



RMP Communications Strategy

Elements (in order of importance)

1. Pulse
2. Estuary News articles
3. RMP Web Site
4. RMP Update
5. Technical Reports
6. Journal Publications
7. Annual Meeting
8. Email Updates **NEW**
9. SFEI Newsletter **NEW**
10. Social Media **NEW**
11. Annual Monitoring Results
12. Invited Presentations
13. Workshops
14. Fact Sheets
15. Seminars/Webinars
16. *Estuary Portal*
17. *State of the Estuary Report*

Pulse

- Recent activity
 - ▣ CECs in the Bay
 - ▣ Distribution
 - 3000 printed – 1200 left
 - Downloads xx
- Next steps
 - ▣ Next edition in 2015
 - ▣ Potential topics
 - xx
- Possible improvements
 - ▣ Make it an interactive e-book – not cheap though



Estuary News

Recent activity

Bay Primed for Pea Soup?

Distribution

- 3000 printed
- Web: Incomplete info – 58 hits on article 3/15-4/30

Next steps and possible improvements

Proposed lineup of topics

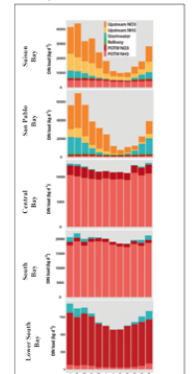
- June 2014: Small Tributaries – Integrated Report
- Sep 2014: PCBs
- Dec 2014: CECs
- Mar 2015: Nutrients

Better promotion through RMP email and web page

Bay Primed for Pea Soup?

Nutrients could be the next big problem for San Francisco Bay — or make that in the Bay, because they're already here at levels high enough to have caused trouble elsewhere. But despite its excess nitrogen and phosphorus, the Bay has been free of harmful algal blooms and oxygen-depleted dead zones for decades. Indeed, we've been so sure of this immunity to nutrients that most wastewater treatment plants don't even have to remove them before discharging into the Bay. Recent chinks in the Bay's resistance to nutrients are now alerting us, however, to get ready in case there's worse to come.

The tricky part is the Bay's response to nutrients is changing, but it's not yet clear how best to manage them," says David Senn, a scientist at the San Francisco Estuary Institute (SFEI). Another challenge is that because nutrients



Average monthly dissolved inorganic nitrogen (DIN) between 2006-2011. Colors indicate source, see key above. Data: Novick & Senn, 2014

haven't been troublesome here, we have a lot to learn about them in the Bay. "It will take a regional collaborative effort to understand how the Bay is changing and what regulatory actions to take," says Naomi Feger, Planning Chief of the S.F. Bay Regional Water Quality Control Board. To accomplish this, the Board drafted a Regional Nutrient Management Strategy in 2012 in collaboration with SFEI, the Regional Monitoring Program, wastewater dischargers and other stakeholders. The goal is to develop monitoring and regulations that proactively protect the Bay from nutrient pollution, backed by solid science. Within this major initiative, Senn is coordinating an expert team to outline monitoring and research needs. "It's a first step toward identifying the scientific issues we need to tackle," he says.

The financial stakes for getting a handle on nutrients in the Bay are high. "It's being called the most costly wastewater issue re-order in the Bay since the 1970s," Senn says. Most of the nutrients come from the 41 wastewater treatment plants which discharge into the Bay, and retrofitting them could cost billions of dollars. In the North Bay, nutrients also come from agriculture and wastewater in the Central Valley and the Delta.

Why haven't all those nutrients pouring into the Bay caused problems? The answer — based on nearly four decades of US Geological Survey work on the Bay's large swings in phytoplankton abundance — is a combination of three things: suspended sediment, tidal mixing, and clams. Algae needs light to grow but Bay water contains so much sediment that it's murky. "It's like overfertilizing a garden and then covering it with a tarp," Senn says. "The nutrients are there but the other key ingredient, sunlight, is missing." In addition, algae often grows best in estuaries where the entering fresh water floats across the surface. This creates a top layer that concentrates phytoplankton and keeps them near the light. But here, the Bay's strong tides usually break up fresh water layers before algae can bloom. The third factor is large populations of clams and other bottom-dwelling filter feeders that can eat phytoplankton as fast as it can grow.



