

OA Alliance OA Vulnerability and Risk Assessments Webinar - April 15, 2021 Follow-Up Discussion

Presenters and Panelists

Dr. Sarah Cooley, Ocean Conservancy, Director of Climate Science

- Overview of Climate Risk Assessments and Applications for OA Vulnerability Assessments

Dr. Johanna Johnson, Director of C2O Pacific

- OA Vulnerability Assessment: Case Study Pacific Islands Region

Dominique Sigg, British Columbia Climate Action Secretariat, Ministry of Environment and Climate Change Strategy

- Ocean Acidification Within Broader Climate Risk Assessments: Case Study British Columbia, Canada

Dr. Jan Newton, Co-Director, Washington Ocean Acidification Center, University of Washington

- Olympic Coast as a Sentinel: An Integrated Social-Ecological Regional Vulnerability Assessment to Ocean Acidification

Dr. Nayrah Shaltout, Associate Professor, National Institute of Oceanography and Fisheries in Egypt

- Applications within the Mediterranean Region

Discussion

Dr. Cooley, often climate risk and vulnerability assessments are relying on global data and information. In most instances, governments don't have comprehensive or definitive data and information around coastal climate trends or biological impacts/ species response studies. What types of considerations do you think are most important when moving forward without a complete picture of regional or costal data and information?

Dr. Cooley:

This is when it's important to work with local experts to develop a better view of what is happening. Nonquantitative information (e.g., Indigenous narratives, local fishermen's oral histories of where and when harvests changed) can be extraordinarily helpful in identifying how local systems work and changes that have occurred. Even though western-style quantitative spatial-temporal measurements have underpinned OA risk assessments to date, I don't think that's necessarily a hard and fast rule. I haven't worked with an anthropologist on using nonquantitative information like this, so I can't make clearer recommendations on this.



Downscaling from global-scale data can give you an overall picture of macro trends, but it's important to recognize that there are local exceptions to every global trend. So, a conclusion drawn from global scale data should be treated with low confidence until more local information can be obtained.

Ms. Sigg, the climate risk assessment put together by the provincial government included an emphasis on meeting objectives. Examples of these objectives include minimizing loss of life; minimizing loss of natural and cultural resources; minimizing loss of economy productivity. What were some of the benefits of this approach? What were some of the limitations? Do you have lessons learned in defining the scope of the risk assessment using these objectives?

Dominique Sigg:

The purpose of setting the objectives was to clearly outline the scope of the project – what it would cover and equally what it wouldn't. The benefit of having a defined set of objectives is that it allowed us to develop a more nuanced understanding of the problems that the risks would produce, leading to a specific set of consequence categories to assess. Having specific objectives also allowed us to then develop specific scenarios for each risk event and to determine likelihoods and consequences for each scenario. One limitation of breaking the objectives, and the consequences, into a set of categories is that it's a very western science approach and doesn't really allow for a more holistic understanding of the impact of climate risks, or consider the inter-related nature of those categories.

Dr. Johnson, the Pacific Islands OA Vulnerability Assessment included an emphasis on OA implications for governance and management, specifically how OA would impact existing national plans and policies that have already been put in place to maximize fisheries and aquaculture for economic development, food security and livelihoods. Considerations included things like the need to diversify income from small-scale fishing, anticipated tourism revenue decline, impacts to pear and shrimp farming. In your understanding, how has the Vulnerability Assessment further helped inform or prioritize actions in the region?

Dr. Johnson:

The pilot projects have helped trial what's possible at a local scale, in terms of monitoring and buffering. At a national or regional scale, many of the recommended adaptations, such as diversifying income and targeting nearshore pelagic fish have been taken up as national initiatives. While not specifically badged as OA adaptations, they are broader climate change adaptations, and include fish aggregating device (FAD) networks and awareness on diversifying coastal fish catches. Ideally, the OA pilot projects would demonstrate how local buffering can assist site-attached activities, such as pearl farming or eco-tourism, which could then be applied to other locations that are OA hotspots.

Dr. Newton, you've been co-leading the project "Olympic Coast as a Sentinel" project, highlighting the integrated social-ecological approach to regional OA vulnerability assessment (social science and natural science.) From your perspective, how has that project addressed the knowledge gap between global trends and local impacts?



Dr. Newton:

This is a favored topic of mine, as you saw, I started the slide show with a line I and others use frequently: “OA is a global condition with local effects.” Global because of the drivers and local because species and human uses, as well as coastal and ocean dynamics, vary widely. Yes, I think this is important because we cannot understand the local condition if it is not in the context of global processes affecting OA and CC. Conversely, we cannot understand the truly global condition if we do not have a composite, a mosaic if you will, of all the local pictures.

