



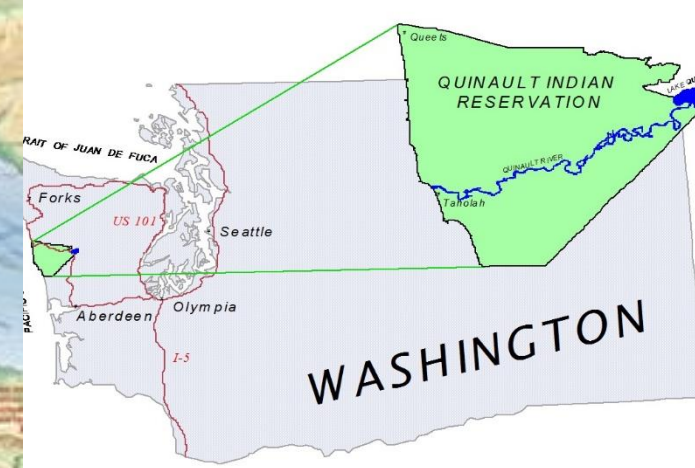
OCEANOGRAPHIC DATA COLLABORATIONS ON THE WASHINGTON COAST– WESTERN AND TRADITIONAL SCIENCE

Joe Schumacker

Quinault Indian Nation – Marine Fisheries

An Isolated Coast

- The Quinault People have lived here for millennia. Place-based!
- The ocean provides subsistence, economic, and spiritual needs.
- Resources are in jeopardy! Real-time and long-term data needs are more pressing than ever.
- Until recently, that data came only from personal observations.



Quinault People – Managers, Resource Protectors and Harvesters – Since Time Immemorial

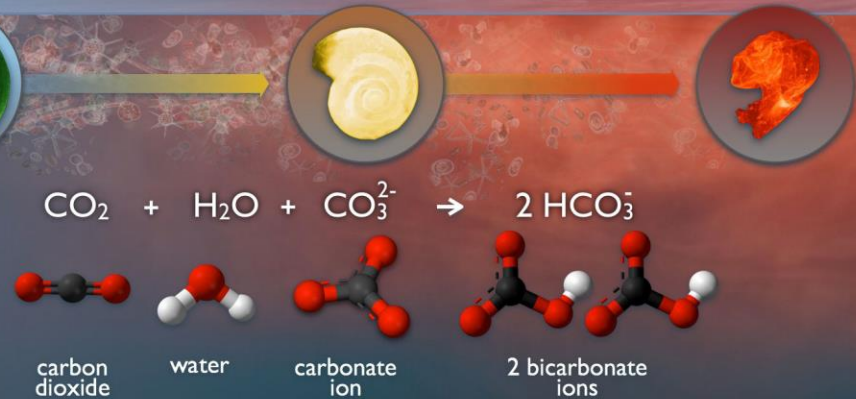


EMERGING AND INCREASING THREATS TO QUINALT RESOURCES – NEW TOOLS NEEDED

OCEAN ACIDIFICATION

HOW WILL CHANGES IN OCEAN CHEMISTRY AFFECT MARINE LIFE?