RMP water quality sensor playing host to animals called hydrobots. Photo by Emily Novick, SFEI.

So what's changed? "At least two of the three factors that increase resistance to algal growth," Senn says. Suspended sediment is down by half since the 1990s in the North Bay and South Bay, letting the algae-boosting light shine twice as deep into the water. This trend toward clearer water is expected to continue because excess sediment from the Gold Rush is thought to have finally washed away.

Another change is that clam populations are down sharply in the South Bay, coinciding with a three-fold algae hike in those waters since the 1990s. The drop in clams and other bottom-dwelling algae eaters may be due to a rise in predators like fish and Dungeness crab, which in turn is linked to a shift in large-scale, long-term ocean patterns called the Pacific Decadal Oscillation.

So far there's less concern about the amount of algae than about the pace of change. "Algae levels were low before so it's not like the Bay is pea green now," Senn says. "But it changed at a fast rate."

Other signs of cracks in the Bay's resilience to nutrients include less dissolved oxygen in places where algae is highest. Microbes that eat dead algae also use oxygen, so algal blooms can lead to dead zones in the water. Also troubling was a rare red tide or undesirable algal bloom in the fall of 2004. In addition, small amounts of algae that cause toxic blooms elsewhere are beginning to pop up here too, and recent monitoring has also detected toxins from harmful algae in the Bay. However, Senn stresses that we can't

tell if this is related to nutrients — or if it's even a change — because this monitoring has only been underway for a few years.

Besides affecting the quantity of algae, nutrients may also affect their quality. While low algae levels are thought to contribute to the dearth of small fish that larger animals eat in Suisun Bay and the Delta, now a new idea implicating high nutrient levels is being floated. For example, recent studies suggest that high levels of nutrients could dampen the growth of 'good' algae or encourage the growth of 'junk' algae not favored by small fish in Suisun Bay. More research is needed to test this hypothesis, however.

Indeed, more research is needed on just about all aspects of nutrients in the Bay. Right now, we don't know much beyond the facts that algae are rising in parts of the Bay, low levels of potentially harmful algae are common, and algal toxins are detectable. In fact, we don't even know if nutrients are behind what we see. "We need to understand the problem better to help identify the most effective fix," says Senn.

That's where the expert team he coordinates comes in. Their report, due out this month, outlines what we know, what we need to find out, and what a range of plausible scenarios might mean for algae in the Bay. Questions include: Will suspended sediments keep dropping? Do high nutrients really tip the phytoplankton balance toward kinds not favored by small fish? Will clam populations rise again after the next shift of the Pacific Decadal Oscillation? How will the changing climate and changing shoreline affect the nutrient balance? And can we keep nutrients out of the Bay in the first place?

The first step to finding answers is a Bay-wide monitoring program aimed at nutrient pollution. Current monitoring is spotty for key measures like nutrients, kinds of algae, algal toxins, dissolved oxygen, and clams, and also lacks sustainable funding.

Besides being costly, stemming the flow of nutrients into the Bay could take decades. Says Senn, "If problems are on the horizon, starting before they are widely entrenched will give us more flexibility."

"We're taking this seriously," adds Feger, whose agency already has a draft regional permit addressing

Raising the Dregs

San Francisco Bay's perennial problem with abandoned vessels cluttering and potentially polluting the waters got some uplifting news—literally and figuratively—this winter. In the finger of water separating Oakland from Alameda, the abandonment situation had become particularly serious in recent years as derelict vessels attracted illegal activity. But thanks to a major cleanup effort by a consortium of more than fifteen agencies and organizations that spent in excess of \$4.3 million, the Oakland Estuary is free of potential environmental and navigational hazards.

