OA
ALLIANCE

INTERNATIONAL ALLIANCE TO
COMBAT OCEAN ACIDIFICATION

ACTION PLAN

ACTION #2
ADVANCE SCIENTIFIC UNDERSTANDING

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ADVANCE SCIENTIFIC UNDERSTANDING OF
CLIMATE-OCEAN IMPACTS, LOCALLY AND GLOBALLY

- **Join, launch or expand nearshore and deep ocean monitoring networks that help determine where and at what rate regions are experiencing acidification and changing conditions.** Establish baseline monitoring necessary to capture natural variability in ocean carbon chemistry and understand long-term trends.

  - Ensure data compatibility in monitoring by adopting and adhering to the common indicators and methodology developed for UN Sustainable Development Goal 14.3.

  - Inventory regional monitoring and observing efforts and analyze for gaps to improve efficacy.

  - Support partnerships with local experts, fisheries, industry, traditional leaders, chiefs, universities and NGOs to participate in inclusive and sustained data collection. Develop and participate in a sustained national or regional citizen science programs that includes water sampling, pH monitoring and observations. This should include long term support for education, technical training and equipment.

  - Identify "hot spots" or areas that might be highly vulnerable to OA. Explore opportunities for monitoring, research and adaption.

  - Identify existing protected areas, like Marine Protected Areas or Locally Managed Marine Areas, and explore opportunities for OA monitoring and research.

  - Develop funding mechanisms to support research and monitoring. This will help ensure baseline data is available to better inform adaptation and policy decisions at a local level.

- **Conduct research to understand biological OA impacts. Assess vulnerability and risk to ecosystems and species locally.**

  - Commission regional or national vulnerability assessments with an emphasis on social, economic and cultural vulnerability.

  - Inventory existing case studies that examine ecological or biological species vulnerability thresholds and responses to OA. Identify additional studies that must be prioritized and commission reports.

  - Support laboratory (ex situ) studies to assess the direct effects of OA, and other stressors, on local species and ecosystems.

Support field (in situ) studies to characterize the effects of OA, alone or in combination with other stressors, on local species and ecosystems.

Establish a regional or national clearing house for OA data, information and synthesis that can be accessed by governments and stakeholders with the goal of informing local decision making and actions.

Develop predictive and forecast models to inform responsive decision-making and management.

Invest and support the development models for short-term and long-term forecasting of corrosive conditions (predictive relationships for indicators of OA, such as pH and aragonite saturation state.)

Invest and support the development of models to project ecological responses to OA and other climate stressors (e.g. how will coral reef or seagrass ecosystems respond to changing ocean conditions?) Undertake biological responses of key species (e.g. oysters, shrimp, lobster, finish) to predicted OA conditions and warming trends.