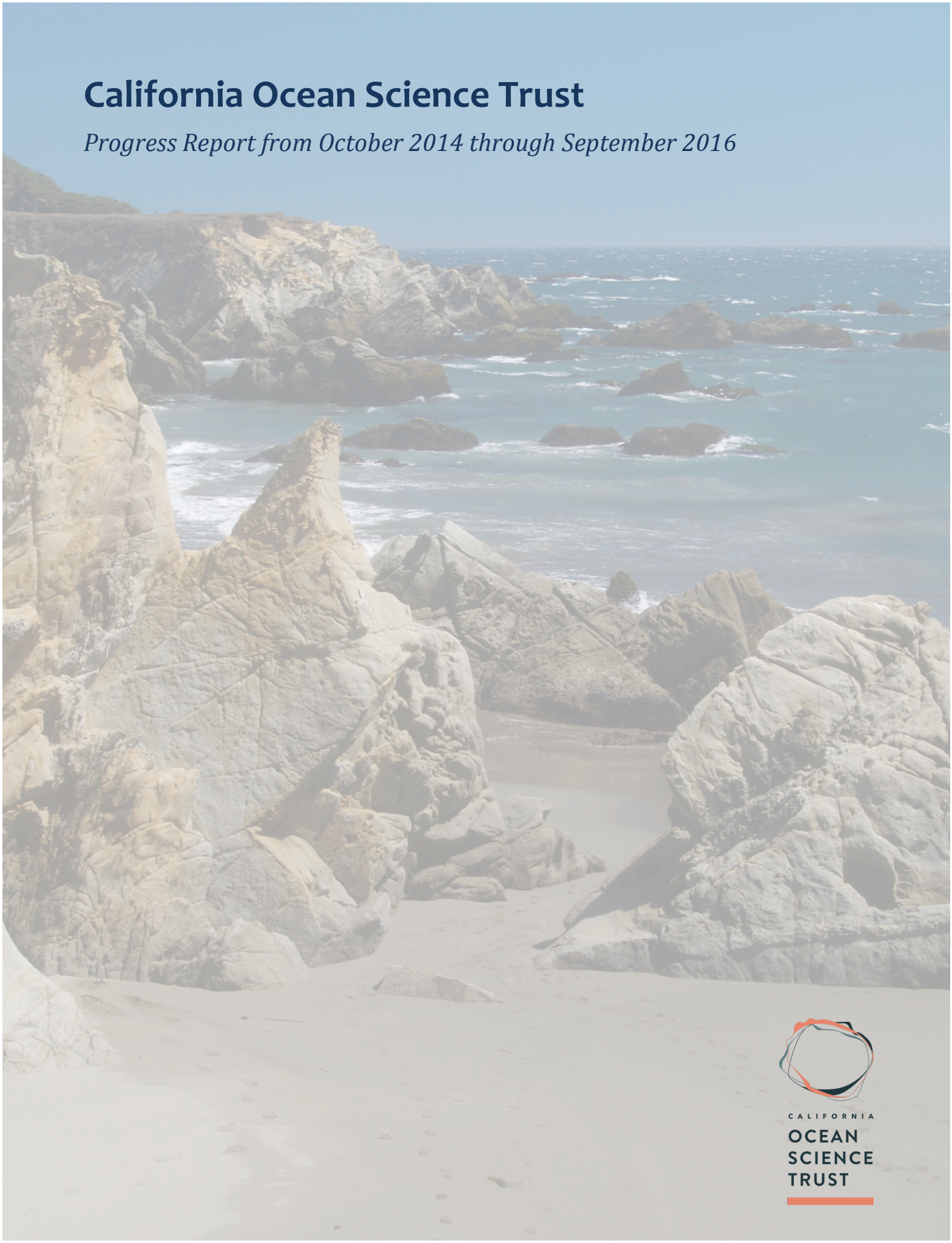
# California Ocean Science Trust

*Progress Report from October 2014 through September 2016*



CALIFORNIA
OCEAN
SCIENCE
TRUST

# Contents

# Introduction

California Ocean Science Trust is committed to bringing science to bear on California's ocean management and policy challenges. Since the passage of our founding legislation, the California Ocean Resources Stewardship Act (CORSA) in 2000, our understanding of changing ocean conditions has deepened considerably. The relevance and purpose of entities like Ocean Science Trust have been elevated as the need for science advice that provides managers and policy-makers with the knowledge to prepare for the impacts of chemical, physical and ecological changes in our oceans becomes increasingly important. If the State had not already created Ocean Science Trust, now would be the time to invent it. This report covers the time period October 1, 2014 through September 30, 2016.