"It's a huge success," says Brock de Lappe, Harbor Master of the Alameda Marina who in early 2012 brought stakeholders together to address the problem. The items removed from the estuary include 58 vessels, four dilapidated docks, and some 365 tons of metal, which has been recycled under the direction of the California Department



of Resources Recycling and Recovery (CalRecycle). The largest crane on the West Coast (see photo) was brought in to lift up and remove two of the vessels—sunken tugboats measuring between 100 and 160 feet in length—one of which still contained fuel oil. The endeavor amounted to a Bay Area version of raising the Titanic.

CalRecycle spearheaded the cleanup, contributing \$1.3 million of which \$650,000 came from Oceanium settlement money administered by the Fish and Wildlife Foundation. USEPA put up much of the remainder. While all consider the cleanup a major accomplishment, it was a unique situation. "It's not a template" for vessel abandonment cleanup, says Peter Pelkofter, senior counsel with the California State Lands Commission. CalRecycle, meanwhile, says it has no plans to take on additional abandoned vessel removal projects.

Dealing with the crafts is not only a financial challenge, but almost inevitably requires the coordination of multiple agencies. "Everyone has some authority, but no one has perfect authority," says Adrienne Klein, enforcement chief for the San Francisco Bay Conservation and Development Commission.

Keeping tabs on questionable vessels typically falls to county or city law enforcement, and in recent years many municipalities have strengthened local anchor-out ordinances to aid officers in citing derelict vessels. But according to de Lappe, Alameda County has not followed suit and suffers from a funding cut to its harbor control unit.

"Now that the cleanup has been done, what's to prevent it from happening again?" de Lappe says. Alameda County Supervisor Wilma Chen's office declined to comment. VS

CONTACT: Brock de Lappe, brock@alamedamarina.net

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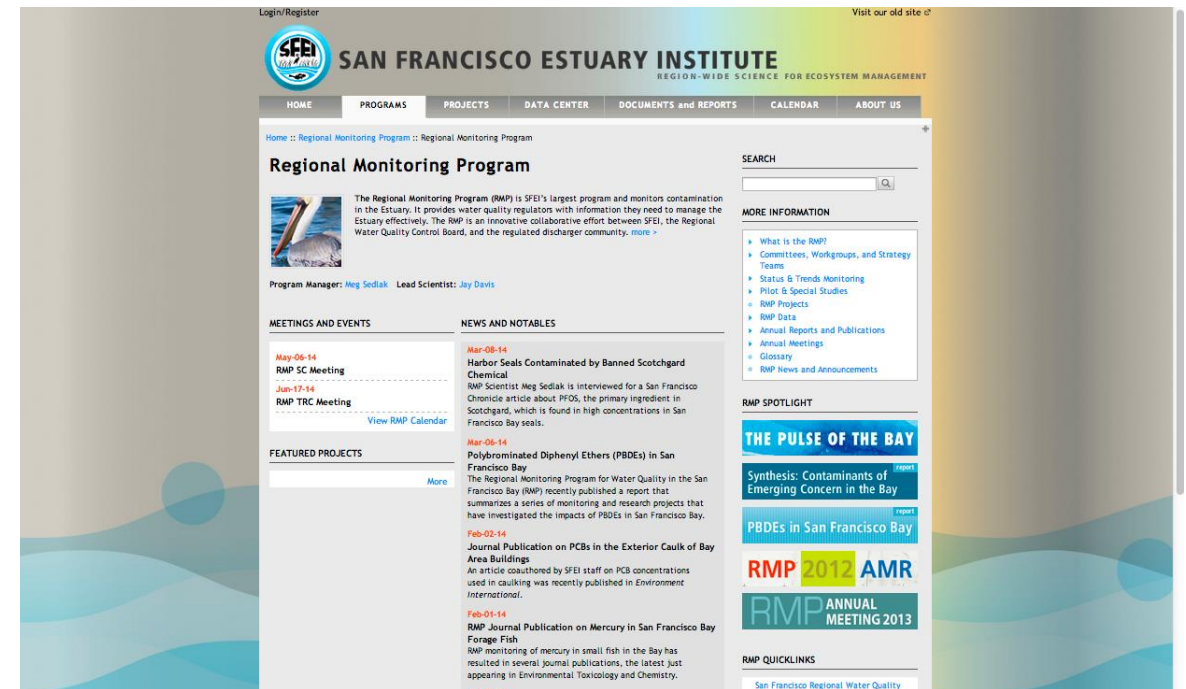
Monitoring: <http://sfbay.wr.segs.gov/access/wqdata/index.html>

