

# US ARMY CORPS OF ENGINEERS SAN FRANCISCO DISTRICT SURVEY MISSION

James Zoulas, Ph.D., P.E.  
Chief of Survey Section,  
Lieutenant Colonel Kevin Arnett, Ph.D., P.E.  
District Commander

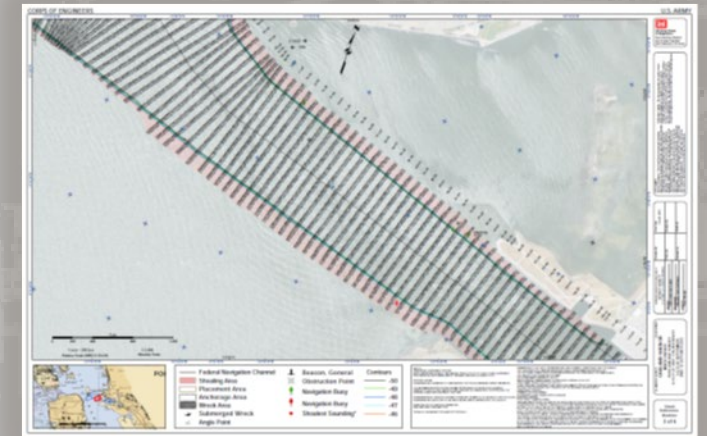
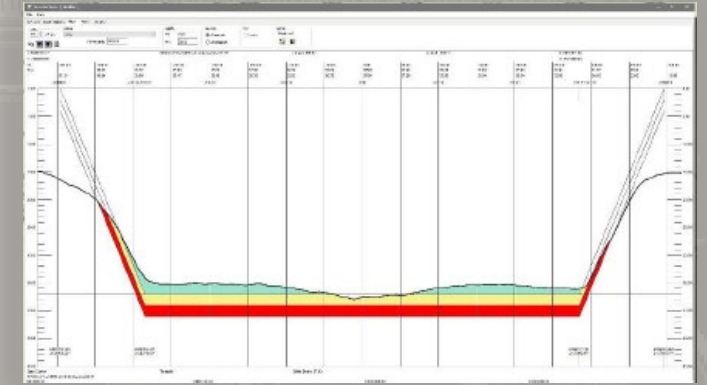
13 October 2022



US Army Corps  
of Engineers®

# SURVEY SECTION

- Primary mission is hydrographic survey support for the Navigation mission
  - 39 Federal navigation channels and associated dredge disposal sites (see next slide)
- Additional aerial and topographic mission
  - 1 staff member in process of Land-Surveyor-in-Training certification
  - 4 USACE qualified remote pilots
- Staff of 12
  - Team of 6 conducts surveys and maintains equipment
  - Team of 6 prepares cartographic products
- Fleet of 3 survey vessels all with multibeam sonar systems



US Army Corps  
of Engineers®



# FEDERAL NAVIGATION CHANNELS



US Army Corps  
of Engineers®



# SURVEY ASSETS

- **Survey Vessel 'Cummings'**

- Repurposed 55ft USGC Aids to Navigation (ATON) Boat
- Primarily used in San Francisco Bay and Main Ship Channel



- **Survey Vessel 'Sounder'**

- 26ft Cathedral Hull
- Primarily used in the Sacramento and San Joaquin Delta
- Shallow water applications

