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Finding Your Way, the Future of Federal Aids to Navigation

Subcommittee on Coast Guard and Maritime Transportation
Testimony of Captain Lynn Korwatch

Good morning, my name is Captain Lynn Korwatch and I thank you for the opportunity to speak to you today. I am the Executive Director of the Marine Exchange of the San Francisco Bay Region. We were founded in 1849 during a time in history when ships arrived daily filled with adventurous souls seeking their fortunes in the gold fields of California. Since that period, we have provided real-time arrival and departure information to our community. While we no long use the telegraph we installed on Telegraph Hill to relay this information, our membership depends on our 24/7 services to track ships as they arrive through the Golden Gate. The Marine Exchange is a non-profit trade association, and our membership is comprised of maritime labor, tug companies, pilots, port authorities and the many, many organizations that provide services and support to ships in the SF Bay Region.

As strictly an honest broker of information, the Marine Exchange is often called upon to participate in activities that support the health and success of our region. These include managing the NOAA Physical Ocean Real Time System (P.O.R.T.S.), acting as Secretariat for our Area Maritime Security and Harbor Safety Committees, sponsoring a local Trade Facilitation Committee and managing on behalf of FEMA over $95 million dollars of Port Security Grant money.

Since the Exchange is considered a neutral party in the region, I was asked to Chair local Harbor Safety Committee. This committee was created after the *Exxon Valdez* spill and is sponsored by the California Office of Spill Prevention and Response (OSPR). Our committee meets monthly and is comprised of representatives of every maritime segment in San Francisco, including labor, tanker and dry cargo operators, tug companies, fishermen, and recreational boaters. State agencies such as the State Lands Commission and federal partners such as the United Stated Coast Guard, NOAA and the Army Corps of Engineers all have a seat at the table.

This committee tackles a wide variety of issues during our meetings and in our work groups and we spend a significant portion of our time focusing on prevention measures.

Recently these have included developing "best maritime practices" for moving vessels in reduced visibility, bunker oil transfers and creating critical maneuvering zones around bridges in the Bay Area. Needless to say, the topic of navigation aids is one that we frequently address.

Like many areas, our waterways are used by large commercial vessels, ferryboats, recreational boaters, fishermen, sail boarders, and kayakers, and we often have swimmers crossing the navigation channels. Our waterway is one of the busiest in the nation; last year, we recorded over 128,505 vessel transits in the area. The challenges associated with this level of user diversity are further exacerbated by the region's prevailing environmental and geographic conditions:

- Prevailing weather patterns create reduced visibility fog conditions throughout the Bay and rivers in a patchy and unpredictable manner.
- Strong currents through the Golden Gate create difficult navigation
- High winds and big waves offshore
- Complex maneuvers within a small geographic area are taxing on propulsion systems and mariners' skill
- One of the highest rates of marine casualties in the nation

With the wide diversity of users comes an equally wide diversity of experience and technology. The pilots on the large ships have sophisticated systems available to assist them in guiding their vessels though the narrow channels and the bridges in the Bay, and this electronic technology can be useful. During the America's Cup races held in San Francisco last summer electronic aids were used by the event authority to mark the boundaries of the racecourse, and the system worked well. But, the America's Cup boats are not the typical sail boats we see in the Bay Area, and the electronic systems aboard those yachts were state of the art.

More common, are users with some limited technology, such as a GPS programmed with a basic navigation feed. Other small vessels may have nothing aboard other than a small paper chart or chart book identifying the markers and buoys

around the channel. Further, as California has no mandatory boat (or seamanship) training requirement, there is little confidence these small recreational boaters have sufficient knowledge of the area or the right skills to transit the waterway safely.

Therefore, while the large vessels are able to receive electronic signals, not all vessels have this capability. Further, such signals are not always reliable. In January of 2013, the vessel *Overseas Reymar*, allided with one of the towers on the western span of the San Francisco Bay Bridge. The NTSB report cites that one of the causes was the inoperability of a CalTrans RACON beacon marking the center span of the bridge. Additionally, the topography of our region can effect electronic transmissions; it has high hills that can block cellular signals from reaching boaters and vessel equipment, and there are many bends and turns in the up-river channels where line-of-sight signals cannot reach at all.

This disparity in training and technology creates some challenges in our region and nationwide. When I was a student at the California Maritime Academy, we all learned the about the International Association of Lighthouse Authorities and the US buoy systems and we were probably quite annoying chanting the catch-phase "red, right, returning" before an exam. As trained professional mariners, we relied on these navigational aids and basic physical structures; buoys, towers, lights, lighthouses, day marks and shapes to guide us in and out of port.