New Report Due Out Late March: <http://www.sfei.org/documents>

CONTACT: Naomi Feger, Naomi.Feger@waterboards.ca.gov; David Senn, david@sfei.org/US65

RMP Web Site

- Recent activity
 - CD3 development work
 - Funded by State Board
 - \$60K worth
 - Switch to demo



RMP Web Site

Recent activity

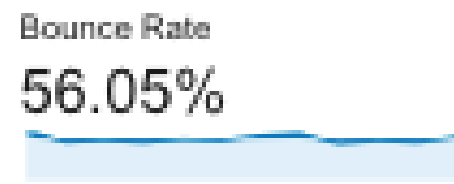
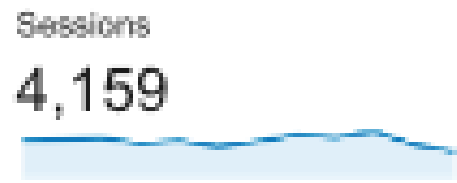
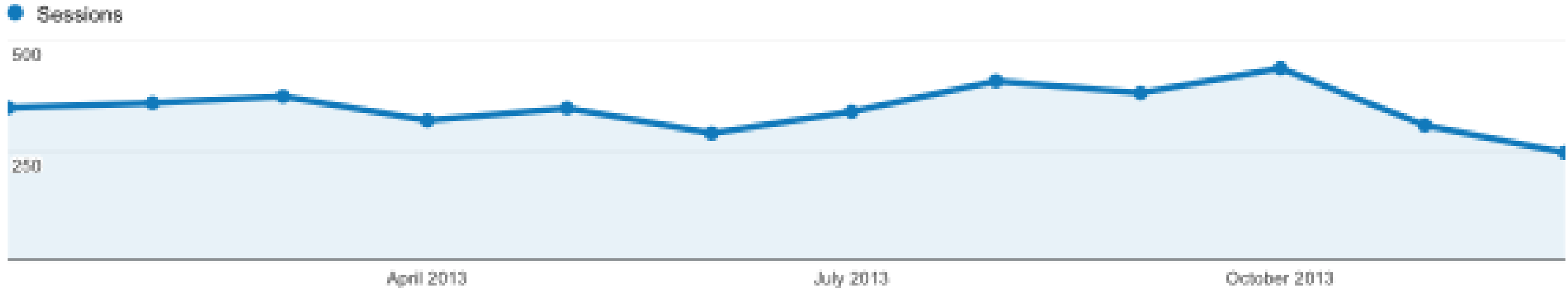
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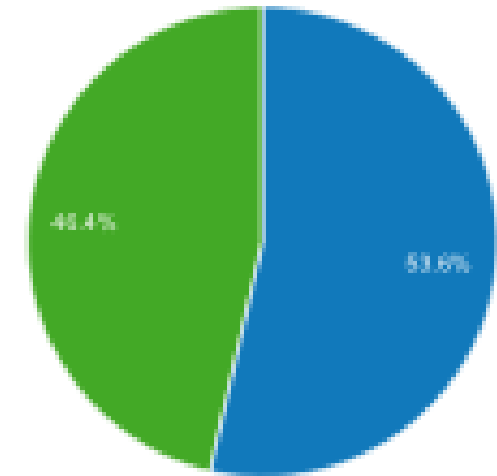
Analytics