**Beyond 2016: A unique role in a collaborative landscape**

Ocean Science Trust is at a pivot point. Over the last 10 years, we have produced an impressive body of work that has provided science with a seat at the decision-making table across a range of issues, including fisheries, water quality, climate adaptation, and more. During this time the niche we occupy has been increasingly recognized and valued. Today, California is fortunate to have a range of academic, state and independent entities connecting science with policy and management. We are committed to continuing our unique role in this landscape and working collaboratively to support the state in adapting to changes ahead.

# Science Advice in a Time of Changing Ocean Conditions

Created to serve the State with independent science, Ocean Science Trust is delivering on the following promise:

- To provide independent science advice
- To address priority science needs and illuminate management options in response to changing ocean conditions
- To convene diverse teams of decision makers, scientists, local experts--and others--to co-produce solutions to ocean management challenges

**Providing Guidance as OPC Science Advisor**

Ocean Science Trust's Executive Director serves as the Ocean Protection Council (OPC) Science Advisor and co-chair of the OPC Science Advisory Team (OPC-SAT) - connecting the dots between and among the academic community and the many state agencies with ocean and coastal jurisdiction. All Ocean Science Trust team members support this role. We serve on committees and panels including the Central and Northern California Ocean Observing System (CenCOOS) Governing Council, the Southern California Coastal Water Research Project Commission's Technical Advisory Group (SCCWRP's CTAG), MPA Statewide Leadership Team, and California Current Acidification Network (C-CAN), and we represent the State's priorities and science needs to the academic community. We also provide a quarterly science update to the Ocean Protection Council itself, and collaborate on a daily basis with OPC staff to provide sound scientific guidance and a foundation to OPC's policy and investment decisions.

**Convening the Ocean Protection Council Science Advisory Team**

Ocean Science Trust serves as convener of the OPC-SAT, adding value to the state on topics with rapidly evolving and uncertain scientific understanding with this authoritative and collective voice of scientists. In recent years, Ocean Science Trust has led the OPC-SAT through its most active agenda with more concurrent Working Groups than ever before; a testament to the commitment of this group and Ocean Science Trust's leadership. We are also now putting the building blocks in place for durable and appropriate governance and functioning of this important body. We are developing OPC-SAT Working Procedures that will summarize the processes by which the OPC-SAT may be engaged and deployed.

**Annual Workshops of the OPC-SAT**

Ocean Science Trust brings the full OPC-SAT together each year. Much of the OPC-SAT's work originates at these workshops, where OPC-SAT members come together with decision makers and other thought leaders to build new pathways for science in ocean management and policy. During this period, Ocean Science Trust hosted two OPC-SAT workshops:

1) Readying California's Fisheries for Climate Change, February 2015: Full Proceedings and Summary
2) Bracing for a Changing World, April 2016: Full Proceedings and Summary

As a result of these workshops, new Working Groups are addressing a range of climate issues, including climate change and fisheries, and the role of aquatic vegetation in ameliorating ocean acidification.

# Our Programmatic Achievements

The past two years have been a testament to the breadth and volume of quality work that is being undertaken by the Ocean Science Trust team. Major accomplishments included producing the first West-Coast wide recommendations on ocean acidification and hypoxia, guidance to improve California's responsiveness to harmful algal bloom events, and the first comprehensive scientific assessment of marine protected area monitoring in two major regions of California. The uncertain impacts of climate change combined with political challenges at the federal level have elevated the urgency of our work. We have been pulling together with state partners to address these challenges directly, as evidenced by the products and accomplishments highlighted in this report.

## I. Convening the West Coast Ocean Acidification and Hypoxia Science Panel

From 2013 to 2016 Ocean Science Trust convened one of its largest and most impactful efforts: The West Coast Ocean Acidification and Hypoxia Science Panel (the Panel). Comprised of 20 leading experts from across the West Coast, the Panel and Ocean Science Trust developed a body of products that serve as a scientific call to action; synthesizing the state of knowledge and identifying science-based options to address OAH at local to West-coast wide scales.

