

# Impacts of Ocean Acidification on United States West Coast Shellfish Aquaculture

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Taylor Shellfish Farms

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# U.S West Coast Shellfish Farms



# Shellfish seed production



# Taylor Shellfish oyster larvae

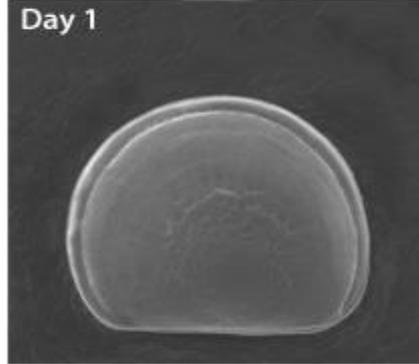
- First two days of life Pacific oyster larvae precipitate roughly 90 percent of their body weight as calcium carbonate shell
- Accomplish it with energy derived from the egg
- Low aragonite they expend too much energy building shell

Shallow intake

pH = 8.0



Low pCO<sub>2</sub>  
High ΩAragonite

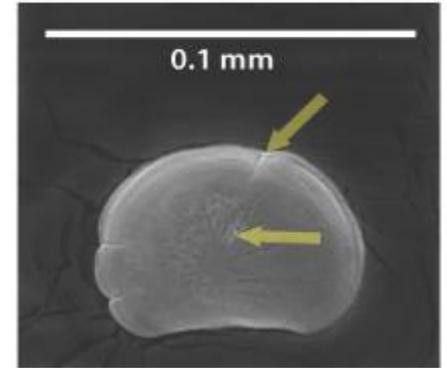


Deep intake

pH = 7.49



High pCO<sub>2</sub>  
Low ΩAragonite



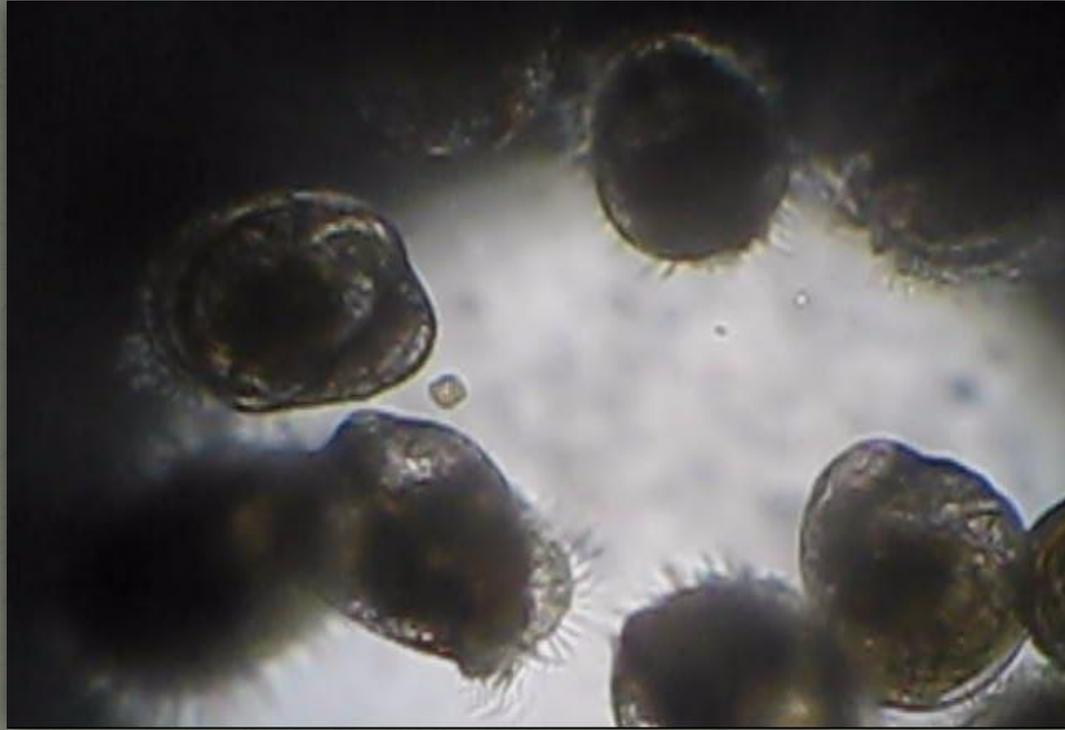
SEM photo: OSU Brunner/Waldbusser

# Oyster larvae

Feeding and  
motatating  
appendage  
(velum)



# Oyster larvae



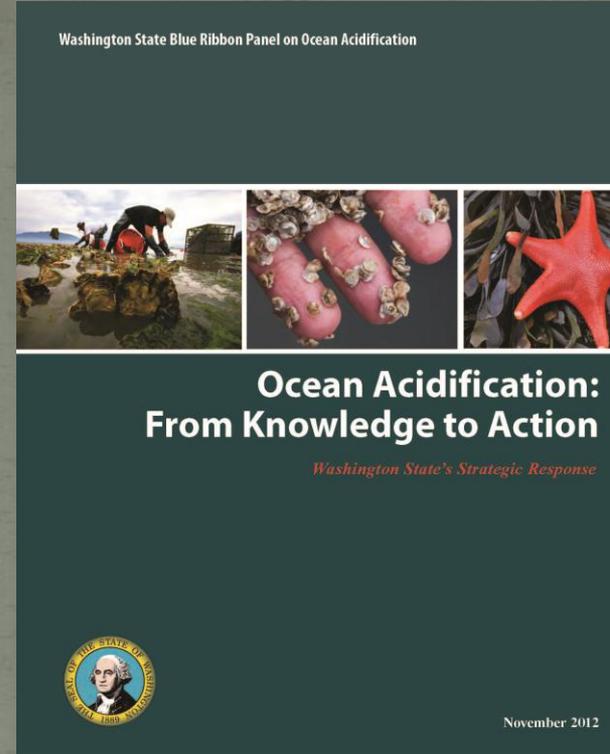
# Panic/Adaptation

- Ramped up research and monitoring at hatcheries
- Expanded larvae production capacity at Kona, Hawaii, USA
- Treating hatchery rearing water
- Breeding OA resistant oysters





Washington State Governor Christine Gregoire



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

# SEA CHANGE

## The Pacific's Perilous Turn

Ocean acidification, the lesser-known twin of climate change, threatens to scramble marine life on a scale almost too big to fathom.

<http://apps.seattletimes.com/reports/sea-change/2013/sep/11/pacific-ocean-perilous-turn-overview/>