The screenshot displays the website for the San Francisco Estuary Institute (SFEI), specifically the Regional Monitoring Program (RMP) page. The header includes the SFEI logo and the text "SAN FRANCISCO ESTUARY INSTITUTE REGION-WIDE SCIENCE FOR ECOSYSTEM MANAGEMENT". A navigation menu contains links for HOME, PROGRAMS, PROJECTS, DATA CENTER, DOCUMENTS and REPORTS, CALENDAR, and ABOUT US. The main content area is titled "Regional Monitoring Program" and features a search bar, a "MORE INFORMATION" section with links to "What is the RMP?", "Committees, Workgroups, and Strategy Teams", "Status & Trends Monitoring", "Pilot & Special Studies", "RMP Projects", "RMP Data", "Annual Reports and Publications", "Annual Meetings", "Glossary", and "RMP News and Announcements". Below this, there are sections for "MEETINGS AND EVENTS" (listing RMP SC Meeting and RMP TRC Meeting), "NEWS AND NOTABLES" (with articles on Harbor Seals, PBDEs, and PCBs), and "FEATURED PROJECTS". A right sidebar highlights "THE PULSE OF THE BAY" with articles on contaminants and PBDEs, and promotes the "RMP 2012 AMR ANNUAL MEETING 2013". At the bottom, there is an "RMP QUICKLINKS" section with a link to "San Francisco Regional Water Quality".