I think our work certainly accomplished the first, putting the local conditions in a global context, but I feel that is commonly done. Where I think we can further contribute is exporting the approach we used, that a place-based approach is critical, and that similar steps can be followed in locations world-wide. We look forward to getting our approach out into the literature. To assess OA on local scales globally means we have to work together, and I acknowledge networks like the Global Ocean Acidification Observing Network (GOA-ON) and your OA Alliance. I think all the presenters today also contribute to that quite well.

Dr. Shaltout, how do you think governments perceive ocean and coastal related climate risk? What is it like to introduce the concept of changing ocean conditions as a potential risk or vulnerability that requires government, community and multi-sector response? In your experience, does OA feel too abstract or far off in the future to be addressed as a priority today by governments? How can it be made more relevant?

Dr. Shaltout:

Government usually gives the main concern to the sea level rise and global warming as an urgent and the most important risk that impact human living, agriculture, economy and life hood. There is a lot of focus on sea-level rise related to property loss and damage and potential needs for relocation in some instances.

Changing ocean conditions will impact different sectors not only fisheries but also energy, tourism, aquaculture, industrialization, costal management, and oil and gas. That’s made the integration between government in all sectors, with public communities, required to develop a mitigation plan and set up a marine special plan for coastal water in order to decrease pollution and conserve the marine environment and decrease ocean changes. Ocean acidification in the last years became more understood and its impact on marine biodiversity was more clear. It can be made more relevant by expressing this impact as an impact on resources, and consequently on economy.

What types of modeling can be used to support vulnerability and risk assessments?

Dr. Cooley:

Hindcasts can be useful to help fill data gaps, but scaling issues can get in the way (especially for earth system/water chemistry modeling). Socioeconomic scenario models (e.g. around projected community growth, resource use, etc.) are also useful when thinking about how to decrease risk, or how risk might change in the future. I’m not familiar enough with socioeconomic hindcasts to close data gaps to comment on that. (I have only ever used “snapshot” or decadal averaged socioeconomic data in my assessments.)



What is the biggest lesson you've learned working on risk and vulnerability assessments?

Dr. Johnson:

Transparent and participatory approaches engender ownership by stakeholders, which is critical for then following up with adaptation actions that target the main drivers of vulnerability. Many socio-ecological systems are data limited, so be willing to conduct qualitative or semi-quantitative assessments rather than giving up or waiting for more data. The results are still needed and can inform decision-making (with caveats).

Dr. Cooley:

Don't go in with a fixed idea of exactly the types of results or measures (e.g., quantitative measures of X) that you will get out the analysis. It may not be possible to turn patchy data into a numerical index. Even lack of data in a particular topic may actually offer opportunity to invest or suggest a particular adaptation focus. Remember that the activity of assembling, considering, and assessing data related to many dimensions of the social-ecological system is also informative!

Ms. Sigg:

Following on from others above, risk and vulnerability assessments are often based on uncertainty or incomplete information, but this shouldn't be a reason not to do them. Expert opinion and lived experience are important to consider in addition to quantitative data. They should also be iterative and can be modified as new information becomes available and can also help inform where future research is needed to fill gaps. They are also only one piece of information to consider in decision-making. For example, our assessment only considered 15 climate risks and specific scenarios for each of those. That doesn't mean there aren't any other risks that may also need to be considered in future.

Dr. Newton, we've talked a little bit today about defining the scope of a risk or vulnerability assessment—whether the focus is broadly on climate impacts, ocean change impacts, or OA specifically with a lens of socio and economic vulnerabilities on communities. In your project, part of the scoping included determining the social importance of key species and role they play in community well-being. How was this approach to project scoping unique compared to other vulnerability assessments you've been part of? Can you tell us a little bit more about the social science mechanisms that project leads used for data collection: qualitative interviews, participatory workshops, socioeconomic synthesis?

This is the only vulnerability assessment I have been involved in. My co-PI Melissa Poe and her team used all three of those techniques, but I am not conversant to represent that work. Unfortunately, COVID cut us short on some of the participatory workshops planned for the end of the work, but our plan is being adapted.

What I can comment on are what I think were our keys to success:

- Co-design: We drafted the RVA proposal with our four tribal partners as co-PIs. Each tribe was compensated for the work they contributed to the study. Our tribal co-PIs continue to co-produce the products of our team.



- **Communication:** Maintain ongoing communication. Even when COVID struck and we weren't doing our work as much, we still had a check-in meeting...its important to work as a team and share perspectives. Our WA Sea Grant co-PI has been very helpful to keeping this going as a project output.
- **Connections:** We made connections between natural and social science; this is important, and NOAA led this by how their call was crafted. We consider multiple stressors; vulnerability cannot be assessed for one variable alone. While not terribly exciting to a PI, a very important output is to highlight where there are knowledge gaps, where there are no data, because only then can this gain attention.

Thank you to our presenters and panelists for an excellent discussion!

You can watch a full recording of the presentations here:

<https://vimeo.com/540864548>

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