CDIP Buoy placement for SF Bay
San Francisco, Pier 9
Monday, June 25th

Participants:

David Castel, CDIP
Toby Garfield, COCMP, CeNCOOS and RTC
Heather Kerkering, CeNCOOS
Captain Peter McIsaac, SF Bar Pilots
Bill O'Reilly, CDIP
David Reynolds, NOAA NWS
Julie Thomas, CDIP
Sean Kelley, USCG
Gerry Wheaton, NOAA

Following introductions, Julie Thomas began the meeting with an explanation of CDIP including the number of buoys along the coast, funding mechanisms, partners, data collection and dissemination. CDIP buoys collect wave height, wave period, wave direction and SST (not wind). Data are transferred from the buoys every half hour, and the CDIP website is updated (http://cdip.ucsd.edu). Hourly both NWS and NDBC receive the data. Fishermen can thus access the wave forecast through Dial-A-Buoy. As the frequency response of the buoy is crucial for measuring high resolution direction waves, no additional instrumentation can be added to the buoy or the mooring.
CDIP buoy description:
http://www.cdip.ucsd.edu/homepage.php?nav=documents&sub=index&xitem=gauge#types

Sean Kelley from the USCG expressed an interest in a web-based one-stop shop for boaters/fishermen/captains/bar pilots. Currently, boaters complain about having to access numerous sites to get the atmospheric and oceanographic information needed. Gerry Wheaton acknowledged that this concern was also raised at the Harbor Safety Committee meeting this month.

Julie –Julie and Eric Terrill were recently awarded a 3-year grant from NOAA CSC to integrate information, create models, and customize a page for the LA/Long Beach ports. CDIP is coordinating with SCCOOS for this project. CeNCOOS hopes to work with CDIP to create a similar site for the SF region, pending funding and available resources.

A discussion ensued regarding placement and purpose of the CDIP buoy. Currently, bar forecasts are created using data from the Point Reyes buoy. An additional buoy in or near the channel would allow for validation of the Pt. Reyes buoy. Combined, the two buoys could really build an incredible model for the bay and even improve predictions for Ocean Beach. The combination would also allow for improved decision-making regarding bar crossings.

Location: After much discussion, a decision was made to deploy the CDIP buoy near the following coordinates:

37 46.8'N
122 36.1'W

That is between buoys 5 & 7, just outside the channel. The mooring will consist of a 2-1 scope. Depth is approximately 50 feet.

CDIP buoy requirements:

- The cost of maintaining the buoy is relatively low. The battery must be swapped once every 2.5 years. The swapping of the buoy is a relatively straight forward procedure as the buoy itself is replaced. The buoy must then be shipped back to Scripps for sandblasting, paint, calibration, validation, etc.
- CDIP would like approximately $15K year to cover the cost of maintenance. Additional costs include the purchase of a replacement buoy. The $15K covers people time: recovering the buoy when hit/offsite and data programming. It also helps cover the cost of computing power to build the models.
- In total, $75K is needed over the next 3 years.

Additional assets needed:

- Real-time monitoring from shore
  - **ACTION:** Toby Garfield will talk with Patrick Barnard of USGS about the option of placing a whip antenna on the Cliff House and tapping into the network for the web cam. Toby will also discuss with Patrick and members of COCMP the options of measuring waves with an X-band radar.
- Vessel for buoy deployment
  - **ACTION:** Heather spoke with MBNMS. The Fulmar is not available the first week of August. It is potentially available the week of August 20th. They are willing to work with us regarding logistics if we are interested in deploying at that time.
  - **ACTION:** Sean Kelley will check with USCG to see if a deploying platform is available at that time. Sean and Heather will coordinate efforts.
- 1200lb anchor
  - **ACTION**: Sean Kelley is going to check with the USCG to see if a 1400lb anchor is available for the buoy.
- GPS monitoring
  - **ACTION**: CDIP will work with CeNCOOS and SFSU/RTC to identify a location for GPS monitoring of the buoy. The organization chosen will be responsible for monitoring the location of the buoy and responding to when needed (RTC, SF Marine Exchange??).

