

USIBWC Citizens Forum
Thursday, September 1, 2016
6:30pm – 8:30pm
Tijuana Estuary Meeting Room
***Tentative Meeting Notes**

Board Members in Attendance:

Paola Avila, San Diego Regional Chamber of Commerce
Stewart A Halpern, San Diego Coastkeeper
Antonio Martinez, IV
Edward J. Spriggs, City Council, City of Imperial Beach

USIBWC Staff in Attendance:

Steven Smullen, USIBWC Area Operations Manager

Members of the Public in Attendance:

Javier Heras, Resident
Rob Posada, Otay Water District
Bob Kennedy, Otay Water District
Ruth Martin – San Diego City Councilman David Alvarez’s office
Derek Grimes, Scripps Institute of Oceanography
Joe Ellis, member of the public
James Mann, KFMB
Kelly Tait, Port of San Diageo
Brandon Lewis, KFMB
Marvin Flynn, member of the public
Jason Brooks, Tijuana River National Estuarine Research Reserve volunteer
Paul Brown, Port of San Diageo
Mark Watten, Otay Water
Paola Guzman, Office of Congressman Juan Vargas

Welcoming Remarks:

At 6:40PM USIBWC Area Operations Manager Steven Smullen convened the Citizens Forum meeting. He welcomed group, board members introduced themselves and then the audience introduced themselves. Mr. Smullen went on to give a brief overview on meeting agenda items. The second presenter Roger Kube of the San Diego County Chapter of Surfrider was unable to attend and present. Mr. Smullen introduced Derek Grimes the first presenter.

Presentation One: Turning the CSIDE Pink - Cross Surf-Zone / Inner-Shelf Dye Exchange –

Derek Grimes, Graduate Student Researcher, Scripps Institute of Oceanography

Mr. Grimes began with an overview on the Cross Surf-Zone / Inner-shelf Dye Exchange (CSIDE). CSIDE is the exchange between the surf zone (where waves break) and the inner-shelf (shallow shelf just offshore of the surf zone). We will be using bright pink dye as a tracer to quantify the exchange and to measure the amount of along-shore and cross-shore dispersion. This research is

applicable to understanding transport of a variety of tracers including contaminants, larvae, and more in the near shore region where humans and ecosystems are directly impacted. The surf zone and inner-shelf are by far the most economically and ecologically important ocean regions, vital for recreation, food, and ecosystem services. Despite the importance of clean coastal waters to our economy and wellbeing, declining water quality threatens coastal ecosystems and human health worldwide. This study will use dye release experiments to quantify the exchange between the inner-shelf and the surf zone, improving scientific understanding and thus allowing for accurate prediction of tracer (e.g., larvae, nutrients, pathogens) exchange from the surf zone through the inner-shelf in the San Diego South Bay. This region is a representative surf zone and inner-shelf system, allowing project results to be applied generally. This region also is home to economically valuable beaches, State Parks, a Marine Protected Area, and a National Estuarine Research Reserve, among other assets.

In an ambitious effort to investigate how pollution and other contaminants travel across and along beach waters, scientists from both sides of the border are leading a novel experiment at Imperial Beach and Coronado (south of San Diego), Calif., and Tijuana, Mexico. The National Science Foundation-funded project includes researchers from UC San Diego's Scripps Institution of Oceanography, Jacobs School of Engineering, and several Mexican institutions.

During the first release Sept. 22 to Oct. 17, 2015, researchers performed three experiments releasing non-toxic bright pink fluorescent dye into beach waters and tracking its movements along the coast some 10-20 kilometers (6.2-12.4 miles) for nearly 36 hours. Dye was released about 300 m south of the Imperial Beach pier a few blocks south of Imperial Beach Blvd. It initially traveled northward within the surf-zone, but as time progressed the plume behaved quite unexpectedly.

One of the dye releases will be at the southern end of Playas de Tijuana, Mexico. A team of scientists, engineers, and technicians will follow the dye with a variety of instruments to obtain a clearer picture of how pollution moves and dilutes along the coast. With this information, managers and policy makers could guide beach closure decisions and use study results to evaluate upstream mitigation possibilities.