RMP Web Page Hits



■ New Visitor ■ Returning Visitor



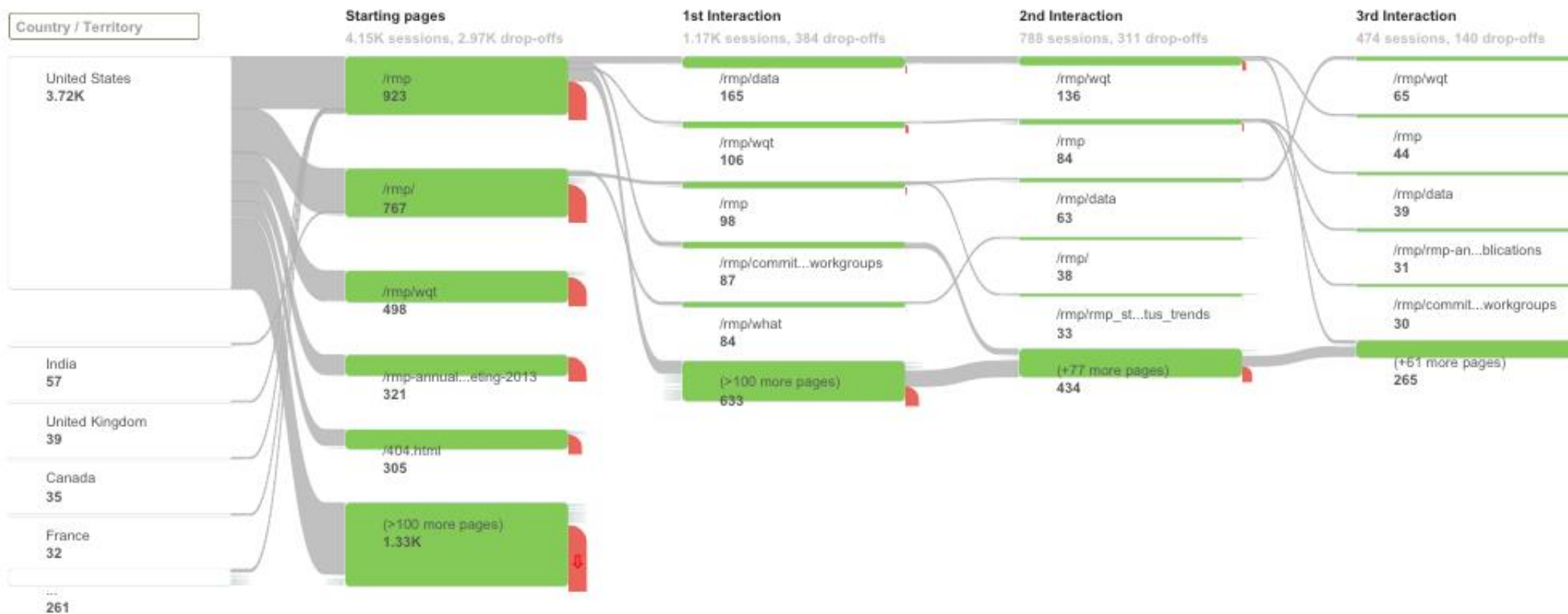
RMP Web Page User Flow

Users Flow

Jan 1, 2013 - Dec 31, 2013

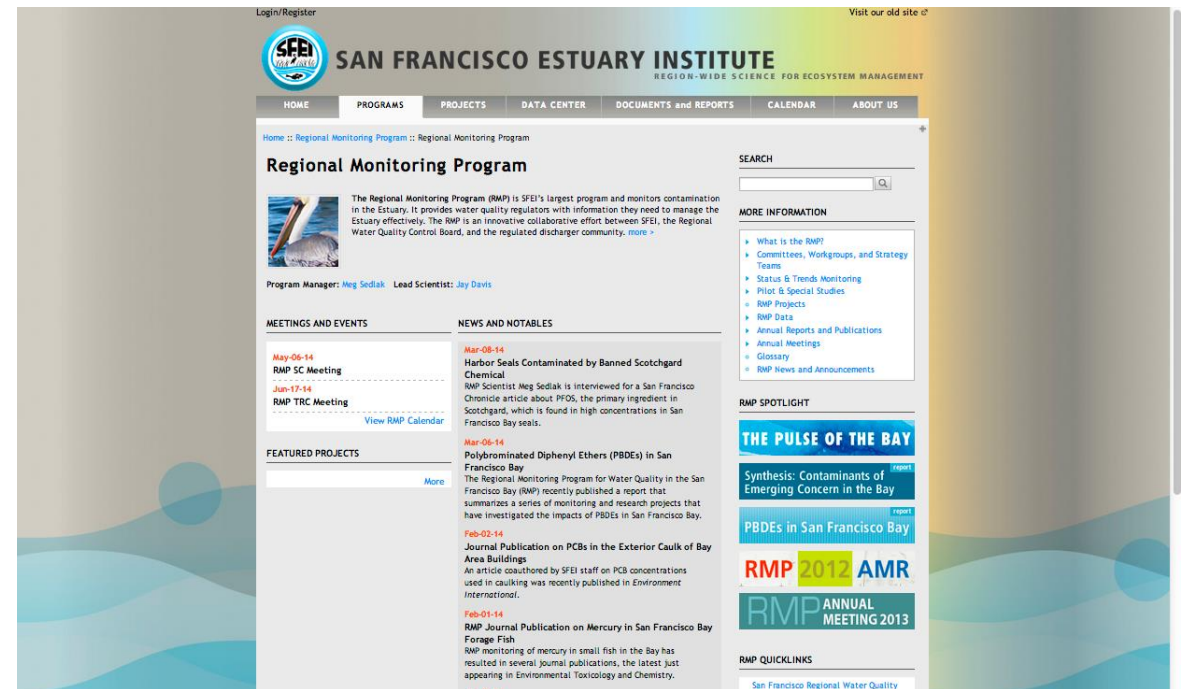
All Sessions
100.00%

This report is based on 4K sessions (96.2% of sessions). [Learn more](#)



RMP Web Site

- Recent activity
 - CD3 development work
 - Funded by State Board
 - \$60K worth
 - Switch to demo
 - Analytics
- Next steps and possible improvements
 - SFEI Communication Strategy - web site overhaul