**Stewarding the West Coast Ocean Acidification and Hypoxia Panel**

Ocean Science Trust served as the stewards of the Panel, working with decision-makers to scope all Panel products, and build broad support and interest around the Panel's innovative ideas. The Panel produced a range of products tailored to decision-makers' needs, all culminating in a widely heralded Major Findings, Recommendations, and Actions of the West Coast Ocean Acidification and Hypoxia Science Panel, April 2016. For all information about the Panel, and to download all products, visit www.westcoastoah.org.

**The Products of the West Coast Ocean Acidification and Hypoxia Science Panel**

***Foundational Science Products***

- What Changes in the Carbonate System, Oxygen, and Temperature Portend for the Northeastern Pacific Ocean: A Physiological Perspective
- Ocean Acidification Science Needs for Natural Resource Managers of the North American West Coast
- Water Quality Criteria for an Acidifying Ocean: Challenges and Opportunities for Improvement
- Using Integrated Ecosystem-level Management to Address Intensifying Ocean Acidification and Hypoxia in the California Current Large Marine Ecosystem

***Technical Guidance Documents***

- Multiple Stressor Considerations: Ocean Acidification in a Deoxygenating Ocean and a Warming Climate
- Modeling Tools: Summary of Needs to Enhance Understanding of Ocean Acidification and Hypoxia in Coastal Oceans
- Ocean Acidification and Hypoxia Research Needs to Inform Decisions and Develop Solutions
- Ocean Acidification and Hypoxia Monitoring Network: Tracking the Impacts of Changing Ocean Chemistry to Inform Decisions

***Ocean Science Trust Products Affiliated with the Panel***

Ocean Science Trust also produced key reports that provided purpose and vision, and expanded audiences for the Panel's work:

- Ocean Acidification and Hypoxia: Envisioning a Future Science Landscape
- How California is Mobilizing Boundary Chains to Integrate Science, Policy and Management for Changing Ocean Chemistry
- Ocean Acidification and Hypoxia: Today's Need for a Coast-wide Approach

### *Redefining the Policy Landscape*

Through convening the Panel, Ocean Science Trust helped redefine the policy landscape around ocean acidification to the true challenge: changing ocean conditions. Throughout the Panel's tenure, Ocean Science Trust, in close partnership with Panelists and the California Ocean Protection Council, worked to grow the Panel's relationships with its decision-making audiences. As a result the Panel was widely hailed throughout the West Coast, nationally, and internationally.

### *Informing New Laws*

Two new pieces of legislation were signed into law in California. AB 2139 tasks the California Ocean Protection Council's leadership to implement the Panel's Recommendations, including identifying areas vulnerable to ocean acidification and hypoxia and coordinating strategic agency action. SB 1363 calls upon the Ocean Protection Council to establish an ocean acidification and hypoxia reduction program to protect and restore eelgrass ecosystems for their potential to ameliorate ocean acidification, sequester carbon, as well as the wealth of ecosystem benefits they provide, including providing nursery habitat for fish species, improving water quality, and mitigating hypoxia, among others.

### *Catalyzing Management Action*

Managers across jurisdictions are taking up the Panel's Recommendations. Working with the State Water Resources Control Board, the Southern California Coastal Water Research Project, and Stanford University, the Ocean Protection Council has launched an effort to lay the groundwork for the development of ecologically relevant criteria for coastal ocean acidification. The California Department of Fish and Wildlife (CDFW) is working to incorporate climate considerations into the update of the Marine Life Management Plan Update, the policy that guides the development of fisheries management plans.

### *Mobilizing Scientists*

The Ocean Protection Council is making significant investments, contributing more than $3 million dollars into targeted research and monitoring to accelerate the integration of new knowledge into decisions on an ongoing basis:

- Integrating coastal acidification modeling to parse the drivers of changing ocean chemistry on our coast;
- Tracking the ability of seagrass to ameliorate ocean acidification, including potential implications for California's aquaculture industry;
- Revising ocean acidification and hypoxia water quality criteria;
- Understanding the potential for MPAs to build resilience in the face of ocean acidification; and
- Inventorying ocean acidification and hypoxia hotspots.

