

The NOAA Coral Reef Conservation Program's Information Portal (CoRIS): When Colleagues are Clients

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Abstract

Each year, coral reefs are responsible for \$3.4 billion in revenue into the U.S. economy¹. The NOAA Coral Reef Conservation Program's Information Portal (CoRIS) is an internal repository that brings together coral reef datasets, products, and management planning across the entire agency. CoRIS has become an essential asset for NOAA internal stakeholders and local decision-makers, and the value it continues to demonstrate has been the key to its continued growth. This case study illustrates how one team has applied sustainability techniques by listening to the needs of their data producers and consumers.



American Samoa. Credit: Shaun Wolfe/Coral Reef Image Bank

¹ “The Total Economic Value of U.S. Coral Reefs: A Review of the Literature” delves into an additional breakdown of the coral reef economy and impact on the United States market:
https://data.nodc.noaa.gov/coris/library/NOAA/CRCP/other/other_crmp_publications/TEV_US_Coral_Reefs_Literature_Review_2013.pdf.

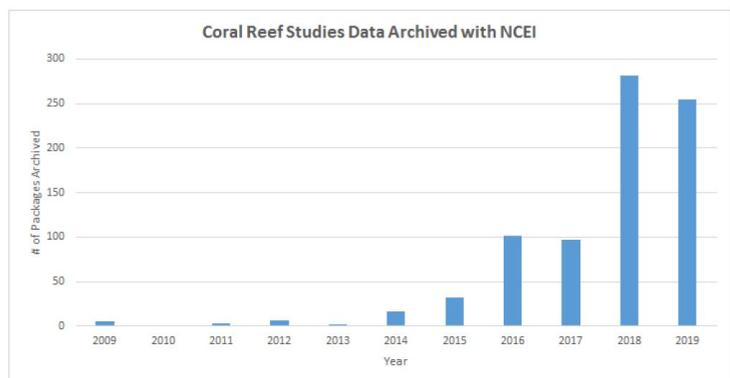
Origins

Under the constant threat of climate change and other human stressors, 25% of the world's coral reefs have been lost in the last three decades. To understand how coral reefs are being harmed and research ways to combat the adverse effects of these stressors, the United States Coral Reef Conservation Act was signed into law, establishing the National Oceanic and Atmospheric Administration (NOAA) Coral Reef Conservation Program in 2000. Multiple NOAA line offices partnered through this program to conserve and restore the nation's coral reef ecosystems.

This investment resulted in a great deal of new research across many divisions of the organization. This meant that at one time, there were over 10,000 web pages mentioning coral research across a series of NOAA managed websites² and information about NOAA funded missions only being shared on each research team's website. The NOAA Coral Reef Conservation Program's Information Portal (CoRIS), was established by NOAA leadership in 2003, to provide a centralized home for NOAA funded research products. As an active repository collecting data and publications from completed coral reef projects, CoRIS Geoportal is a master catalog of over 12,000 repository records. Research products can also be discovered through publication and project search engines on CoRIS or through featured research pages.

Sustainability Status & Strategies

After launching in 2003, CoRIS started by archiving 10 data packages a year. In the years that followed, a series of mandates led NOAA researchers and the entire scientific community towards more open data sharing. In 2013, the Public Access to Research Results³ was issued as a mandate. In 2015, NOAA mandated that scientific records be preserved in an archive one year after the completion of a data collection mission in the NOAA Data



² The NOAA Line Offices a part of the Coral Reef Conservation Program are the National Ocean Service, National Marine Fisheries Service; National Environmental Satellite, Data, and Information Service; and Oceanic and Atmospheric Research.

³ The Public Access to Research Results (PARR) is a federal mandate intended to increase the accessibility of publications and digital data produced by federal researchers or by recipients of federal funds. PARR website: <https://www.ngdc.noaa.gov/parr.html>.

Access Procedural Directive.⁴ Now, the CoRIS team typically archives 100-250 data packages per year.⁵ A measure of success is not the volume processed, but the speed of the processing. Within three months of receipt, 75% of data deposits are integrated into the repository.

While the data in CoRIS is valuable to all those who study coral reefs, the principal consumers are 55% from government domains (.gov) and 35% from industry (.com). The primary stakeholders for CoRIS are NOAA colleagues (70%) and NOAA grant recipients (25%). These researchers receive metadata support, data archiving, and publication cataloging from the CoRIS team to archive their data products in CoRIS. Support to NOAA colleagues is a key way the team demonstrates value to the NOAA leadership⁶. This array of internal stakeholders means that the CoRIS team, on the one hand, is somewhat “protected” from the need to demonstrate value to a broader audience beyond NOAA’s borders. Still, it also means that for CoRIS to be successful and continue to secure funding, it needs to demonstrate its value to the organization itself and its members.

As the centralized access to NOAA coral reef data products, the CoRIS team has recognized that curating housed products for their colleagues into public-facing web pages increases the use and visibility of the program’s progress. The team also has recognized the impact of providing more support to data providers, which increases the trustworthiness of the repository. These two strategies have led the CoRIS team to be a valued asset to NOAA and their colleagues.

