

**Harbor Safety Committee
Of the San Francisco Bay Region**

**Report of the
U.S. Army Corps of Engineers, San Francisco District
February 8, 2024**

1. CORPS O&M DREDGING PROGRAM

Since the last HSC meeting, dredging has continued at Richmond Inner Harbor. Estimated completion is mid-March. Redwood City Harbor is still on pause while the contractor works a project in the Los Angeles District. Estimated return to work is early March.

Planning for the FY24 dredging program is currently underway based on amounts identified in the FY24 President's Budget. A tentative schedule, subject to final FY24 appropriations actions and Work Plan funding, is attached to this report.

FY 2023 DREDGING

- a. **Richmond Inner Harbor** – Bid Opening was held on May 26 with contract award to The Dutra Group on June 8. Dredging started on July 7 but was paused while the contractor mobilized to the Sacramento Deep Water Ship Channel and then the Suisun Bay Channel project. Dredging resumed in early December and is **expected to complete mid-March.**
- b. **Oakland Harbor** – Bid Opening was held on June 2 with contract award to Manson Construction on June 16. Dredging started on August 7 and completed on December 31.
- c. **San Joaquin River (Port of Stockton)** – Bid Opening was held on June 28 with contract award to Ross Island Sand & Gravel on July 7. Dredging started on July 28 and completed on December 15.
- d. **Sacramento River Deep Water Ship Channel** – Bid Opening was held on July 7 with contract award to The Dutra Group on July 21. Dredging started on August 31 and completed on September 13.
- e. **Redwood City Harbor** – Second bid opening was held on October 16 with contract award to HME Construction on October 27. Dredging started on December 6; however, the contractor demobilized at the end of December to work a project in the Los Angeles District. **The current proposed schedule shows a return to Redwood City at the end of February/beginning of March.**
- f. **Maritime Administration (MARAD) Suisun Bay Reserve Fleet (SBRF)** – This is not a standard Corps dredging project – the Maritime Administration has requested Corps support in dredging areas at their small boat slips in Suisun Bay. Bid opening was held on August 14 with contract award to Pacific Dredge on August 21. Dredging started on October 6 and completed on October 25.
- g. **Suisun Bay Channel (and New York Slough)** – Bid opening was held on July 24 with contract award to Camenzind-Dutra JV on August 4. Dredging started on September 18 and completed on November 30.

- h. SF Main Ship Channel** – The Government Hopper Dredge Essayons arrived on station and started dredging on May 28. Following dry-dock repairs in early June, the Essayons returned to the Main Ship Channel on July 14 to resume dredging operations. The Essayons worked in the MSC until July 22, then moved to Pinole Shoal.
- i. San Pablo Bay (Pinole Shoal)** – Following completion of the Main Ship Channel, the Essayons moved to Pinole Shoal on July 22 and dredged there over the next 9 days completing the project on July 31. After completion the Essayons departed the Bay Area and returned to Portland.
- j. Richmond Outer Harbor (and Richmond Long Wharf)** – Dredging is deferred to FY24 to remain in compliance with the Water Quality Certification for SF Bay Area Dredging.

2. EMERGENCY (URGENT & COMPELLING) DREDGING: There are currently no emergency dredging events happening in the Bay Area. The last event took place in early June 2022, when Bulls Head Reach of Suisun Bay Channel required emergency dredging.

3. DEBRIS REMOVAL – Debris removal for January was 62.5 tons. Dillard: 45 tons, including 4 abandoned boats; Raccoon: 17 tons. Average debris removal for January from 2014 to 2023 is 166 tons (Range: 35 – 417).

BASEYARD DEBRIS COLLECTION TOTALS:

MONTH	RACCOON	DILLARD	MISC	TOTAL
2024	TONS	TONS	TONS	TONS
JAN	17.5	45	0	62.5
FEB				
MAR				
APR				
MAY				
JUN				
JUL				
AUG				
SEP				
OCT				
NOV				
DEC				

YR TOTAL
62.5

4. UNDERWAY OR UPCOMING HARBOR IMPROVEMENTS

Oakland Harbor Turning Basins Widening Study: This study will investigate and determine if there is a technically feasible, economically justifiable, and environmentally acceptable recommendation for federal participation in a navigation improvement project to the existing - 50-foot Oakland Harbor Federal Navigation Project. The Draft Integrated Feasibility Report (IFR) was released on 17 December 2021 for public comment. A Draft IFR/EA and a 404(b)(1) analysis is now included as appendix A-3 of the Feasibility Study. A complete list of updates from the initial Draft IFR/EA is in the executive summary of the 2nd Draft IFR/EA. The Study is scheduled to be completed in Jan 2024 and the Chief's Report is scheduled to be completed end of May 2024.

