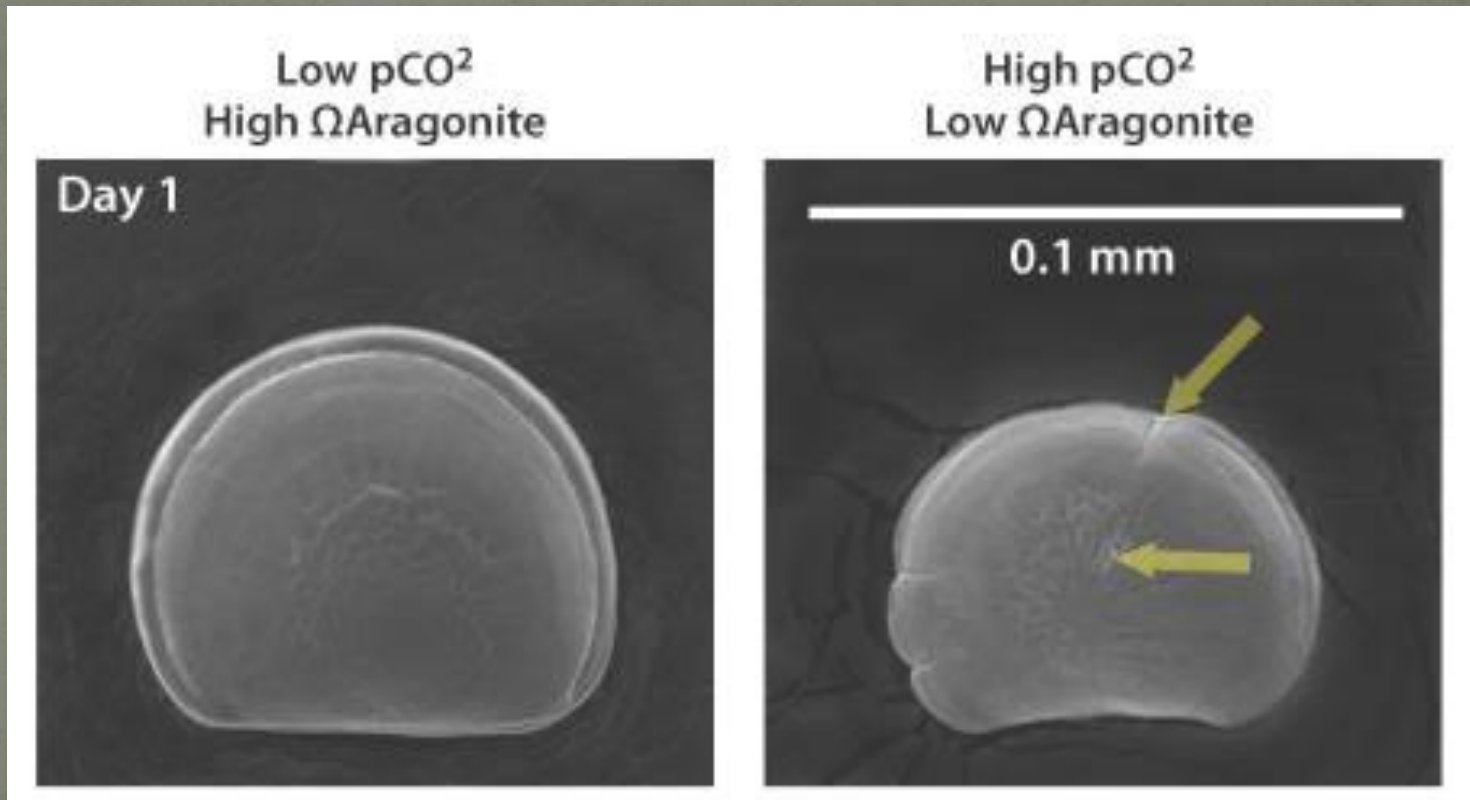
Ocean chemistry changes



Day old oyster larvae

Healthy

Not healthy



SEM photo: OSU Brunner/Waldbusser

Oyster larvae

Feeding and
motatating
appendage
(velum)



Seed supply challenge

- Ocean acidification limiting production
- Increased demand for single seed vs cultched seed



Opportunities:

- DEMAND EXCEEDS SUPPLY
- Washington Shellfish Initiative
- Marine Resources Advisory Council (OA response)
- Newly established UW OA Center
- SMP updates
- Canada
- California
- Alaska

National/Washington Shellfish Initiative

THE CHINOOK OBSERVER **OUR GREAT OUTDOORS** WEDNESDAY, DECEMBER 14, 2011 A13

State and NOAA team to boost shellfish farming

By PHUONG LE
Associated Press

SEATTLE — Washington state's cool marine waters make growing oysters, clams and mussels ideal, but farmers say permitting hurdles mean they aren't able to grow as much as they would like to meet growing demand.

The National Oceanic and Atmospheric Administration and Gov. Chris Gregoire want to change that. Last Friday, they announced a new initiative to help the farmers grow more shellfish responsibly, as well as promote shellfish research and rebuild native populations of Olympia oysters and pinto abalone.