- **Survey Vessel 'Tiburon'**

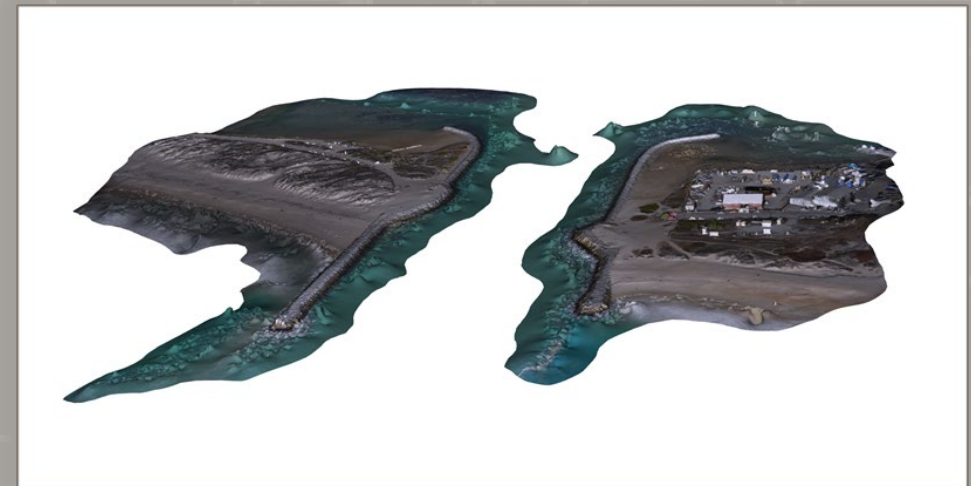
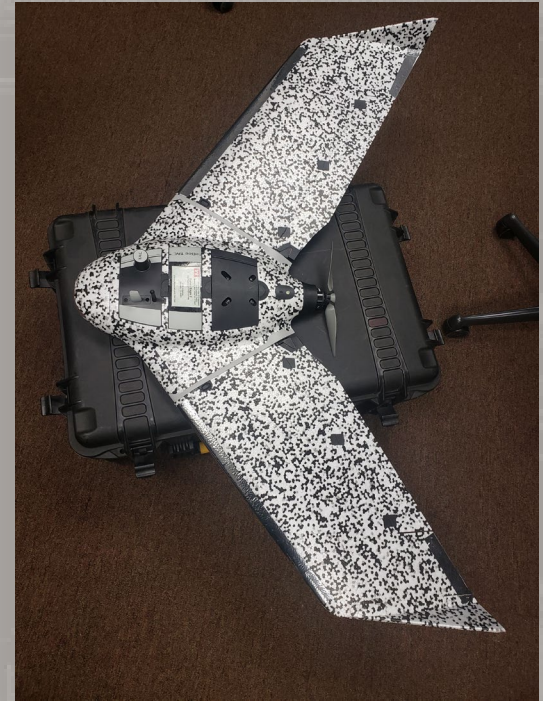
- 29ft Trailerable V-Hull Boat
- Delivered in July 2021
- Provides improved survey capabilities along North California coast (Humboldt Harbor)



US Army Corps  
of Engineers®

# SURVEY ASSETS

- **Topographic and LiDAR**
  - Multiple GPS base stations, tripods, leveling equipment
  - Mobile LiDAR system integrated with survey software
  - Establishment of survey control for maintenance and construction monitoring
  - Dam deformation surveys
- **Small unmanned aerial system (sUAS) platform**
  - Fixed wing eBee X TAC with photogrammetric camera
  - Aerial image collection
  - Topographic surveys of jetties, earthwork, railroad alignments, etc.



US Army Corps  
of Engineers®



# SURVEY PRODUCTS

- **Bathymetric Plots**
  - Routinely released for 39 Federal navigation channels and associated disposal sites
  - <https://www.spn.usace.army.mil/Missions/Surveys-Studies-Strategy/Hydro-Survey/>
- **USACE eHydro Database**
  - Official USACE-wide data source  
<https://navigation.usace.army.mil/Survey/Hydro>
- **NOAA Charts**
  - USACE data used for Category Zone of Confidence (CATZOC) Ratings (Federal channels)
  - Pinole Shoal Channel recently upgraded to CATZOC “A1” rating



US Army Corps  
of Engineers®

US Army Corps of Engineers San Francisco District Website

Missions / Surveys, Studies & Strategy / Hydro Survey

Links to SPN Hydrographic Survey .xyz and .pdf files

- Alameda Naval
- Berkeley Marina
- Bodega Bay - Spud Point Marina
- Crescent City
- Humboldt Bay Channel
- Islais Creek
- Larkspur Channel
- Mare Island
- Moss Landing Harbor
- Napa River
- Northship Channel
- Noyo River
- Oakland Harbor
- Petaluma River
- Pinole Shoal Channel
- Redwood City Harbor
- Richardson Bay
- Richmond Harbor
- SF 08 - Condition Survey
- SF 09 - Condition Survey
- SF 10 - Condition Survey
- SF 11 - Condition Survey
- SF 16 - Condition Survey
- SF 17 - Condition Survey
- Sacramento River & Stockton Ship Channel
- San Bruno Shoal
- San Francisco Mainship Channel
- San Leandro Marina
- San Rafael
- Suisun Bay Channel

USACE Hydrographic Surveys powered by eHydro

USACE District: San Francisco - SPN

USACE Channel: All

Channel ID: All

Survey Date Range: Predefined Custom Date Range

All Surveys

Last 60 days

2019

Use the dropdown menus or simply pan and zoom on the map to filter the Hydrographic Survey data.

Use any combination to drill down to the data you are interested in. To remove the filter, set the filter to "All".

Select Survey: List is limited to 50 records. To see older surveys, configure a custom date range or zoom in on the map to limit results.

District: CESP  
Name: Humboldt Bay Survey  
ID: SF\_24\_HBB\_20211129\_AD  
Survey Date: 11/29/2021, 4:00 AM  
Download Data

District: CESP  
Name: Richmond Outer Harbor  
Survey ID: SF\_07\_ROH\_202111  
Survey List

Number of Surveys: 659  
Last update: a few seconds ago

Earthstar Geographics | US Army Corps of Engineers | USACE  
Powered by Esri

Contact: James Zoulas, (415) 289 - 3340  
[James.G.Zoulas@usace.army.mil](mailto:James.G.Zoulas@usace.army.mil)