The 2023 Revised Draft IFR/EA can be found on our website:

<https://www.spn.usace.army.mil/Missions/Projects-and-Programs/Current-Projects/Oakland-Harbor-Turning-Basins-Widening/>

5. OTHER WORK

Regional Dredge Material Management Plan: A targeted District Quality Control (DQC) review of the draft array of alternatives has begun, but minor revisions due to updated cost information are delaying full start and completion of the targeted review. The draft recommended plan will receive final reviews (DQC and ATR) in spring 2024. NEPA/CEQA prep has been contracted and Agency coordination will follow, with a target to be ready for the FY25+ dredging program. Public outreach including tribal consultation are in progress. Study scopes to address data gaps identified by the Interagency Working Group (IWG) remain in progress - Sediment Transport Modeling (ERDC), Ecological Modeling, and Benefits Analysis/Decision Support Tools. Some results will not be available until after the FY25 target completion for the RDMMP, but the data can be applied to future DMMP revisions.

Information on the RDMMP and latest outreach meetings and notes can be found on our website here:

<https://www.spn.usace.army.mil/Missions/Projects-and-Programs/Regional-Dredge-Material-Management-Plan/>

USACE Work Plan Web Address:

<http://www.usace.army.mil/Missions/Civil-Works/Budget/>

6. HYDROGRAPHIC SURVEY UPDATE

Address of Corps' web site for completed hydrographic surveys:

<http://www.spn.usace.army.mil/Missions/Surveys,StudiesStrategy/HydroSurvey.aspx>

The following surveys are posted:

Alameda Naval Navigation Channel: Condition survey of November 30 and December 8, 2023.
Berkeley Marina (Entrance Channel): Condition survey of February 28, 2023.
Islais Creek Channel: Condition survey of July 21, 2023.
Larkspur Ferry Channel: Condition survey of December 12, 2023.
Mare Island Strait: Condition survey of November 8-9, 2023.
Marinship Channel (Richardson Bay): Condition survey of November 7, 2022.
Napa River: Condition survey of September 6-11, 2023.
Northship Channel: Condition survey of September 25 - October 18, 2023.
Oakland Inner Harbor: Post Dredge survey of October 16, 2023 to January 1, 2024.
Oakland Inner Harbor (Brooklyn Basin): Condition survey of 15-20 January 2021.
Oakland Outer Harbor: Condition survey of August 23 to October 26, 2023.
Petaluma River (Across-the-Flats): Condition survey of December 20-21, 2023.
Petaluma River (Main Channel): Condition survey of December 20-21, 2023.
Petaluma River (Extended Channel): Condition survey of November 2-4, 2022.
Pinole Shoal Channel: Condition survey of October 25 to November 2, 2023
Redwood City Harbor: Condition and progress surveys of September 26, December 1, and December 30, 2023.
Richmond Inner Harbor: Condition survey of November 3, 2023.
Richmond Inner Harbor (Santa Fe Channel): Condition survey of November 28, 2022.
Richmond Outer Harbor (Longwharf): Condition survey of November 6, 2023.
Richmond Outer Harbor (Southampton Shoal): Condition survey of November 6, 2023.
Sacramento River Deep Water Ship Channel: Condition survey of January 5-9, 2024.
San Bruno Shoal: Condition survey of September 28, 2023.
San Francisco Main Ship Channel: Condition survey of July 27–August 9, 2023.
San Leandro Marina (and Channel): Condition survey of March 30 and April 1, 2015.
San Rafael (Across-the-Flats): Condition survey of August 17, 2023.
San Rafael (Creek): Condition survey of August 17, 2023.
Stockton Ship Channel: Condition survey of December 15-19, 2023.
Suisun Bay Channel: Condition survey of August 28-29, 2023.
Suisun Bay Channel (Bullshead Reach): Condition survey of August 28-29, 2023.
Suisun Bay Channel (New York Slough): Condition survey of August 28-29, 2023.
Suisun Slough: Condition survey of November 30 and December 1, 2022.