The Washington initiative is part of a larger push by the federal government to close a \$9 billion trade deficit in seafood, and the first state action under the National Shellfish Initiative. NOAA estimates about 84 percent of seafood consumed in the U.S. is imported, and half of that comes from fish farms. Last June, the agency released guidelines on how fish can be farmed responsibly in federal waters.

"We recognize how important shellfish aquaculture is in providing local seafood, providing jobs and helping to restore the environment," said NOAA Administrator Jane Lubchenco, who joined Gregoire at a Friday news conference at Taylor Shellfish in Shelton. She said she hoped Washington would be a model for other states in promoting healthy, sustainable shellfish.

Gregoire said last Friday she'll direct \$2 million in federal money to help local governments identify and correct water pollution problems that can close shellfish beds to harvests. She'll distribute \$2.5 million in federal grants to help counties fix failing septic tanks and prevent manure from fouling shellfish beds. She also plans to gather together experts to address the problem of ocean acidity that could harm shellfish.

Local, state and federal agencies, including

the Army Corps of Engineers, would work together to streamline the permit process for farmers, while still ensuring there are environmental checks and balances, officials said.

"We're stuck in a permit quagmire," said Bill Dewey, a spokesman with Taylor Shellfish, which has been growing its operations in Canada but would like to expand in Washington. "Demand has exceeded supply for years and we're anxious to try to fulfill that demand."

Washington state is the nation's leading producer of farmed shellfish with about \$107

UW oyster documentary

SEATTLE — The University of Washington has produced an informative online video about some of the challenges facing the state's oyster industry.

Biologist Jennifer Ruesink considers UW oyster research and work with the shellfish industry in face of today's environmental challenges, including ocean acidification. The UW 360 segment also includes Emma Timmins-Schiffman, aquatic and fishery sciences graduate student, and Taylor Shellfish Farms' Joth Davis, who is a UW affiliate faculty member.

Check out the the UW oyster video at www.washington.edu/news/articles/featured-video-oyster-standoff-with-ocean-acidification.

million in annual sales. The industry supports about 3,200 jobs and contributes \$270 million to the state economy, according to the state. Demand for Washington's prized shellfish has long exceeded supply nationally and globally, the governor said.

Recent efforts to streamline aquaculture permitting in Maryland have helped open up more oyster farms. In the past year, the state

issued 21 permits for oyster leases, and they're doing so within 120 days, said Karl Roscher, assistant director of fisheries services for Maryland's Department of Natural Resources.

There have been few new shellfish farms in Washington over the past several years.

"As a small business, the number one issue for our survival is the permit process," said Vicki Wilson, who owns Arcadia Point Seafood with husband, Steve. The company grows geoducks — the highly-prized large burrowing clams — on about 7 acres of private land in south Puget Sound. It employs four full-time workers and between 50 and 70 people on a temporary basis over the year.

The company applied for permits in 2009 to open two new farms totaling less than 2 acres. They're still trying to get permit approvals from state, county and federal agencies. "The whole process has been so incredibly frustrating and demoralizing," Wilson said.

"The fact that NOAA is wanting to push this and the governor is wanting to push this — this is a huge deal for the industry," she added.

Some environmental groups and others, however, have raised concerns about the federal government's broader push to boost seafood production through fish farming. Critics say some types of fish farming, particularly of finfish such as salmon, can pose risks of pollution, habitat damage and diseases. Locally, there have been intense debates over the impacts of geoduck farming.

Marie Logan, an analyst with the public-interest group Food & Water Watch, said NOAA's policies historically have tended to favor industrial expansion of the aquaculture industry, at a loss to consumers and the environment. However, she and others say oyster, mussel and clam farms, when carefully located and well designed, can help expand U.S. seafood production, while also improving water quality.

Oyster and other shellfish filter water as



Wikipedia Commons/Feet Wet
The Olympia oyster, *Ostreaa conchaphila*, is the native oyster of the Pacific coast of North America from Alaska to Mexico. The name is derived from the important 19th century oyster industry near Olympia on Puget Sound. They also were the origin of the Willapa Bay oyster business. Aiding their recovery is one goal of a new state-federal shellfish initiative announced last Friday.

they feed and provide critical habitat for other species, said Betsy Peabody, executive director of the nonprofit Puget Sound Restoration Fund.

Last Friday, NOAA announced a \$200,000 grant to help the state restore native Olympia oysters. The fund will work with the state, NOAA, tribes and others on that project.

"Shellfish are incredibly important when it comes to maintaining the health of estuaries," she said.



