



2023 MACAN Work Plan and Semi-Annual Progress Report

Reporting Period: January 2023 – June 2023

Work Group Webpage: <https://midacan.org/>

Work Group Leads: Kirstin Wakefield (MARACOOS); Janet Reimer (MARCO)

Work Group Members: MACAN is guided by a Steering Committee, and has four sub-working groups that are open to government and non-governmental entities operating in the five Mid-Atlantic states and the District of Columbia.

Current Steering Committee Members Include:

Last Name	First Name	Organization
Bokunewicz	Henry	Stonybrook University and NY OA Task Force Chair
Bristow	Avalon	Mid-Atlantic Regional Council on the Ocean
Erksine	AJ	KCB Oyster Holdings LLC
Ford	Mary	MARACOOS
Hassell	Kevin	New Jersey Department of Environmental Protection
Jacobs	Stephanie	Environmental Protection Agency (Region 3)
Langley	Susan	Maryland State Underwater Archaeologist, MD Department of Planning
Miller	Whitman	Smithsonian Environmental Research Center (SERC)
Ombres	Erica	NOAA Ocean Acidification Program
Phelan	Beth	NOAA Northeast Fisheries Science Center
Reimer*	Janet	Mid-Atlantic Regional Council on the Ocean
Rivest	Emily	Virginia Institute of Marine Science (VIMS)

Rowe	Pete	New Jersey Sea Grant
Rutkowski	Megan	New Jersey Department of Environmental Protection
Saba	Grace	Rutgers University / Mid-Atlantic Regional Association Coastal Ocean Observing System
Testa	Jeremy	University of Maryland Center for Environmental Science
Wakefield*	Kirstin	MARACOOS
Wark	Kevin	Captain, F/V Dana Christine II
Zacharias	Margaret	EPA Region 3

* Co-Lead

Work Group Goal: Foster collaboration and coordination across sectors and states in the Mid-Atlantic regarding ocean and coastal acidification.

Outcomes:

- Build upon the monitoring gaps paper from 2019 by identifying areas of opportunity for acidification monitoring in the Mid-Atlantic.
 - Continue to build understanding among MACAN stakeholders about research and programs related to acidification in the Mid-Atlantic.
 - Support and inform the Interagency Work Group on Ocean Acidification’s *Coastal Community Vulnerability Assessment*.
 - Coordinate with partners such as NOAA Ocean Acidification Program, other Coastal Acidification Networks, the OA Alliance, and other MACAN members.
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ACTIVITY 1 (OAP Workplan)- Host annual webinar series addressing topics of interest to stakeholders.

Expected Completion Date: June 2023

January – June, 2023:

MACAN held its annual webinar series in Spring 2023:

- February 2023: OA Research and Education Highlights from Around the Region
- March 2023: Mitigating OA Through Marine CDR: Opportunities and Challenges
- April 2023: A Coupled Biogeochemical-Biological-Economic Modeling System to Quantify Climate Change Impacts on Oyster Aquaculture in Chesapeake Bay
- May 2023: OA Research and Highlights Around the Region: Part 2

Recordings of the webinars are on the MACAN website [here](#).

MACAN co-coordinators will begin planning the spring 2024 webinar series in August 2023, incorporating suggestions from the Steering Committee and MACAN's membership.

ACTIVITY 2 (OAP Workplan) - Hold quarterly meetings with the Steering Committee to share funding opportunities and discuss areas for potential coordination/collaboration amongst MACAN members.

Expected Completion Date: Ongoing

January – June 2023:

Meetings of the MACAN Steering Committee (SC) were held on February 23 and June 20. The [2023-2024 work plan](#) (and in this document) along with a description of the BIL funded activities was shared at the February meeting. An updated and combined (OAP and BIL) workplan was shared with the SC at the June 20th meeting. Additionally, at the February meeting, Graduate Student Carly LaRoche, shared the progress on the compilation of the monitoring inventory (BIL activity) and asked for input from SC members. At the June meeting, the SC gave feedback on the proposed format and session topics for the MACAN Bi-Annual Meeting (BIL activity) and received updates on the Hotspots Project (BIL activity), the monitoring inventory, the IWG-OA national monitoring prioritization report (OAP activity), MACAN website and social media updates (BIL activity), and the workforce development fellowship (BIL activity). See below for individual activity updates.