Disposal Site Condition Surveys:

SF-08 (Main Ship Channel Disposal Site): Condition survey of May 26, 2023.
SF-09 (Carquinez): Condition survey of July 6, 2023.
SF-10 (San Pablo Bay): Condition survey of November 8, 2023.
SF-11 (Alcatraz Island): Condition survey of January 25, 2024.
SF-16 (Suisun Bay Disposal Site): Condition survey of December 7, 2023.
SF-17 (Ocean Beach Disposal Site): Condition survey of May 26, 2023.

Requested Surveys:

Pre/Post-dredge and condition surveys have been completed for all of San Francisco District's in-bay projects dredged in FY22.

Channel Condition Report (CCR):

Attached is the Channel Condition Report (CCR) for all Corps maintained channels dated **2 FEB 2024**. The CCR is generated by the USACE eHydro database and is not a substitute for the controlling depths set by the SF Bar Pilots. Please see the respective bathymetric plots for locations (highlighted in red) of the shoaliest soundings reports in the CCR.

FY 2023 O&M DREDGING PLAN*

Project	Current Bid Open	Current Award	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	Estimated CY	Dredge Type	Placement Site																								
			FY2023						FY2024																																
CONTRACT CLAMSHELL OR CUTTERHEAD PIPELINE																																									
Richmond Inner Harbor	26-MAY (A)	8-JUN (A)			■	◆	■	▨	■	▨					475 Kcy	Clam Shell	BU																								
Oakland Harbor	2-JUN (A)	16-JUN (A)			■	◆	■	▨	▨						725 Kcy	Clam Shell	BU																								
San Joaquin River (Port of Stockton)	28-JUN (A)	7-JUL (A)				■	◆	■	▨	▨					140 Kcy	Cutterhead or Clamshell	Various Upland																								
Sacramento River (30 Foot Project)	7-JUL (A)	21-JUL (A)				■	◆	■	▨	■					35 Kcy	Cutterhead or Clamshell	Various Upland																								
Suisun Bay Channel	24-JUL (A)	4-AUG (A)				■	◆	■	▨	■					10 Kcy 86.5 Kcy	Clam Shell	BU SF-16																								
Redwood City Harbor	16-OCT (A)	27-OCT (A)				■	◆	■	■	◆	■	▨	■		300 Kcy 100 Kcy	Clam Shell	1122 Pilot SF-11 SF-DODS																								
MARAD SBRF Dredging	14-AUG (A)	21-AUG (A)				■	◆	■	▨	■					90 Kcy	Clam Shell	BU																								
WEST COAST HOPPER CONTRACT																																									
Humboldt Bar & Entrance Channels	3-Apr	13-Apr				■		Deleted from WCH Contract								300 Kcy	WCHC (Portland)	HOODS																							
GOVERNMENT HOPPER																																									
Humboldt Interior Channels	N/A	N/A		YAQ	■										150 Kcy	Govt Hopper	HOODS																								
Humboldt Bar & Entrance Channels	N/A	N/A		ESS	■										600 Kcy	Govt Hopper	HOODS																								
SF Main Ship Channel	N/A	N/A			ESS	■	■								350 Kcy	Govt Hopper	OBDS SF-8																								
Pinole Shoal	N/A	N/A				ESS	■								250 Kcy	Govt Hopper	SF-10 SF-11																								
<table style="width: 100%; border: none;"> <tr> <td style="width: 15%;"></td> <td style="width: 25%;">Solicitation</td> <td style="width: 15%;"></td> <td style="width: 25%;">WCH West Coast Hopper Contract</td> <td style="width: 20%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td></td> <td>Bid Opening</td> <td></td> <td>Environmental Window</td> <td></td> <td></td> </tr> <tr> <td></td> <td>Contract Award</td> <td></td> <td>YAQ Gov't Dredge Yaquina</td> <td></td> <td></td> </tr> <tr> <td></td> <td>Hopper Dredging</td> <td></td> <td>ESS Gov't Dredge Essayons</td> <td></td> <td></td> </tr> </table>																			Solicitation		WCH West Coast Hopper Contract				Bid Opening		Environmental Window				Contract Award		YAQ Gov't Dredge Yaquina				Hopper Dredging		ESS Gov't Dredge Essayons		
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	Hopper Dredging		ESS Gov't Dredge Essayons																																						

* Program execution is based on the FY23 President's Budget, FY23 Workplan, and carryover funds.