### *National and International Partnerships*

The West Coast will face some of the earliest, most severe impacts from changing ocean chemistry. California, Oregon, Washington, and British Columbia have come together through the Pacific Coast Collaborative (PCC) – a regional forum on issues facing Pacific

North America – to rise up together and launch the International Alliance to Combat Ocean Acidification. Comprised of local, state, regional and national governments; independent organizations of all kinds; and universities and research institutions, the purpose of the Alliance is to raise awareness and support the development of ocean acidification action plans worldwide to continue to make progress in understanding and addressing this global challenge, and to build on the foundation for action inspired by efforts like the West Coast Ocean Acidification and Hypoxia Science Panel.

## II. Advancing Science in Sustainable Fisheries Management

Changing ocean conditions amplify the urgency of sustainable fisheries management – a topic the West Coast Ocean Acidification and Hypoxia Science Panel (the Panel) highlighted but did not explore in great depth. Thus, Ocean Science Trust began working with the California Department of Fish and Wildlife (CDFW) and the California Fish and Game Commission (FGC) to test and apply tools and processes that enable more agile science-based fisheries management decisions.

### Strengthening the State Response to Unexpected Events: Harmful Algal Blooms

Harmful Algal Blooms (HABs) are expected to increase in frequency and severity due to climate change. On behalf of the Interagency Marine Harmful Algal Bloom Task Force – convened by the OPC and including the FGC, CDFW, the Department of Public Health (DPH), and the Office of Environmental Health Hazard Assessment (OEHHA) – we collaborated with an OPC-SAT Working Group to synthesize the science of HABs to improve California's responsiveness to HAB events in ways that balance human health and fishery considerations. This effort assessed the State's protocols for HABs and provided scientific guidance for aligning public health goals with fishery closure decisions.

#### *Guiding the State's Next Steps: Recommendations for California*

Two major products emerged from this effort:

1. In August 2016, Ocean Science Trust released "Frequently Asked Questions: Harmful Algal Blooms and California Fisheries" to provide the fishing community and the wider public with information about the bloom, and how and why the State responded as it did.
2. Then in fall 2016, the OPC-SAT HABs Working Group and Ocean Science Trust produced "Framing the Scientific Opportunities on Harmful Algal Blooms and California Fisheries: Scientific Insights, Recommendations and Guidance for California."

Both of these products were praised by state partners, leaders in the fishing community, the Legislature, and others. The State is now using these products as it contends with the uncertain environment created by the extraordinary situation with domoic acid. Because of the success and utility of these products the Interagency Marine Harmful Algal Blooms Task Force is re-engaging Ocean Science Trust to expand upon the OPC-SAT HABs Working Group in 2017.

**Administering Peer Review as a Science Integration Tool: The Spiny Lobster Fishery Management Plan**

Scientific and technical review is an essential element of fisheries management but classic approaches are not always tailored to meet the diverse needs of ocean and coastal management agencies. However, changing ocean conditions demand that management be more flexible. We believe that if done appropriately, peer review can be a critical tool in the toolbox to evaluate and improve the underlying science behind fishery management decisions. When approached by CDFW to coordinate a review of their latest fishery management plan (FMP) for California spiny lobster, we saw it as an opportunity to further refine our process for how peer review may be utilized to inform adaptive management of an ecologically and economically valuable natural resource for the State.

**Ocean Science Trust Peer Review Handbook**

At Ocean Science Trust, we believe a product is only as good as the process that produces it. We are students of our work, taking up lessons learned and documenting what works. In the realm of peer review, we have emerged as process experts, working to design and implement reviews that are tailored to the need, while also maintaining the independence of the science. To that end, Ocean Science Trust developed the following product in June 2016: Ocean Science Trust Peer Review Handbook: Developing Successful Scientific and Technical Review Processes in Marine and Coastal Decision-making

### *Improving the Science Supporting Lobster Management*

In 2014 - 2015, Ocean Science Trust convened an OPC-SAT Review Team to evaluate the scientific and technical components of the new draft FMP for California spiny lobster (*Panulirus interruptus*). Spiny lobster supports both commercial and recreational fisheries in California, and plays a key role in the southern California kelp forest ecosystem. Thus it was critical that we implement an independent, transparent, and rigorous process that would be viewed as legitimate to all involved, including the scientific community, fishermen, and the State.