Sustainability Strategy #1: Beyond an Archive - The Value of Curation

“When I first started in 2008, CoRIS was this ‘thing,’ and you (the researcher) could choose to participate until NOAA leadership started to push requirements,” says Sarah O’Connor, the CoRIS Operations Manager. Sarah and the CoRIS team knew the wealth of information stored in CoRIS, but it was not apparent to their fellow NOAA colleagues. They saw the portal as a part of the requirements process. This changed when the NOAA leadership became concerned with how to illustrate the progress being made by the program towards the program’s goal of reducing land-based sources of pollution. This concern led to an email exchange with Sarah from the Watershed Management team asking if a page could be built linking to the grant products. This page was designed for researchers applying for grants, but also acted as a

⁴ NOAA Data Access Procedural Directive was first approved by NOAA’s Environmental Data Management Committee on February 11th, 2015:
[https://nosc.noaa.gov/EDMC/PD.DA.php_!!Mih3wA!RK1l-i11PptdPmVOyNI2wu51Szm0NK4f0d6ZQE37wAtkMkJgVOEyi5Zi-6vbOw\\$](https://nosc.noaa.gov/EDMC/PD.DA.php_!!Mih3wA!RK1l-i11PptdPmVOyNI2wu51Szm0NK4f0d6ZQE37wAtkMkJgVOEyi5Zi-6vbOw$).

⁵ The variation from year to year reflects the number of projects each year that yield datasets.

⁶ CoRIS is solely funded by NOAA through an internal funding competition that reoccurs every four years. Thus, the CoRIS team continues to bid for a continuation of their project.

history of prior missions. This initial correspondence led to the creation of the Watershed Management landing page.

Rob Ferguson, the Coral Reef Watershed Management Specialist at NOAA, worked with Sarah to build a landing page for the Watershed project. This user-friendly page provides information about the project and lists the history of watershed missions by territory. "Everything is at the tips of your fingers," according to Lisa Vandiver, a NOAA Marine Habitat Restoration Specialist. Lisa relies on the ability to share reports with stakeholders via this landing page. This is essential, especially during the aftermath of a natural disaster that impacted a coral reef. In 2017 when Hurricane Maria devastated Puerto Rico, Lisa was able to quickly share with Puerto Rico's government the necessary documents to plan redevelopment and considerations about what land-based pollutants might affect the reefs.

The Watershed team reported that the products listed on the landing page are accessed more frequently than a product accessed via the CoRIS search engine. "Adding additional services, like the project landing pages, has other NOAA projects asking how they can buy-in and participate," says Sarah. "For example," Sarah goes on to share, "the Watershed page got the Climate group to come to us and ask how they could do the same. It seems like this is a great method to get more projects to create landing pages on CoRIS."

Sustainability Strategy #2: Colleagues to Clients

While the CoRIS team could have seen themselves as simply the mandated solution for their NOAA colleagues, they instead think about new ways to support their community. Zack Mason, CoRIS Data and Information Management Specialist, is responsible for processing, cataloging, and archiving all CoRIS production submissions.

The process begins when NOAA data stewards, like Erica Towle, identify completed missions ready to archive their data. Zack and the CoRIS team then work with the researchers to add metadata and complete quality analysis checks. This includes checking for documentation. Due to the researcher's familiarity with their work, one can inadvertently overlook something that may cause questions from outside users. The CoRIS team is that second pair of eyes to review the data before it is archived. "While archiving is a requirement for NOAA's funded staff," says Sarah, "the multi-step review process increases the data's overall integrity...By asking questions today, we are increasing the usability of the data years from now when the individual scientists may no longer be employed with the collecting organization to answer questions."

The CoRIS team also checks that all products meet the mandated accessibility requirements covered by Section 508⁷. Jacqueline De La Cour, the Operations Manager of the NOAA Coral

⁷ Section 508 is an amendment to the US Workforce Rehabilitation Act of 1973 - a federal law that mandates all federal agencies make their electronic and information technology (such as publications, presentations, software and websites) accessible to people with disabilities.

Reef Watch, shares that her team archives their software applications through CoRIS. "Zack and Sarah can make appropriate 508 fixes to make sure our products are compliant." This support saves time for Jacqueline and her team, as they can rely on the support as a service. Jacqueline says the CoRIS platform provides an opportunity for the Coral Reef Watch products to be accessed by other NOAA colleagues and the general public. Providing this level of support is a considerable task. Sarah and the CoRIS team saw the opportunity to expand their team to scale up the archiving support services. Upon identifying this need and formulating a new budget to include a fourth team member⁸, the case was made with NOAA leadership to expand the team. NOAA leadership approved the allocation of time to a fourth team member. The CoRIS team cares about the quality of support they provide to their community as it enhances the trustworthiness of the repository and relationship with their colleagues.

Closing Thoughts

CoRIS is a science gateway that has listened to the needs of their community -- of NOAA colleagues -- and provided services to help with the accessibility and discoverability of the NOAA Coral Reef Conservation Program products. Their approach of active curation of the content they receive has paid off while other NOAA websites have seen a downward trend in views and users the last several years, CoRIS's usage has been steadily increasing. The CoRIS team correlates the usage increase with the development of project landing pages, like the Watershed Management page, and sharing information about the products on CoRIS via the program's social media accounts.

There is a known risk that as political environments and agendas change, the priorities and budget could shift away from this project. Yet, the mandates in place maintain the purpose of the archive and the CoRIS team. The CoRIS team continues to thrive as they preserve the trustworthiness of their archive and increase the visibility of the Coral Reef Conservation Program's missions. The CoRIS team has opportunistically made an effort to think strategically and be resilient as the coral they help protect.

⁸ The formulation of the expanded budget started out of the budgeting exercise completed by the CoRIS team at the Gateway Focus Week: <https://sciencegateways.org/engage/focus-week>.