



SAN FRANCISCO BAR PILOTS ASSOCIATION

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Marian Westley, PhD

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Subject: Request for Harmonic Tide Stations, Sacramento and San Joaquin Rivers

Dear Dr. Westley,

On behalf of the numerous users of the NOAA Tide Stations in the Port of West Sacramento and Port of Stockton, the San Francisco Bar Pilots are officially requesting that NOAA install a Harmonic Tide Station in the Port of West Sacramento and the Port of Stockton. While ships are being moved safely, the lack of accurate tide data and predictions causes inefficiencies in vessel scheduling and traffic management, as well as reduced ship cargo capacity. The more accurate information provided by a Harmonic Tide Station would increase safety margins and help grow the economy of our inland port system by allowing better management of under keel clearance, increased transit windows and deeper ship drafts.

For transiting the San Joaquin River to the Port of Stockton and the Sacramento River to the Port of West Sacramento, SFBP has always used the predicted river tides published by the cooperative of the CA NV Forecast Center, NOAA National Weather Service, and the California Dept of Water Resources. Over the past several years, we noted with concern increasing discrepancies between the CA River Tides forecasts for Antioch and the NOAA Harmonic Tide Station at Antioch.

In November 2022, we held a meeting with NOAA to review these discrepancies. The result of this meeting was that NOAA expressed concern regarding their confidence in the accuracy of the predictions. This leaves SFBP and the inland ports we serve in the position of relying on sub-standard information for critical safety and operational decisions. At the time of the meeting, all the NOAA Tide Stations on the San Joaquin River route to Stockton were only Subordinate Stations and enroute to the Port of West Sacramento there are not even Subordinate Stations. To their credit, NOAA has converted some of the relevant NOAA Subordinate Tide

Stations to Harmonic Tide Stations. This has improved forecasting; however, we still do not have an accurate Harmonic Tide Station in either the Port of West Sacramento or the Port of Stockton.

Port of Stockton – Harmonic Tide Station

The Port of Stockton has had a significant increase in deep draft vessels and many of these carry petroleum or hazardous cargoes. Most vessels calling in Stockton plan transits to arrive and depart at the exact maximum draft as per the SFBP Vessel Movement Guidelines. Generally, our transit planning is based on Harmonic Tide Stations that are located throughout the Bay, about 6 nautical miles apart.

Currently, there is a Harmonic Tide Station at Blackslough Landing, about 6 nm downriver from the Port of Stockton. Since there is not an accurate Tide Station in the Port of Stockton, SFBP applies a correction to the predictions at Blackslough Landing Tide Station. We then calculate the correction by using the maximum difference from the Wards Island Tide Station, 6 nm downriver in the opposite direction. While this method of correction generates a safe transit window, it is simply not accurate.

The NOAA Port of Stockton Tide Station 9414883 was physically removed in 1982 and therefore it's not possible to turn it into a Harmonic Tide Station. Many of the vessels use this outdated Subordinate Tide Station for their own draft calculations when loading and discharging cargo. There is significant interest in installing a PORTS level sensor (which SFBP supports); but this does not provide the accurate advance predictions we need for advising vessels months in advance what their maximum draft can be on any specific day. We believe it is critical for NOAA to establish a new Harmonic Tide Station in the Port of Stockton. The most logical position would be at the secure location alongside the CA Dept of Water Resources Stations in the Port, at the Rough and Ready Island Berth 20.

Port of West Sacramento – Harmonic Tide Station

A similar problem exists in the Port of West Sacramento. There are no accurate tide predictions. In this case, the NOAA Tide Station 9416131 for the Port of West Sacramento was removed and delisted there is not even a Subordinate Tide Station. Of concern, the Army Corps of Engineers uses this Station's reference point in their surveys but there is no tide Station to refer to for predictions. The closest Harmonic Tide Station is at Rio Vista which is about 26 nm away. The Rio Vista Tide Station is too far from the Port of West Sacramento to be used operationally and this is a significant problem, especially for loaded vessels departing the Port. Pilots use years of institutional knowledge to make estimates. But again, this is not accurate. There are tide stations in Sacramento, only a few miles away, but they are on a different river and of no operational value for the Port of West Sacramento. As in Stockton, there is significant interest in installing a PORTS level sensor (which SFBP supports); but again, this does not provide the accurate advance predictions we need for advising vessels months in

advance what their maximum draft can be on any specific day. Operationally, we believe it is critical for NOAA to establish a new Harmonic Tide Station in the Port of West Sacramento. The most logical position would be in a secure location at one of the main berths inside the port.

We appreciate your review of this request and look forward to scheduling a meeting soon to discuss details and next steps.

Best regards,

Capt. John Carlier
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cc: CDR Krysia Pohl, Chief of Prevention, USCG Sector San Francisco
Mr. Scott Humphrey, Chair, Harbor Safety Committee of the SF Bay Region
Mr. Jason Katindoy, Deputy Port Director, Port of Stockton
Mr. Rick Toft, General Manager, Port of West Sacramento
Mr. Jeff Ferguson, CA Navigation Manager, NOAA OCS