In May 2015, the OPC-SAT Review Team produced their report, "Scientific Review of the Reference Point Thresholds in the Draft Fishery Management Plan for California Spiny Lobster (*Panulirus interruptus*)." In particular, reviewers focused on the choice of reference points, the model used to calculate spawning potential ratio (SPR), and the decision to manage California lobster as a single stock. As a result, CDFW made several primary changes to the FMP, which included:

- Updating stock models so that they reflect the best scientific information on lobster biology

- Making fishery reference points more sensitive so that they better track changes in the lobster fishery, leading to more precautionary management

**Charting the Future: Climate Change and Sustainable Fisheries Management**

Going forward, robust tools tailored to California's particular needs could be extremely useful to evaluate and prioritize fisheries for management interventions in the face of climate change. During this period CDFW initiated the process of updating their MLMA Master plan, their guiding policy for implementing management. With an eye towards changing ocean conditions and utilizing the best science available, CDFW with support from OPC asked OST to explore frameworks and tools. OST is has led three projects which are currently under consideration for incorporation into the MLMA Master Plan Amendment: Piloting an Ecological Risk Assessment, Peer Review Guidelines (see above), and a Climate Change and Fisheries guidance report. Each of these has the potential to shape the Department's policy based on process, transparent stakeholder engagement, and rigorous scientific input.

## III. Producing Comprehensive Assessments of California's Marine Protected Areas

Marine protected area (MPA) monitoring in California is a partnership effort involving state agencies, academics, scientists, citizen scientists, fishermen, tribes and native communities, and many others. To establish current conditions inside and outside MPAs and create a benchmark for measuring change moving forward, Ocean Science Trust has co-led the MPA Baseline Program. Ocean Science Trust is working with a team of partners to leverage the State's investment in MPAs to serve the scientific governance of California's coast and ocean moving forward, especially in the face of changing ocean conditions.

**Working Together to Establish a Benchmark**

Ocean Science Trust works in collaboration with the OPC, CDFW, and many academic, agency and private partners to produce reports from baseline monitoring of the innovative network of MPAs. This work includes engaging stakeholder communities, facilitating contributions from research and monitoring programs, sharing results widely and reporting to the California Fish and Game Commission to inform adaptive management decisions. From 2014 - 2016, Ocean Science Trust and our many partners developed the first comprehensive scientific assessment of MPA monitoring in two major regions of California: the North Central Coast and the South Coast.

For more information on California's MPA Monitoring Program, visit http://oceanspaces.org/monitoring

**Sharing Results from the North Central Coast and South Coast**

Baseline monitoring in the North Central Coast and South Coast established an important foundation of knowledge and partnerships to support long-term MPA monitoring. Ocean

Science Trust worked closely with the California Department of Fish and Wildlife, the Ocean Protection Council, and Sea Grant to synthesize and share results from these regions, engaging and collaborating with California's diverse ocean community including fishermen, tribes, and native communities. Through media outreach, community gatherings, social media sharing and more, thousands of people engaged with the findings from the North Central Coast and the South Coast MPA monitoring results.

Reporting from these two regions represented an unprecedented scientific assessment of marine protected areas in California. From 2014 to 2016, we shared results broadly, working to understand local interests and priorities related to the MPA Management Program, and foster enduring partnerships.

## North Central Coast: Sharing Results from Marine Protected Area Monitoring

In 2016, we completed the first comprehensive assessment of the North Central Coast Marine Protected Areas (MPAs). This research and reporting covered the years 2010-2015. To share findings from this work, Ocean Science Trust wrote, designed, led partner review, and launched—in print and online—the State of the North Central Coast Region report, the document that synthesizes and provides an accessible guide for this portfolio of research. To inform the Five-year Management Review for the MPAs in this region, Ocean Science Trust prepared and delivered a joint presentation with the California Department of Fish and Wildlife which was well-received by the California Fish and Game Commission in April 2016.

### *Products from North Central Coast Baseline Monitoring*

The launch of this comprehensive assessment was accompanied by a series of products, including the final report itself, a previous "Snapshot" report detailing specific research projects in the region, a social media campaign, multiple blog posts and presentations, and other products presented via OceanSpaces. A list of major products is presented here:

- State of the California North Central Coast: A Summary of the Marine Protected Area Monitoring Program 2010-2015
- California North Central Coast: A Regional Snapshot, Summaries of Baseline Marine Protected Area Monitoring Projects, 2010–2013
- 20 new research, integration, and outreach products created with our partners, creating a rich picture of the region
- NCC Monitoring Survey and a real-time Monitoring Dashboard for understanding the current monitoring capacity to inform the development of long-term monitoring

### *Using the OceanSpaces platform to showcase North Central Coast monitoring results*

For the first time, Ocean Science Trust developed a completely new format online to present the North Central Coast State of the Region report in an accessible and engaging way. This product was developed on OceanSpaces to give the full portfolio of resources, partnerships, and contextual information involved in the synthesis report and background research that contributed to the final product. In addition, Ocean Science Trust created a North Central

Coast Ocean Community group on OceanSpaces.org to alert people to new products or engagement opportunities involving this region. We produced multiple blogs featuring the North Central Coast work delivered via OceanSpaces.

