

CALIFORNIA'S OCEAN ACIDIFICATION ACTION PLAN



Presentation to the SCCWRP Commission

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BACKGROUND

- **On October 25, the California Ocean Protection Council adopted an Ocean Acidification Action Plan**
- **Several of the items in the Plan potentially affect SCCWRP member agencies**
- **SCCWRP is focusing its efforts to develop science that will be pivotal to implementation of the Plan**

ELEMENTS OF THE ACTION PLAN

- **Prepare for a full range of OA risk and impacts**
 - Conduct a statewide vulnerability assessment
 - Make targeted investments in monitoring to inform decision making
- **Activate responsible elements of state government**
- **Reduce the pollution that causes OA**
- **Deploy living systems to slow OA and store carbon**
- **Build resilience of affected communities, industries and interests**
- **Engage beyond state borders**

REDUCE POLLUTION THAT CAUSES OA

- **Nutrient reduction was most frequently suggested action when the Action Plan development team interviewed stakeholder community**
 - Reduction suggestions focused on the wastewater and agricultural sectors
- **The OAH Science Task Force was consulted as to whether to elevate this to a recommendation**
 - Task Force recommended encouraging reduction through incentives, such as enhancement of reuse
 - Task Force felt it was scientifically premature to require reduction through regulation
- **Task Force also recommended that coupled physical-biogeochemical modeling is the way to address this uncertainty**

ACTION PLAN INCLUDES RESEARCH NEEDS APPENDIX

- **There were eight research recommendations**
 - Focused on science needed to support implementation of the Action Plan
- **SCCWRP research is directly addressing seven of the eight recommendations**

WHY SHOULD WE CARE ABOUT OA?

- **Identify the pattern of OA exposure in California, its progression, and the locations where the earliest and most detrimental changes in ocean chemistry will occur**
- **Characterize the vulnerability of marine life, habitats, and ecosystems of concern to California stakeholders**
- **Quantify the societal and economic consequences of OA**
- **Characterize OA's contribution to coastal ecosystem impacts in relation to other stressors**

WHAT CAN WE DO ABOUT OA?

- **Identify where local pollution control actions will most effectively slow local acidification rates**
- **Explore how to maximize carbon reduction through natural and constructed living systems**
- **Develop the scientific foundation for managers to set ecologically protective water quality targets for OA**
- **Evaluate the use of existing management tools to preserve, support and enhance the resilience of fisheries in the face of intensifying OA**

WHY SHOULD WE CARE ABOUT OA?

- **Identify the pattern of OA exposure in California, its progression, and locations where the earliest and most detrimental changes in ocean chemistry will occur**
 - Bight monitoring program is the best description of temporal and spatial OA exposure in southern California
 - Our coupled physical-biogeochemical modeling is best option for defining areas most subject to future change
- **Characterize the vulnerability of marine life, habitats, and ecosystems of concern to California stakeholders**
 - Bight 18 is focused on providing the first regional assessment of biological condition in southern CA
 - Developing interpretive tools to assess impact of OA, hypoxia and temperature on biological condition
- **Quantify the societal and economic consequences of OA**
 - Not us
- **Characterize OA's contribution to coastal ecosystem impacts in relation to other stressors**
 - We are about to invest \$250K in a laboratory upgrade so we can address interacting stressors

WHAT CAN WE DO ABOUT OA?

- **Identify where local pollution control actions will most effectively slow local acidification rates**
 - Our coupled physical-biogeochemical modeling is at the center of addressing this recommendation
- **Explore how to maximize carbon reduction through natural and constructed living systems**
 - Nina Bednarsek is working with Puget Sound folks to quantify effectiveness of kelp culture for CO₂ reduction
 - We are collaborating with UCI to model how much phytoremediation is necessary to be effective
- **Develop the scientific foundation for managers to set ecologically protective water quality targets for OA**
 - The workshops that Martha will talk about later are directly responsive to this recommendation
- **Evaluate the use of existing management tools to preserve, support and enhance the resilience of fisheries in the face of intensifying OA**
 - Our model will be used to identify which fisheries are most vulnerable to OA stress