FY 2024 O&M DREDGING PLAN (DRAFT)*

Project	Target Solicitation	Target Bid Open	Target Award	FY2024					FY2025					Estimated CY	Dredge Type	Placement Site		
				FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV				DEC	JAN
CONTRACT CLAMSHELL OR CUTTERHEAD PIPELINE																		
Oakland Harbor	12-Mar	12-Apr	26-Apr		■	◆	■	▨	▨	▨	▨	▨	▨	▨	▨	700kcy	Clam Shell	BU
Moss Landing Harbor (Tier III)	26-Mar	25-Apr	9-May			■	◆	▨	■	▨	■	■	■	■	■	85kcy	Cutterhead	SF-12 Elkhorn SI
San Joaquin River (Port of Stockton)	2-Apr	2-May	16-May			■	◆	▨	■	▨	▨	▨	▨	▨	▨	175kcy	Cutterhead or Clamshell	Various Upland
Sacramento River (30 Foot Project)	9-Apr	9-May	23-May			■	◆	▨	■	▨	▨	▨	▨	▨	▨	150kcy	Cutterhead or Clamshell	Various Upland
MOTCO Debris Relocation	22-Apr	22-May	5-Jun			■	◆	▨	■	▨	▨	▨	▨	▨	▨	# tons	Excavator	N/A
Suisun Bay Channel	29-Apr	29-May	12-Jun			■	◆	▨	■	▨	▨	▨	▨	▨	▨	125kcy	Clam Shell	BU SF-16
Redwood City Harbor	3-Jun	3-Jul	17-Jul	■	▨	▨	▨	▨	■	◆	■	▨	▨	▨	▨	400kcy	Clam Shell	BU
Petaluma River (Tier III)	21-Jun	22-Jul	5-Aug						■	◆	■	▨	▨	▨	▨	200kcy	Cutterhead or Clamshell	Upland SF-10
Crescent City Harbor (Tier III)	10-Jul	9-Aug	23-Aug						■	◆	■	▨	▨	▨	▨	75kcy	Clam Shell	HOODS
Richmond Inner Harbor (Tier III)	3-Sep	3-Oct	17-Oct	▨												350kcy	Clam Shell	BU
WEST COAST HOPPER CONTRACT																		
Humboldt Bar & Entrance Channels	mid-Jan	mid-Feb	end-Feb						■							900kcy	WCHC (Portland)	HOODS
GOVERNMENT HOPPER																		
Humboldt Interior Channels	N/A	N/A	N/A						■	YAQ						150kcy	Govt Hopper	HOODS
Humboldt Bar & Entrance Channels	N/A	N/A	N/A						■	ESS						0kcy	Govt Hopper	HOODS
SF Main Ship Channel	N/A	N/A	N/A						■	ESS						350kcy	Govt Hopper	OBDS SF-8
Richmond Outer Harbor (Tier III)	N/A	N/A	N/A						■	ESS						250kcy	Govt Hopper	SF-10 SF-11
Pinole Shoal	N/A	N/A	N/A			D	E	F	E	R	R	E	D			250kcy	Govt Hopper	SF-10 SF-11

	Solicitation		Solicitation Bid Opening		Contract Award		Hopper Dredging		Hopper Dredging		WCH West Coast Hopper Contract		Environmental Window		Mobilization						
	Bid Opening		Contract Award		Hopper Dredging	YAQ	Gov't Dredge Yaquina	ESS	Gov't Dredge Essayons	D E F E R R E D	Physical Dredging										

* Program execution is based on FY24 President's Budget plus FY23 carryover. Date of Last Update: 2/5/2024