CO₂ absorbed from the atmosphere



consumption of carbonate ions impedes calcification

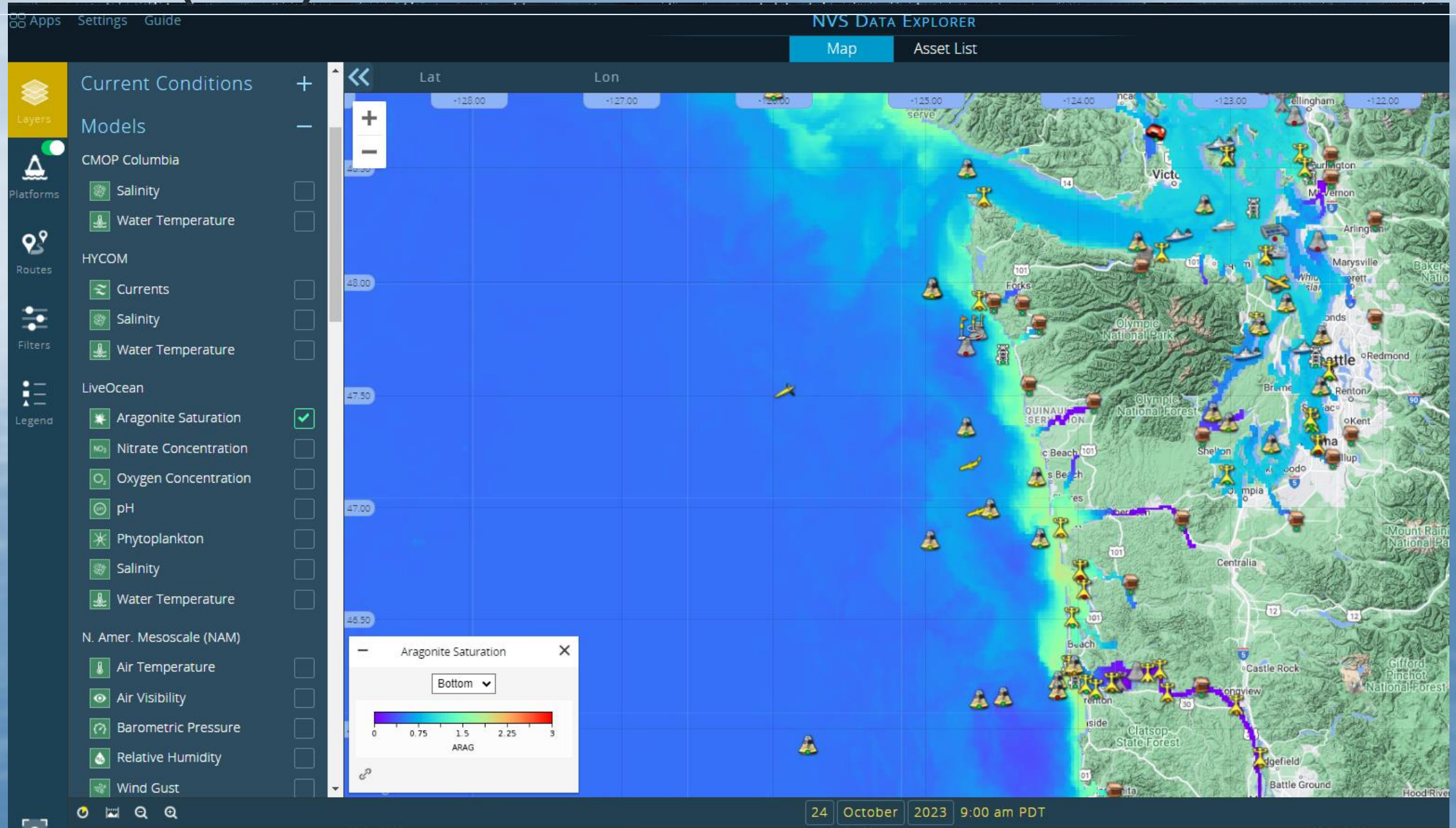


OA AND SEASONAL HYPOXIA

OCEANOGRAPHIC DATA NEEDS - QUINAULT

- Long-term datasets to define baselines and changes – incorporate traditional knowledge where available and appropriate.
- Spatially optimized (useful) data collection of -
 - Ocean temperature
 - Dissolved oxygen
 - Sea-level
 - Currents and waves
 - Carbonate chemistry
 - Long-term biologic data including primary and secondary productivity
 - Determination of multi-stressor impacts on organisms