The first release was successfully concluded, with preliminary observations, we have comprehensive measurements of what turned out to be a spectacularly dynamic behavior. The raw standalone Fluor meter data is substantive. This dye release was interesting because it was released at 5am; the surf zone currents carried the dye northward. Although some dye continued to go north, a lot of dye starting pooling around the Imperial Beach pier and leaking offshore by 8am. Then the wind really started to blow out of the northwest, driving the surface waters to the south. This ended up splitting the dye plume in two. One part continued in the surf zone to the north – albeit at low concentrations that made its way all the way to Silver Strand State Park where station SA1 was located. The second part started flowing to the south and got stretched out dramatically in the alongshore. However, an intrusion of northward flowing water south of Seacoast Drive kept the dye plume from attaching to the shoreline, we think due to strong winds and a bathymetric feature near the Imperial Beach pier.

The 2nd release of dye was just north of the Imperial Beach pier in the early morning hours of October 8th and tracked the dye for 2 days. The dye shot northward in response to a strong

southerly swell driving strong northward currents. At first it was confined to the surf zone, after which it was confined to an alongshore band just outside of the surf zone. By the second day, dye was all the way up to the entrance to San Diego Bay (but in very low concentrations). Further south it was not at the surface, but it was found near the bottom!

The 3rd dye was released October 12th and was sampled through October 13th. It was the most ambitious release yet. There were 30 gallons of dye into the Mouth of the Tijuana River Estuary on an ebbing tide over 2 hours. There were shoreline instruments from 3 km south of the border in Mexico all the way up to Coronado. There was a boat from CICECE/UABC (Autonomous University of Baja California) and 2 SIO (Scripps Institute of Oceanography) boats + jet ski in the water and the plane. The dye raced out of the inlet and headed north along the beach toward the end of Seacoast Drive. It then started to peel offshore in large bands. It was very impressive particularly with how good the waves were.

Eventually, the dye spread further offshore in a large plume with a variety of bands moving north along Seacoast Drive and the shoal of the Slough offshore. But by the end of October 12th it never really went north of the Imperial Beach pier

What does this mean for IBWC? What's next? Real-time modeling system could be used by IBWC & others to inform policy, mitigation, beach closures, &/or be advertised to inform the public.

The presentations ended with questions from the board and public.

Q&A

Q: What is the pink dye?

A: The pink dye is a chemical; the rate that it's spreading is the importance. The dye is a fluorescent dye, meaning that when a certain wavelength of light is shone on it, it emits at a different wavelength. Our instruments shine a green light on the water and detect the red light emitted.

Q: What's the density of the dye? Is it transferred to the atmosphere?

A: The dye used is Rhoda mine WT. The 2012 OSHA Hazard Communication Standard does not consider this chemical hazardous. The product contains no substances, which at their given concentration, are considered to be hazardous to health. In fact, the EPA and FDA approve this product for use in drinking water studies!

Q: What else are you measuring?

A: Water speed and direction, temperature, salinity, and turbidity (how cloudy is the water due to things like sediment). We have surf zone based instrumentation, moorings (instruments sitting on the seafloor) offshore, boats, jet skis, a plane, and an underwater autonomous vehicle sampling!

Q: If I cannot see it, is it there?

A: Yes, just like pollutants can be present without seeing or smelling them, Rhoda mine dye can be present at concentrations beneath which it can be seen by the naked eye (the difference is that it is not a pollutant!)

Board Discussion:

Next agenda ideas suggested:

- Updates of new projects, including water quality and solid waste
- Interaction with Mexican Citizens Forum
- Updates on illegal solid waste dumping in Mexico and how it affects us
- Presentation on costs of top-tier projects
- Roger Kube to do presentation on his visit to Tijuana (return)

Board Orientation/Discuss was adjourned at 7:35PM

*Meeting notes are tentative and summarize in draft the contents and discussion of Citizens Forum Meetings. While these notes are intended to provide a general overview of Citizens Forum Meetings, they may not necessarily be accurate or complete, and may not be representative of USIBWC policy or positions.