**REPORT OF CHANNEL CONDITIONS
400 FEET WIDE OR GREATER**

To: Navigation Interests		From: US Army Corps of Engineers San Francisco District 450 Golden Gate Ave San Francisco, CA 94102						
RIVER/HARBOR NAME AND STATE SUISUN SLOUGH CHANNEL CALIFORNIA					MINIMUM DEPTHS IN EACH 1/4 WIDTH OF CHANNEL ENTERING FROM SEAWARD			
NAME OF CHANNEL	DATE OF SURVEY	AUTHORIZED PROJECT			LEFT OUTSIDE QUARTER (feet)	LEFT INSIDE QUARTER (feet)	RIGHT INSIDE QUARTER (feet)	RIGHT OUTSIDE QUARTER (feet)
		WIDTH (feet)	LENGTH (miles)	DEPTH (feet)				
San Francisco Mainship San Francisco Mainship	08-09-2023	2000	4.96	55	50.1	55.1	55.2	53.9
Redwood City Harbor Redwood City Harbor	12-13-2023	300 943	3.94	30	27.3	28.6	27.3	21.2
Richmond Inner Harbor Entrance Channel	06-15-2023	809 1021	0.96	38	35.9	36.5	36.4	36.2
Richmond Inner Harbor Approach Channel	11-03-2023	809 1201	3.09	38	34.3	34.4	35.2	33.6
Richmond Inner Harbor Santa Fe Channel	11-28-2022	195 509	0.37	38	25.6	27.4	27.1	21.2
Richmond Outer Harbor Richmond Outer Harbor	11-06-2023	600 1291	3.25	45	40.2	44.1	44.6	42.8
Richmond Outer Harbor Longwharf Turning Basin	11-06-2023	2188 5598	0.88	45	28.2	No Data	No Data	No Data
San Rafael ATF Across the Flats	08-17-2023	100	2.25	8	6.0	6.1	6.6	5.5
San Rafael River Inner Canal Channel	08-17-2023	60 160	1.55	6	4.4	4.9	4.7	5.0
Petaluma River Main Channel	08-24-2023	100 361	4.06	8	3.4	1.4	1.2	3.7
Petaluma River ATF Across the Flats	12-15-2020	200 206	5.68	8	6.3	8.8	8.3	8.2
Mare Island Strait Causeway to Asylum Slough	09-06-2023	75 245	3.19	15	1.8	9.1	8.9	7.1
Napa River Asylum Slough to Napa City	09-06-2023	102 183	9.92	10	4.3	5.8	5.5	1.0
Brooklyn Basin Brooklyn Basin	01-15-2021	147 1501	0.94	35	6.2	8.0	17.3	7.2
Brooklyn Basin Brooklyn Basin	01-15-2021	250 1010	2.74	35	8.4	3.9	3.0	3.0
Oakland Harbor Oakland Inner Harbor	10-16-2023	544 1997	4.62	50	48.2	50.0	50.0	48.7

REPORT OF CHANNEL CONDITIONS
400 FEET WIDE OR GREATER

To: Navigation Interests		From: US Army Corps of Engineers San Francisco District 450 Golden Gate Ave San Francisco, CA 94102						
RIVER/HARBOR NAME AND STATE SUISUN SLOUGH CHANNEL CALIFORNIA					MINIMUM DEPTHS IN EACH 1/4 WIDTH OF CHANNEL ENTERING FROM SEAWARD			
NAME OF CHANNEL	DATE OF SURVEY	AUTHORIZED PROJECT			LEFT OUTSIDE QUARTER (feet)	LEFT INSIDE QUARTER (feet)	RIGHT INSIDE QUARTER (feet)	RIGHT OUTSIDE QUARTER (feet)
		WIDTH (feet)	LENGTH (miles)	DEPTH (feet)				
Oakland Harbor Oakland Outer Channel	08-23-2023	296 1761		50	49.3	50.0	50.0	50.0
Humboldt Bay Bar and Entrance Channel	01-12-2024	500 2113	2.60	48	29.7	36.6	37.2	30.1
Humboldt Bay Eureka Channel	01-12-2024	400 416	1.69	26	2.2	3.7	11.6	7.5
Humboldt Bay Fields Landing Channel	01-12-2024	300 770	2.35	26	12.4	26.7	25.5	20.7
Humboldt Bay North Bay Channel	01-12-2024	400 657	3.04	38	31.3	37.1	35.4	17.2
Humboldt Bay Samoa Channel	01-12-2024	400 1000	1.83	38	32.8	35.1	34.4	17.5
Pinole Shoal Channel Pinole Shoal Channel	10-25-2023	600 1644	10.40	35	26.9	36.4	35.6	33.4
Suisun Bay Channel Suisun Bay (0+00 to 150+00)	10-11-2023	300	2.84	35	37.2	36.7	37.1	36.0
Suisun Bay Channel Suisun Bay (150+00 to 733+45)	10-11-2023	300	11.10	35	34.1	35.0	35.0	35.0
Suisun Bay Channel Anchorage Suisun Bay Channel Anchorage	01-17-2023	400	0.90	35	34.4	No Data	No Data	No Data
New York Slough New York Slough (0+00 to 232+03)	11-28-2023	400 411	4.42	35	35.0	35.1	35.3	35.1
Suisun Slough Channel Suisun Slough Channel	11-30-2022	200 250	15.85	8	5.9	5.9	5.9	6.1