ACTIVITY 3 (BIL Activity 2.1) - Conduct a regional monitoring inventory to characterize sensors currently in use across the region and identify strategic locations to leverage existing, or add new infrastructure for ocean and coastal acidification measurements.

- Distribute an Ocean and Coastal Acidification Monitoring Inventory Questionnaire to stakeholders in the region.
- Synthesize the survey responses to identify existing and potential opportunities for acidification monitoring; cross-reference with gaps identified in the IWG-OA Coastal Community Vulnerability Assessment effort.

- Update acidification monitoring maps on the Mid-Atlantic Ocean Data Portal and identify opportunities for real- or near-time data products on the MARACOOS OceansMap.

Expected Completion Date: December 2023

January – June 2023:

Responses from the survey have been received, synthesized, and are being prepared as a data layer on the Mid-Atlantic Ocean Data Portal. Metadata from over 300 monitoring sites reported by over 30 survey responses have been collated into a single spreadsheet and have been analyzed to determine the spatial, temporal, and methodological trends in OCA monitoring across the MidAtlantic region. These analyses focus on monitoring efforts that occurred within the 2017-2023 time period so as to focus on recent and current monitoring in the MidAtlantic. The spatial distribution of monitoring data has been assessed based on type of carbonate system parameters being measured (pH, $p\text{CO}_2$, TA, DIC), type of measurement (discrete, continuous, underway, etc.), depth of measurement, and frequency of measurement. Maps were created in ArcGIS to further analyze spatial data. Density and cluster analyses of monitoring sites were performed in order to identify gaps in monitoring spatial coverage. Several gaps analyses were performed in order to take into account data coverage of sites using different sampling methods, measuring different parameters, etc. Qualitative survey results were also compiled to show the most commonly reported limitations to increasing OCA monitoring and what type of QA/QC methods are currently in use across the region. We are currently in communication with the MARCO Data Mapping Portal and MARACOOS Oceans Map in order to make these survey data publicly available.

ACTIVITY 4 (OAP Workplan) - Coordinate with partners, including the NOAA Ocean Acidification Program, other CANs, states within the region, and the OA Alliance.

- Engage in the Ocean Acidification Information Exchange
- Work with other CANs and partners to participate in and disseminate information about the annual webinar series
- Participate in all CAN-calls as coordinated by NOAA OAP
- Other activities as they arise.

Expected Completion Date: Ongoing

January – June 2023:

- All-CAN calls were held on January and May 23rd

- New York State shared their acidification action plan with MACAN for comment by the end of September.
 - MACAN was invited to participate in the OA Alliance/Aquarium Conservation Partnership StoryMap project and will be partnering with NOAA OAP and Alaska AOAN on its development
 - Reports of MACAN activities are given at MARCO Management Board meetings and MACO Steering Committee meetings.
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ACTIVITY 5 (OAP Workplan) - Support the IWG-OA Coastal Community Vulnerability Assessment and National Monitoring Prioritization Plan Efforts

- MACAN's Science Working Group, Steering Committee, and partners will provide feedback on draft reports
- Identify outreach opportunities to disseminate regional report findings to policymakers, industry stakeholders, and the research community

Expected Completion Date: Ongoing

January – June 2023:

The final vulnerabilities assessment report is still pending White House approval though the MACAN responsibilities have been achieved. MACAN and the SC have been invited to participate in monitoring needs and priorities assessment, which was distributed to the SC at the June meeting. MACAN leads will review the comments and input from the SC prior to sending the information to the IWG-OA.

ACTIVITY 6 (OAP Workplan and BIL Activity 2.3)- Develop outreach materials for stakeholders, including policymakers, industry, and educators, using lessons-learned from other regions.

- Refine and disseminate the Mid-Atlantic Ocean and Coastal Acidification Toolbox for middle school to early college teachers and Informal Educators in the Mid-Atlantic that was created in 2021
- Communicate advances in ocean and coastal acidification research and policy to the MACAN membership using a bi-monthly Constant Contact email “news and updates” and via its website (see also, Activity 7)
- Enhance industry outreach and engagement around ocean and coastal acidification, including marine carbon dioxide removal (mCDR) topic

- Connect community scientists with opportunities for ocean and/or coastal acidification monitoring
- Produce and disseminate several 2-4 minute videos on coastal and ocean acidification
- MACAN will create social media pages on Facebook, Twitter, and Instagram.