RMP Update

- Recent activity
 - ▣ 2012 edition
 - ▣ Distribution
 - xx printed – 10 left
- Next steps
 - ▣ Next edition in 2014
- Possible improvements
 - ▣ Make it an interactive e-book pilot



Technical Reports

- Recent activity
 - ▣ Xx reports in 2013
 - ▣ Highlights
- Next steps
 - ▣ Coming soon...
 - PCB Synthesis
 - Nutrient Conceptual Model
- Possible improvements
 - ▣ Improve access on web site –
page highlighting recent reports

Journal Publications

- Process
 - ▣ Part of project scoping in proposal development
 - ▣ Sometimes augmented or picked up by SFEI
- Recent activity
 - ▣ Xx in 2013
 - ▣ Highlights
- Coming soon...
 - ▣ Coring article
 - ▣ PFC article
- Possible improvements
 - ▣ Improve access on web site – page highlighting recent reports

Annual Meeting

- Recent activity
 - ▣ Joint with SOE in 2013
 - ▣ Attendance
 - 2012 - xx
 - 2013 – xx
 - ▣ Social media
- Next steps
 - ▣ Program Update theme in 2014
- Possible improvements
 - ▣ Archive video?
 - ▣ Expand social media during Pulse or SOE years

Email Updates

- Recent activity
 - ▣ Pilot in January 2014
 - ▣ Distribution list of 950xx people
- Next steps
 - ▣ Continue on quarterly basis
- Possible improvements
 - ▣ Develop formatted version

[View this email in your browser](#)

1. SFEI-ASC Seeks to Fill Two Important Positions: Executive Director, Senior Project Manager
2. Jim Kelly Appointed Interim Director of SFEI-ASC
3. PFCs in the News
4. Special Issue of Marine Geology on Sediment Transport in San Francisco Bay
5. RMP Journal Publication on Mercury in San Francisco Bay Forage Fish

1. SFEI-ASC Seeks to Fill Two Important Positions: Executive Director, Senior Project Manager

Your assistance would be greatly appreciated in helping spread the word about two openings at SFEI.

SFEI-ASC Executive Director: This is an exciting opportunity to lead the San Francisco Estuary Institute/Aquatic Science Center, a well-respected scientific organization whose opinion is sought out by decision-makers across the state. Under the general direction of, and working in partnership with, a Board of Directors, the Executive Director provides leadership, vision, and overall direction of staff, business and operations. The successful candidate will join a semi-academic work setting and lead a diverse group of environmental scientists and administrative support staff whose mission is to foster development of the scientific understanding needed to protect and enhance the San Francisco Estuary. More details are in the attached brochure and on the [SFEI web site](#). Filing date: Sunday, February 16, 2014.

Senior Project Manager: SFEI-ASC is seeking a Senior Project Manager to assist in the management of projects within the Clean Water Program, including the Regional Monitoring Program for Water Quality in San Francisco Bay (Bay RMP), the Delta Regional Monitoring Program (Delta RMP), and the San Francisco Bay Nutrient Management Program. The successful candidate will have a demonstrated range and depth of skills in project management, conducting scientific investigations, or managing environmental stakeholder processes. This position will report directly to SFEI-ASC's Clean Water Program Directors (Drs. Jay Davis and David Senn) and is an integral part of the Clean Water team of senior scientists and managers. Position open until filled. [More information](#).

2. New Interim Executive Director for SFEI-ASC

The SFEI-ASC Board has appointed Jim Kelly, former General Manager of the Contra Costa Sanitation District, to assume the role of Interim Executive Director. With over forty years of experience in environmental engineering and agency management, Mr. Kelly is a seasoned

SFEI Newsletter

- New item under consideration as part of SFEI Communications Strategy
- Quarterly
- Would include some RMP info as part of a Clean Water update
- Next steps
 - ▣ Approval pending

Social Media

- New item under consideration as part of SFEI Communications Strategy
- Twitter
 - ▣ Jay's legion of followers
- Next steps
 - ▣ Approval pending