### *Engaging the Community with MPA Results from California North Central Coast*

The comprehensive roll out of MPA monitoring results from the North Central Coast included community meetings, public presentations, and briefings with partners, a scientific conference, and a social media campaign. Engagement highlights are noted here:

- Hosted a series of community gatherings with more than 120 community members across the region to share the North Central Coast State of the Region Report, and discuss the results, channels of communication, and next steps, producing a Key Themes document from the meetings
- Strengthened relationships with partners, including the new Fish and Game Commission and tribes, sharing results with both entities in a series of presentations throughout the winter and spring of 2016.
- Collaborated with partner organizations such as the MPA Collaboratives, LiMPETS, Reef Check, Cal Academy, and others to share results through their communications channels, such as websites and newsletters
- Launched a social media campaign "10 Days of MPAs" to raise awareness of North Central Coast MPA monitoring and California's MPA network, reaching over 400,000 people via Facebook, Twitter, and OceanSpaces
- Earned print and radio media coverage including KQED and KCBS radio spots, and newspaper articles in multiple regional outlets

### *Hosting a Regional Conference to Highlight the Science of MPA Monitoring*

As we approached the 5-year anniversary of the regional MPA network in late 2015, Ocean Science Trust acted as local hosts of Western Society of Naturalists (WSN) Conference (the 99th annual meeting of this society), helping to shape the conversation and emphasize connections between science and policy. For the first time, the WSN meeting highlighted "Marine Science Informing Management," bringing together the academic community to demonstrate and discuss opportunities for scientists' work to aid decision makers. Offering a new organizing principle, Ocean Science Trust introduced four special themes to the conference:

- Evaluating Protected Areas
- Long-term Monitoring for Long-term Change
- Broadening Participation in Research
- Monitoring Human Dimensions

This new approach was successful in elevating the MPA Baseline work conducted in the North Central Coast and informing the first 5-year management review of the region's MPA network. Thought leadership by Ocean Science Trust at WSN 2015 also served to leverage monitoring data to contribute to other management dialogues, such as fisheries management, ocean acidification, hypoxia, and broader aspects of climate change. To that end, Ocean Science Trust accomplished the following at the conference:

- Designed and facilitated a panel on MPA Network Evaluation

- Organized 22 talks in MPA sessions, 15 talks in long-term Marine Protected Area monitoring sessions, and 3 posters specific to North Central Coast work
- Organized a tabling session, with California Department of Fish and Wildlife, OceanSpaces, and Ocean Protection Council sharing the North Central Coast State of the Region report in print and online
- Encouraged multiple presentations by North Central Coast principal investigators, including a discussion of North Central Coast integration work at the plenary talk

For the full list of talks at the Western Society of Naturalists 2015 meeting, see the WSN 2015 Conference Program.

**South Coast: Sharing Results from Marine Protected Area Monitoring**

Implementing a new approach for sharing MPA results from South Coast baseline monitoring, Ocean Science Trust released a series of Snapshot reports beginning in June 2016 and extending through the spring of 2017. These Snapshot reports featured results from the State's investment in MPA monitoring and beyond, and were very well received, with over 1,700 downloads of the reports on OceanSpaces, an interactive ocean data platform and community managed by Ocean Science Trust.

The Snapshot Series was a key ingredient of the State of the California South Coast report, released in 2017, which provides a comprehensive ecological and socioeconomic baseline characterization of the region. Each Snapshot report focuses on specific baseline projects, key ecosystems, and special places and translates the technical reporting from the state-funded baseline projects and other scientific efforts in the region into a digestible format that a range of audiences can use. The South Coast Snapshot Series was developed by California Ocean Science Trust, in partnership with California Department of Fish and Wildlife, and the California Ocean Protection Council, and California Sea Grant.