Expected Completion Date: Ongoing

January – June 2023:

MACAN presented at the Chesapeake Bay VA NERR Teachers on the Estuary Workshop in June, complementing the Mid-Atlantic Coastal Acidification Curriculum module developed in partnership with our regional NERRs educators in 2021. Constant Contact emails have been distributed bi-monthly, and as needed for special events, in April and June. A webinar (See activity 1) on mCDR was hosted in March and a session will be convened at the State-of-the-Science workshop. MARCO released an RFQ and is in the process of contracting with a production company to create and produce several short videos aimed at K-12 and community stakeholders. MACAN has created and maintains a Facebook and Instagram page where various announcements have been posted, including registration of the State-of-the-Science workshop, the Workforce Development Fellowship (Activity 10), and other updates from around the region.

Activity 7 (BIL Activity 2.4) - Revisit and enhance the MACAN website

- In order to efficiently act as the regional information hub for ocean acidification our website needs regular updating and attention to meet the changing needs in the region.
- Update the website to make it more widely accessible

Expected Completion Date: Ongoing

January – June 2023:

MARCO is now under contract with 3Lane Marketing to update the website and create accessible descriptions of the photos and graphics on the site. The SC has been invited to contribute comments on new website content.

Activity 8 (BIL Activity 2.6) - Host In-person Workshop: Mid-Atlantic Ocean and Coastal Acidification State of the Science

- A workshop will be developed to bring MACAN members together to share new research, identify opportunities for collaboration, build partnerships, and identify additional ways for MACAN to address key stakeholder concerns and needs regarding impacts to estuarine, coastal, and ocean species and ecosystems in the Mid-Atlantic. A workshop agenda and speaker list will be developed, and an appropriate venue secured for approximately 30 attendees in-person

Expected Completion Date: September, 2023

January – June 2023:

The SC gave feedback on session topics and format at the June meeting. MACAN leads have secured speakers, are creating a [draft agenda](#), and MARCO Core Team members are securing the location and AV and other support staff. The meeting will be held on September 11 and 12 at the Institute of Marine and Environmental Technology in Baltimore, Maryland. Sessions will be an hour to two hours long with presentations and panel discussions. The session themes include technology advancement, data tools, science and policy updates, marine carbon dioxide removal, and outreach activities.

Activity 9 (BIL Activity 2.2) - Development of an OCA “hotspot” layer on the Portal

- By identifying “hotspot” locations in the Mid-Atlantic that are at a high risk for, and vulnerable to, acidification events by integrating and analyzing regional carbonate chemistry data, including glider and ship data, this task will build a better understanding of where and how Mid-Atlantic nearshore ecosystems will be impacted by ocean acidification.

Expected Completion Date: Ongoing

January – June 2023:

MACAN hired a contractor, Teresa Schwemmer, to carry out this work. At the June SC meeting, Teresa presented basic methodology, outcomes, and projected deliverables. The scope of work is open to the SC for comment. SC member, Erica Ombres, reached out to offer suggestions on potential advisors for this project. The project will be advised by the MACAN leads and SC members.

Activity 10 (BIL Activity 2.5) - Development of workforce career mentorship program for students from underrepresented populations

- MACAN will work with the Steering Committee and other research and outreach partners to develop a Fellowship program that will place students from underrepresented populations with a mentor in policy, outreach, or OA-related research. The program will be available to undergraduate and graduate students,

who will be selected based on a competitive process determined and scoped by the MACAN Steering Committee.

Expected Completion Date: Ongoing

January – June 2023:

MACAN in collaboration with the MARCO Core Team wrote the research funding proposal ([RFP](#)). Due to a NOAA special award condition (SAC), the MARCO Core Team worked with MARCO's NOAA program manager to have the SAC removed. The RFP was presented to the SC at the June meeting and was open to comment. MACAN SC members will act as advisors/mentors for up to two competitively selected students.