Washington State Governor Christine Gregoire

Washington State Blue Ribbon Panel on Ocean Acidification



Ocean Acidification: From Knowledge to Action

Washington State's Strategic Response



November 2012

<http://www.ecy.wa.gov/water/marine/oceanacidification.html>

Governor Gregoire's Executive Order 12-07

CHRISTINE O. GREGOIRE
Governor



STATE OF WASHINGTON

OFFICE OF THE GOVERNOR

P.O. Box 40002 · Olympia, Washington 98504-0002 · (360) 753-6780 · www.governor.wa.gov

EXECUTIVE ORDER 12-07

WASHINGTON'S RESPONSE TO OCEAN ACIDIFICATION

WHEREAS, acidification of the world's oceans, measured by the lowering pH numbers and caused primarily by increasing levels of carbon dioxide in the atmosphere, has arrived on the West Coast sooner than predicted and is already reaching levels that are corrosive for shellfish and other marine organisms; and

WHEREAS, Washington's marine waters are particularly vulnerable to ocean acidification because they experience the effects of global carbon dioxide absorbed by the oceans in addition to regional and local factors. One of the most important regional factors is coastal upwelling, which occurs when strong northerly winds blow across the Pacific Ocean, bringing deeper water up to the surface, along the Washington coast, into coastal estuaries like Willapa Bay and Grays Harbor, and the Puget Sound basin. Today's upwelled water is rich in carbon dioxide and low in pH and oxygen, and was in contact with the atmospheric concentration of carbon dioxide from 30 to 50 years ago, meaning we will continue to see acidification for several decades after global carbon dioxide emissions begin to fall; and

WHEREAS, acidification near the coasts, and particularly in highly populated and developed areas, is often exacerbated by local sources of pollutants, such as nutrients and organic material, that generate additional carbon dioxide in marine waters; and

WHEREAS, between 2005 and 2009, the Pacific Northwest oyster hatcheries experienced disastrous production failures when billions of their youngest oysters, the larvae, died due to acidified seawater that dissolved shells or prevented their formation; and

WHEREAS, Washington is the country's top provider of farmed oysters, clams, and mussels. Our shellfish growers employ directly and indirectly more than 3,200 people around the state and provide an annual total economic contribution of \$270 million statewide. The increasing levels of acidification in Washington's marine waters pose serious and immediate threats to our shellfish resources, and the revenue and jobs supported by the shellfish industry; and

WHEREAS, ocean acidification has important implications to Washington's tribal communities and fishermen who increasingly depend on shellfish species to support their families; and

WHEREAS, increasing levels of acidity also have implications for the broader marine ecosystem because many organisms that are important food sources for species such as salmon, whales, and seabirds, are dependent on their ability to form and maintain shells, skeletons, or other hard parts; and

Washington's
Response to
Ocean
Acidification

Senate Bill 5603

- Passed legislature June 2013
- Creates the Washington Marine Resources Advisory Council in Governor's office
 - Sustainable coordinated focus to address the impacts of ocean acidification
 - Advise and work with the UW Ocean Acidification Center on effects and sources of ocean acidification
 - To deliver recommendations to the Governor and Legislature
 - To seek public and private funding to assist in effort
 - To do outreach and education on ocean acidification

University of Washington Ocean Acidification Center

- Created by Legislature in June 2013
- Five priority actions:
 - Water quality monitoring at the six existing shellfish hatcheries and rearing areas
 - Expanded and sustained ocean acidification monitoring network
 - Establish the ability to make short-term forecasts of corrosive conditions
 - Laboratory studies to assess the direct causes and effects of ocean acidification
 - Investigate and develop commercial-scale water treatment methods or hatchery designs

Governor Inslee's Executive Order 14-04

Carbon Emissions Reduction Taskforce

Convene a taskforce to make recommendations for a carbon emissions reduction program for consideration during 2015 legislative session.



Coal-Fired Electricity Transition

Work with private utilities and federal agencies to facilitate the transition from coal to cleaner electricity sources.



Clean Transportation

Decide how to accelerate our use of clean cars and clean fuels; and reduce transportation emissions.



Energy Efficiency

Focus on saving costs and reducing emissions from buildings by improving their efficiency and taking advantage of clean power.



Governor Inslee's Climate Executive Order

"This is the right time to act. This is the right place. And we are the right people to make this happen."

— Gov. Inslee, April 29, 2014



Clean Technology

Develop a new state program to support renewable energy and energy efficiency technology innovation in the public and private sectors.

As Oysters Die, Climate Policy Goes on the Stump

By CORAL DAVENPORT AUG. 3, 2014



Gov. Jay Inslee, left, with Bill Dewey of Taylor Shellfish Farms during a tour of the company's Quilcene, Wash., hatchery in June. Matthew Ryan Williams for The New York Times

- EMAIL
- FACEBOOK
- TWITTER
- SAVE

OLYMPIA, Wash. — Billions of baby oysters in the Pacific inlets here are dying and Gov. Jay Inslee of Washington is busy spreading the bad news.

“It used to be the canary in the coal mine,” Mr. Inslee said in a recent interview. “Now it’s the oyster in the half shell. You can’t overstate what this means to Washington.”

“It used to be the canary in the coal mine” Mr. Inslee said in a recent interview. “Now it’s the oyster in the half shell. You can’t overstate what this means to Washington.”

National Marine Research & Innovation Park – Humboldt Bay



Kuiper Mariculture – Humboldt Bay



Kuiper Mariculture – Humboldt Bay



Kuiper Mariculture – Humboldt Bay



Questions?