- Accurate bathymetric data
    - **ACTION:** Work with CSUMB Seafloor Mapping group. Information collected is here: http://seafloor.csumb.edu/SFMLwebDATA.htm
- FUNDING
    - **ACTION: CENCOOS!** CeNCOOS is responsible for finding a vessel fore deployment as well as a funding mechanism for this activity. Heather is currently in conversation with the OPC and exploring other avenues.
    - **ACTION: CeNCOOS!!** CeNCOOS is also going to explore the option of using the Sanctuary Foundation as a mechanism receiving and distributing funds.

The Plan:

- CDIP has a buoy to deploy the first week in August.
- CDIP plans to deploy the buoy with or without secured funding. The buoy will be used to validate the Pt Reyes buoy measurements for the bar forecast. The new buoy must be in operation for a minimum of one season in order to validate the Pt Reyes buoy. After the first year, continued deployment will depend upon securing funding.
- Heather/Sean will find a vessel for deployment of the buoy.
- The buoy will be deployed between navigational buoys 5&7 (depending on agreement from everyone in our group).
- The groups represented here (in addition to others, including PCFFA) will coordinate a notification effort to prevent, as much as possible, any collisions with the buoy.
- CeNCOOS will continue to work on securing funding. Although funding is not needed to deploy and begin operations, funds are necessary if responding to an unexpected/accidental collision with the buoy.
- Provide an update to the Harbor Safety Committee meeting in September.

Buoy/Real-time wave information benefits:

- More accurate and timely information may save lives, improve navigation, and maintain business operations through the Main Ship Channel.
- Give pilots immediate access to conditions over VHF radio and computer
- Improve determination of safe under-keel clearance in heavy swell conditions
- Provide fishermen, sailors, and captains with the ability to more adequately assess offshore conditions and safe bar crossings.
- Help small boats and tugs determine whether to use the North Channel, the South Channel, or the Main Ship Bar Channel.
- More accurately provide historical and forecasting atmospheric and oceanographic conditions.

- Safety for commercial marine vessels and the pilots that guide them into the bay, especially large tankers, that service one of the most important harbors in the world. The importance of this buoy for marine traffic cannot be overstated.
- Safety for the US ACE dredging operations in the Ship Channel
- Storm wave conditions for coastal managers to help best utilize their resources to mitigate erosion during severe storms and warn recreational beach users of hazardous conditions.
- Aid in regional wave nowcasting and forecasting conductions by SCRIPPS (Bill O'Reilly) and NWS (David Reynolds) which provide invaluable sea state conditions.
- Supports coastal process studies conducted by USGS and used by City of SF, CA Department of Boating and Waterways, US ACE, and the National Park Service.

Participating Organizations

- NOAA
- CDIP
- USGS
- USCG
- US ACE
- SF Bar Pilots
- CeNCOOS and COCMP
- SCCOOS

Customize website:

Thomas/ Terrill funded for LA/Long Beach. Suggest waiting until next summer to develop a similar website for San Francisco. As reliability of the website is important, would like to develop LA/LB site and use as a template in San Francisco. Believe this can be done efficiently and cost effectively after infrastructure is in place for LA/LB. Will keep interested parties informed as to progress.
NOTE: Both the HF RADAR and the wave information will be on line and accessible…it is just that they will not be available on one site.

Wed and Fri open during the first week of August.
RTC boat: Questuary. Only on a flat, calm day. May have boat up in the Delta.

TOBY will find out what boats may be available.
Check with Skylie at Bodega.
Having trouble finding a university vessel to charter the buoys.
Fulmar

Patrick is key to this and need his results from the ACDP. What about the Xband radar?
OAKLAND – 5th or 6th. UC Marine Council meeting.
Equipment and funding discussion: you, me, Patrick, paul, bill (ok)

Create a list of project gals and products that we need that are currently not funded. Get some agreement among partners about our needs.