Certainly, times have changed. Maritime students today learn to use GPS and other electronic systems rather than navigating solely with a sextant. However, the total replacement of these essential physical objects with electronic representations would completely undermine the safety and functionality of the entire marine navigation system. Mariners rely on multiple layers of information to establish their positions, and the foundational layer they depend upon most is the physical objects they see out the window. In fact, many of the nautical charts specifically warn mariners not to rely solely on those documents for navigation.

Just as paper charts should not be used solely for navigation, neither should electronics, including DGPS, AIS, or virtual buoys, be the only navigation tools in our tool box. I suspect each of you has a smart phone in your pocket or briefcase. You may even use this phone as your navigation device when traveling in a new area. I think I can say with some confidence that at some point you lost the cellular signal and were without service. While this might be okay when you are on city streets and have a lane you must remain in or street signs you can follow, on the water, without markers and buoys to mark the channels or areas of safe passage, the challenge of relying on an undependable signal is exponentially more hazardous. Hazardous to the boat operators, hazardous to their passengers and crew, hazardous to other operators in the area, and hazardous to the environment of the region.

The fact is, virtual or electronic aids to navigation are nothing more than electrons being pushed through wire and air. They are not real or permanent. We cannot touch them nor can radar detect them. They are not physical objects capable of existing or persisting without continuous support from extensive, expensive, and highly susceptible support services and systems. Virtual or electronic aids to navigation exist only in the machines that are made to display them. This equipment is expensive for the recreational boat user, and when the power goes out or the signal is lost, these aids disappear.

If electronic aids were the only navigation tools available to mariners, interactions with recreational boaters and commercial vessels would be dramatically altered. Small craft operators are almost totally dependent on the visual cues they get by looking out the window. Recreational boaters use buoys and physical aids to not only fix their positions, but to find safe areas for use when ships and tows are nearby. Take away the physical aids to navigation and you will blind many of these recreational boaters. Incidents between commercial craft and recreational boaters will increase.

There is no question that maintaining buoys, towers, lights, lighthouses, day marks, and shapes is an expensive and labor-intensive undertaking. In the San Francisco Bay

Area alone we have almost 600 AtoN's and the unalterable fact is that many of these physical aids are essential to the safety of navigation on our waterways. However, funding this basic infrastructure is always going to be a challenge. A factor to be considered is that while maintaining aids is costly, providing aid to vessels that run-aground due to insufficient training or information is equally costly. Transferring the cost of prevention to response creates new risk to personnel and resources.

In San Francisco Bay we have a NOAA P.O.R.T.S that provides the mariner real-time current, tide and metrological data. While NOAA paid for the installation, each region is required to fund maintenance. Finding this funding source has always been a struggle. Since the system covers the nine Bay Area counties, and provides information to large commercial operators, small recreational boaters, government research and academia we were unable to create an equitable fee structure to support the system. Unfortunately, it wasn't until we had a major oil spill that State funding was made available. As a result of this generous funding by OSPR we have been able to enhance the system to include new visibility sensors and an air gap sensor will soon be installed on the Bay Bridge.

It is not prudent to wait until a major incident to determine that maintaining navigation aids is critical. It is my opinion that the US Coast Guard is the best organization to provide national and international continuity and that they should receive sufficient funding to provide for the continued maintenance of these critical navigation items. The diverse array of users of the waterways – and their varied training and skill levels – demand that we insure that basic and reliable information through the retention of physical aids be available to all of our maritime stakeholders as a way to protect lives, property and the environment.

This is not to say that the use of electronic aids should not be explored. On the contrary, newer technologies have greatly enhanced maritime safety, and there is no reason to think the future does not hold further improvements. While there may be possibilities for local Coast Guard in some areas to work with their communities in the

short term to identify some aids which may be taken off line, it would be extremely imprudent to think that all such aids can replace physical aids altogether. A blend of these two systems is most likely the future of safe navigation on our nation's waterways. Perhaps a better strategy would be a policy to use visual aids as a way to augment and enhance navigation versus the goal to solely eliminate aids as a way to reduce costs. This philosophy would be a better way to serve waterway users.

The maritime industry is oldest of the transportation modes in our country, and possibly the safest and most economical. I believe that we must develop a national strategy that is transparent and inclusive to the needs of all users. Outreach to local stakeholders to get their input and expertise will help insure the success and acceptance of changes to the waterways. There is an expression that is often quoted in our industry "if you've seen one port, you've seen one port". As each port region is unique this must be factored into the decision-making regarding the configuration of future aids. Moving with deliberation and due consideration of the traditions and proven success of our industry will ultimately result in the improvement of our waterways and provide a safe operating environment for all users. I am confident that is the goal of the waterway users, The Coast Guard, other federal partner's and the ultimately the Congress who will be tasked with crucial decisions regarding future funding of our waterway infrastructure. So, on behalf of my maritime colleagues I thank you for your attention to this critical need.