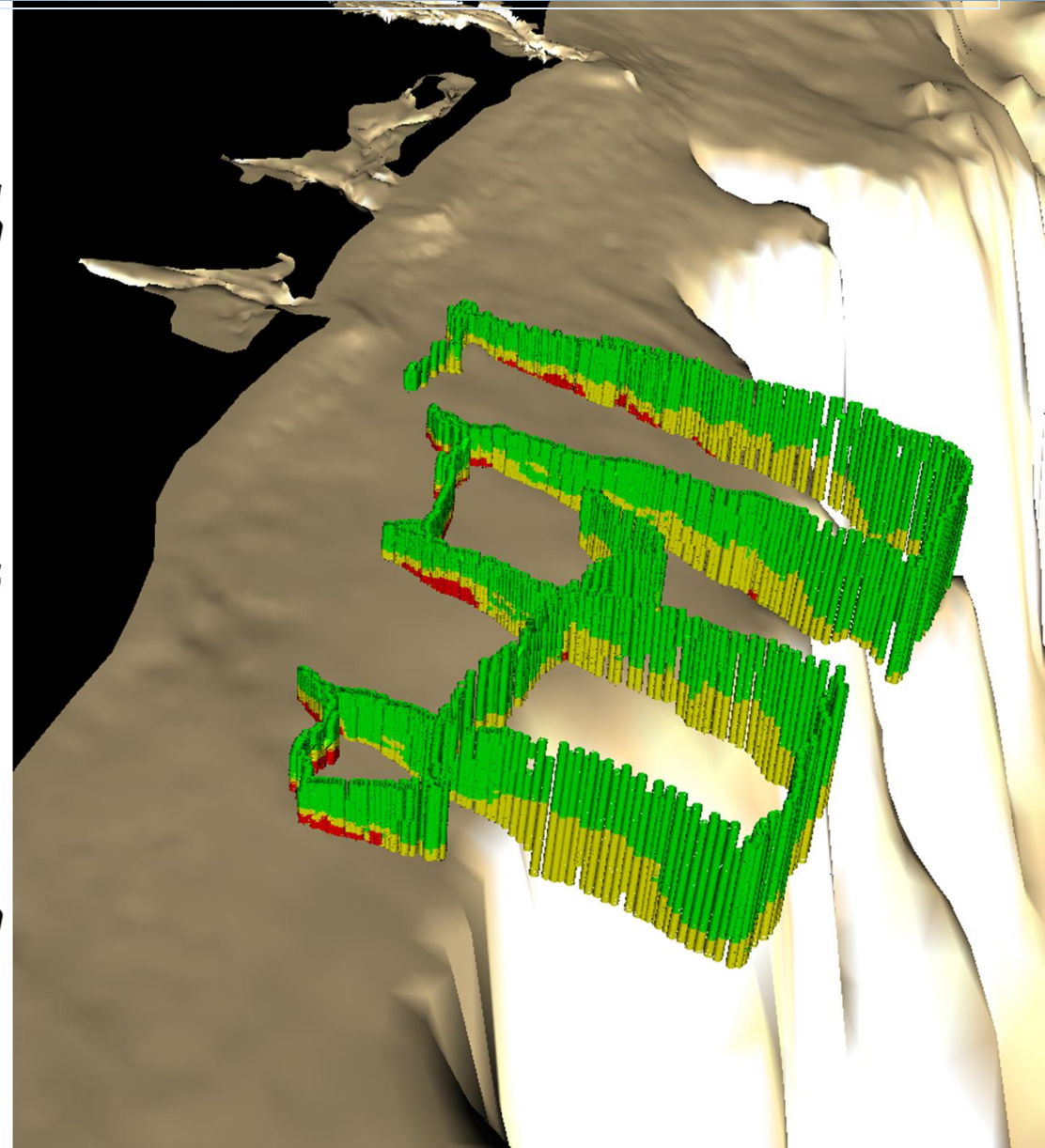
COLLABORATION AND NEW TOOLS - NANOOS VISUALIZATION SYSTEM (NVS)



QUINAULT / OSU / CRITFC COLLABORATION - WASHINGTON SHELF GLIDER



Hypoxia
1.0
0.5
0.0



COLLABORATION IS ESSENTIAL TO FILLING GAPS IN KNOWLEDGE AND COVERAGE

- Collaborative oceanographic science with non-academic/agency entities is not easy – kudos to our partners on the WA coast for their support.**
- Traditional Knowledge can and should be a part of long-term data.**
- Strong recommendations for true collaborative science with underserved communities, including Tribal governments, benefits all and should be supported by NASEM and others.**
- Collaboration requires funding and resource support for all partners involved.**



THANK YOU



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