Three Snapshot reports were completed during the summer and fall of 2016:

- Sandy Beach Ecosystems: Monitoring the Secret Life of Beaches
- Kelp and Shallow Rock Ecosystems: Monitoring Life Under the Canopy
- Rocky Intertidal Ecosystems: Monitoring Life at the Interface

Development of two additional snapshots was underway during this time period and they were completed in the fall of 2016, adding the following to the South Coast Baseline Monitoring Snapshot Report Series:

- Spiny Lobster Snapshot: Monitoring South Coast Spiny Lobster Populations
- Subtidal Remotely Operated Vehicle Survey Snapshot: Monitoring Life in the Deep

**Mapping Research Capacity by Region: Monitoring Surveys**

From 2014-2016, Ocean Science Trust conducted three Monitoring Surveys through the OceanSpaces platform for three regions:

- South Coast, 2016

- North Central Coast, 2015
- Central Coast, 2014

These innovative surveys attracted dozens of responses detailing individual monitoring projects and giving the State unique insight into existing capacity in each region. The results show the geographic and temporal coverage of monitoring activities inside and outside of MPAs in the South Coast, Central Coast, and North Central Coast and the compatibility of those activities with the metrics and priorities outlined in the Monitoring Plans for each region. Data from the surveys, most of which are publicly available through an interactive online dashboard, inform the work plans for MPA monitoring by highlighting potential partnerships and opportunities to build upon existing capacity.

**OceanSpaces: Creating a Community for Ocean Data and Engagement**

Ocean Science Trust manages a platform called www.OceanSpaces.org to share ocean data statewide, facilitate interaction with science, and track the health of our ocean. The platform provides a place for data transparency and accessibility, also serving as a science communications platform with a website, blog, newsletter and other interactive functions. Since the launch of the improved platform in 2014, more people can interact and access science for robust decision making in California, specifically data from MPA monitoring.

*Providing Easy Access to Marine Protected Area Monitoring Data and Reports*

OceanSpaces is a data portal and venue for scientific data and information from MPA monitoring. From 2014–2016, the platform earned over 129,000 new users, and had more than 250,000 page views across the site including information on MPAs, ocean acidification, and other state priorities for ocean science and management. During this reporting period, new data from the South Coast Baseline Monitoring Program was uploaded and processed, providing OceanSpaces members access to over 200 data packages of information on multiple ecosystems and sites from Southern California's coast and ocean. We now have a comprehensive ecological and socioeconomic dataset for 75% of the California coast, with a complete picture anticipated at the end of 2017 with the addition of data from the final region to complete baseline monitoring, the North Coast.

Analysis of the website shows that people who come to the site for information on MPAs are highly engaged, interacting with more content than other users and visiting more pages across OceanSpaces. Visitors have downloaded thousands of data packages, with over 20,000 data packages downloaded to date. In addition, new and improved communications tactics to support OceanSpaces, including email notifications for new products, news items, and blogs, and the newsletter, consistently perform higher than industry average for non-profit communications and have successfully driven higher visitation and engagement for the platform. Continual upgrades, such as a new feature developed for the blog that allows users to search by region, help users find content of utmost relevance to their work and interests.

*Innovative Tools: Developing the Fisheries Data Explorer*

During this reporting period, Ocean Science Trust began working with the California Department of Fish and Wildlife and the California Ocean Protection Council to develop a

Fisheries Data Explorer to provide ready access and data visualizations for fisheries data in California. The tool, ready for release in 2017, was developed through the California Marine Protected Area Baseline Program to ensure that the State's decision-makers, stakeholders, and the public have ready access to data and information that support the health and management of California's ocean.

The Fisheries Data Explorer is another tool available via OceanSpaces.org that continues to serve the state with easily accessible data in an engaging interface. The interactive Explorer allows a user to visualize data from commercial fisheries and commercial passenger fishing vessels. Using data collected and managed by the California Department of Fish and Wildlife (CDFW), the Explorer allows a user to dynamically view summarized data from the commercial fishing sector (i.e., number of fishermen, pounds of fish landed, and revenue from fish landed) and from the commercial passenger fishing sector (i.e., the number of anglers, vessels, trips, and fish caught from specific fisheries and ports).