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RIVER/HARBOR NAME AND STATE SAN LEANDRO CALIFORNIA					MINIMUM DEPTHS IN EACH 1/4 WIDTH OF CHANNEL ENTERING FROM SEAWARD			
NAME OF CHANNEL	DATE OF SURVEY	AUTHORIZED PROJECT			LEFT OUTSIDE QUARTER (feet)	LEFT INSIDE QUARTER (feet)	RIGHT INSIDE QUARTER (feet)	RIGHT OUTSIDE QUARTER (feet)
		WIDTH (feet)	LENGTH (miles)	DEPTH (feet)				
San Bruno Shoal San Bruno Shoal	09-28-2023	500	5.66	30	28.9	31.0	31.3	30.1
Richardson Bay/Marinship Richardson Bay/Marinship	11-07-2022	300 1069	2.11	20	4.7	5.2	5.3	4.8
Islais Creek Islais Creek	07-21-2023	500 1424	1.71	40	30.9	36.8	37.1	23.9
Alameda Naval Air Alameda Naval Air	12-08-2023	1000 4178	2.90	37	10.4	11.1	17.2	16.2
Mare Island Strait Mare Island Strait	11-08-2023	400 606	3.37	30	27.8	29.8	32.6	32.8
Larkspur Channel Larkspur Channel	02-24-2023	231 542	2.37	13	11.9	12.5	12.7	12.0
Northship Channel Northship Channel	09-25-2023	3576 4769	5.97	45	23.5	37.3	36.7	34.8
Berkeley Marina Berkeley Marina	12-22-2023	100 142	1.36	15	3.2	3.4	3.8	3.8
Bodega Bay Bodega Bay	10-20-2023	100 400	3.46	12	3.2	9.4	9.3	5.4
Moss Landing Moss Landing	01-24-2023	120 405	0.98	15	8.6	7.4	7.6	8.5
Noyo River Entrance Channel	03-16-2023	97 150	0.67	10	7.2	9.5	9.8	8.0
Noyo River Channel	03-16-2023	97 150	0.67	10	7.3	9.4	9.0	4.8
Crescent City Entrance Channel	01-16-2024	200 320	0.42	20	16.4	16.9	15.6	14.9
Crescent City Inner Harbor Basin Channel	01-16-2024	200 300	0.39	15	14.4	14.7	14.3	12.5
Crescent City Marina Access Channel	01-16-2024	228 170	0.22	15	11.2	11.0	10.6	8.5
SAN LEANDRO MARINA Approach Channel	03-30-2015	200	3.50	7	2.8	3.6	3.4	3.2

REPORT OF CHANNEL CONDITIONS
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RIVER/HARBOR NAME AND STATE SAN LEANDRO CALIFORNIA					MINIMUM DEPTHS IN EACH 1/4 WIDTH OF CHANNEL ENTERING FROM SEAWARD			
NAME OF CHANNEL	DATE OF SURVEY	AUTHORIZED PROJECT			LEFT OUTSIDE QUARTER (feet)	LEFT INSIDE QUARTER (feet)	RIGHT INSIDE QUARTER (feet)	RIGHT OUTSIDE QUARTER (feet)
		WIDTH (feet)	LENGTH (miles)	DEPTH (feet)				
SAN LEANDRO MARINA North Arm	03-15-2010	170	0.30	7	2.7	3.6	3.8	3.9
SAN LEANDRO MARINA South Arm	03-15-2010	150	0.30	7	3.3	4.7	4.6	4.8