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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Notice of Change to the Nation's Tidal Datums with the Adoption of a Modified Procedure for Computation of Tidal Datums in Area of Anomalous Sea-Level Change

AGENCY: National Ocean Service (NOS), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce.

ACTION: Notice to advise the public of periodic updates to tidal datums due to the adoption of modified procedures for computation of accepted tidal datums in areas of anomalous relative sea-level trends using a 5 year time period for determination of tide level datums.

SUMMARY: NOAA has typically updated tidal datum elevations for the nation to new National Tidal Datum Epoch (NTDE) time periods every 20-25 years. Updates are necessary due to long-term sea level change. In 1998, NOS recognized the need for a modified procedure for determination of tidal datums for regions with anomalously high rates of relative sea level change. This modified procedure is necessary at selected stations to ensure that the tidal datums accurately represent the existing stand of sea level.

The procedure is limited only to those stations in areas with high rates of vertical land motion that have documented anomalous relative sea level trends exceeding 9.0 millimeters per year. Sea level analyses in these anomalous regions are conducted approximately every 5 years to determine if the mean sea level difference exceeds

the established threshold tolerances in order to qualify for a special update. Anomalous relative sea level trends are seen along the western Gulf Coast, southeast Alaska, and southern Cook Inlet, AK. For example, the magnitude of the sea level trends in these areas is +9.24 millimeters per year in Grand Isle, LA; -12.92 millimeters per year in Juneau, AK; and -9.45 millimeters per year in Seldovia, AK.

This procedure is necessary to provide the most accurate information available for applications that are essential to supporting Federal, State and private sector coastal zone activities, including hydrographic surveys and coastal mapping, navigational safety, wetland restoration, marine boundary determinations, coastal engineering, storm warnings and hazard mitigation, emergency management, and hydrodynamic modeling.

While maintaining the 19 year NTDE computational period for tidal mean range and diurnal range, a shorter more recent 5 year computational period is used to compute the mean tide level datums to better reflect the current elevation of mean sea level relative to the land. Consequently, tidal datums at stations exhibiting anomalous trends are computed from mean sea level, diurnal tide level and mean tide level values for the most recent 5 year time period, and tidal ranges (GT and MN) based on the most recent full 19 year NTDE at stations.

The average absolute difference between 19 year NTDE time periods across the nation of 0.03 meters (0.10 foot) is generally used as the threshold difference to warrant consideration of a 19 year NTDE update, and a 20-25 year review cycle has been adequate to capture the changes of 0.03-0.04 meters for most locations. To meet this target at locations with anomalous rates of sea level change, tidal datum elevation updates

must occur more frequently. In general, the vertical changes in datum elevations which result from these more frequent special tidal datum updates every 5 years are kept as close to the 0.03 meters (0.10 foot) to 0.05 meter target as possible. In comparison to the overall accuracy of hydrographic-cartographic processes and scale and resolution and accuracy of soundings on the NOAA nautical charts, these elevations changes will not necessitate a correction or update to the charts every time a datum update is issued. However, in regions that have experienced rapid land movement, the changes to actual soundings and shoreline depiction may need to be updated on the next regularly scheduled chart edition. Although depictions of the datum changes will not be evident on the largest scale NOAA nautical charts, the datum changes will be noticeable when establishing or re-occupying tide stations using accepted surveying techniques and updating elevations on tidal bench marks provided by NOAA. Appropriate outreach will be conducted per office guidelines prior to performing each update.

FOR FURTHER INFORMATION: Visit the website

(<http://www.tidesandcurrents.noaa.gov>) or contact the Center for Operational Oceanographic Products and Services (CO-OPS) at the following address: NOAA, National Ocean Service, CO-OPS, Oceanographic Division, 1305 East-West Highway, Silver Spring, MD 20910-32821, U.S.A., Telephone: 301-713-2890 x149, Fax: 301- 713-4437, E-mail: Tide.Predictions@noaa.gov.

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