## Conclusion

Ocean Science Trust was established by CORSA in recognition of both the value of independent science advice in natural resource policy and management decisions, and the noteworthy breadth and depth of scientific knowledge in California's academic community. We are the only independent non-profit in California solely dedicated to California's ocean policy and management goals; we take this responsibility seriously. As described in this report, from 2014 - 2016 we delivered science guidance to state resource managers, policy-makers, legislators, and the public across a range of priority issues. As we chart our future, we continue to build upon our body of work. In partnership with the State, the OPC-SAT and many others, we are now taking on issues from sea-level rise and water quality, to fisheries and the link with harmful algal blooms. Moving forward, we are positioned to continue supporting California with the science we need to address the changing conditions of our coast and ocean and the ensuing impacts on coastal communities and economies.

# Financials

***Statement of Activities and Changes in Net Assets***

| | **FY2014-2015** (Audited**)<br>Oct 1, 2014 - Sept 30, 2015 | **FY2015-2016** (Unaudited)<br>Oct 1, 2015 - Sept 30, 2016 |
|---|---|---|
| **Revenues** | | |
| Contributions | 679,272 | 358,224 |
| Contracts | 1,584,910 | 1,825,272 |
| Other | 1,311 | 8,637 |
| **Total Revenues** | **2,265,493** | **2,192,133** |
| Expenses | | |
| **Program Services** | **1,639,386** | **1,662,205** |
| Supporting Services | | |
| Management and General | 401,594 | 300,253 |
| Fundraising | 18,223 | 155,267 |
| **Total Supporting Services** | **419,817** | **455,520** |
| **Total Expenses** | **2,059,203** | **2,117,729** |
| **Net Income** | **206,290** | **74,404** |
| **Change in Donor Intent** | - | - |
| Change in Net Assets | 206,290 | 74,404 |
| Net Assets at the Beginning of Year | 3,139,614 | 3,345,904 |
| **Net Assests at the End of the Year** | **3,345,904** | **3,420,309** |

***Statement of Financial Position***

| | FY2014-2015 | FY2015-2016 |
|---|---|---|
| **Assets** | | |
| Cash | 2,768,722 | 2,546,957 |
| Account Receivable | 480 | |
| Contribution Receivable | | |
| Grants Receivable | | 25,000 |
| Contracts Receivable | 838,520 | 1,075,864 |
| Prepaid Expense | 25,806 | 27,737 |
| Equipment | 11,419 | 16,407 |
| **Total Assets** | **3,644,947** | **3,691,965** |
| **Liabilities** | | |
| Accounts Payable | 39,233 | 39,264 |
| Payroll Payable | 29,889 | 41,857 |
| Refundable Grant | | - |
| Deferred Support | 224,852 | 186,506 |
| Deferred Rent | 5,069 | 4,029 |
| **Total Liabilities** | **299,043** | **271,656** |
| **Net Assets** | | |
| Unrestricted | 3,345,904 | 3,420,310 |
| Temporarily Restricted | 0 | |
| Total Net Assets | **3,345,904** | **3,420,310** |
| **Total Liabilities and Net Assets** | **3,644,947** | **3,691,965** |

# Administrative Progress

Funding partners (2014-2016)

- Resources Legacy Fund Foundation
- The Ocean Protection Council
- National Oceanographic and Atmospheric Agency
- The Keith Campbell Foundation for the Environment
- The David and Lucile Packard Foundation (2014-2015 only)
- The State Water Resources Control Board (2015-2016 only)

# Board of Trustees

**As of October 2016**

- Nancy Sutley, Chair, General Public Representative
- Jonathan Bishop, California Environmental Protection Agency Representative
- Karen Finn, Department of Finance Representative
- Gary Griggs, University of California / California State University Representative
- Deborah Halberstadt, Deputy Secretary for Ocean and Coastal Matters
- Margaret Leinen, University of California / California State University Representative
- Karina Nielsen, Ex-Officio, Board of Trustee Liaison to the Ocean Protection Council Science Advisory Team
- Jerry Schubel, University of California / California State University Representative
- Margaret Spring, Public Representative
- Phil Taylor, Ocean and Coastal Interests Group Representative

**Former Board Members Who Served During This Reporting Period**

- Kenneth Coale, CSU/UC Representative
- Fred Keeley, Chair, Audit and Finance Subcommittee, General Public Representative
- Catherine Kuhlman, Natural Resources Agency Representative
- Leslie Mintz Tamminen, Ocean and Coastal Interest Group Representative
- Steve Weisberg , General Public Representative
- Ken Wiseman, Board of Trustees Chair, General Public Representative