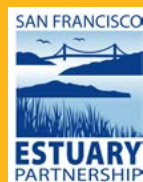




PUMPOUT REPORT 2018

**California Clean Vessel Act
Pumpout Performance Report**

**San Francisco Estuary Partnership
The Bay Foundation**



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Discharging sewage overboard creates environmental and human health problems, especially in a state with more than four million recreational boaters. To reduce the negative impacts of discharging sewage overboard, all boaters are encouraged to use sewage management facilities, including pumpout stations, dump stations, and mobile pumpout services. Since 2008, the San Francisco Estuary Partnership and The Bay Foundation have monitored public sewage pumpout stations throughout the state, with funding from California State Parks Division of Boating and Waterways through the Clean Vessel Act grant program. This Pumpout Report highlights findings on the condition and operational status of pumpout stations in 2018.

→ KEY PARTNERS

NORTHERN CALIFORNIA

San Francisco Estuary Partnership (SFEP), a National Estuary Program, monitors 83 pumpout stations throughout the San Francisco Bay and Delta regions.

www.sfestuary.org/boating / (415) 778-6682

SOUTHERN CALIFORNIA

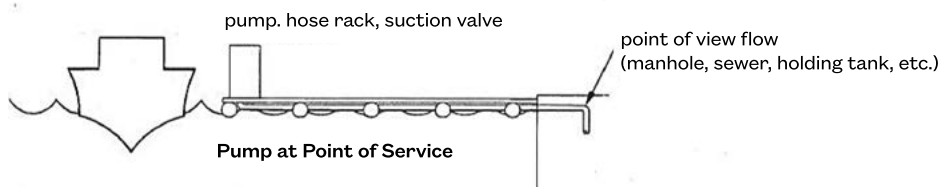
The Bay Foundation (TBF), a 501(c)3 non-profit organization, monitors 71 pumpout stations from Santa Barbara County to San Diego County.

www.santamonibay.org / (888) 301-2527

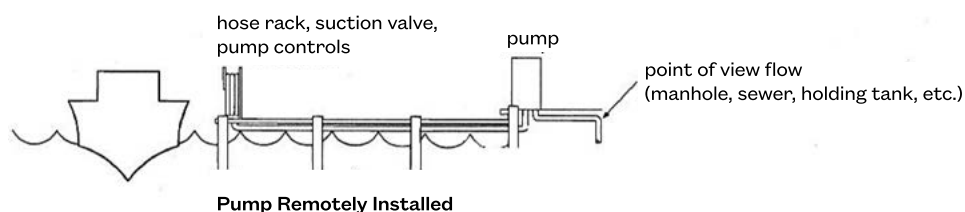
Funding for this project is provided by a grant from California State Parks Division of Boating and Waterways (DBW) through the federal Clean Vessel Act (CVA) grant program. This program provides grants to both public and private boating facilities for up to 75 percent of the construction, renovation, operation, and maintenance of pumpout and dump stations to service recreational vessels. Funding comes from the Sport Fish Restoration and Boating Trust Fund, administered federally by the U.S. Fish and Wildlife Service. For more information, visit www.dbw.parks.ca.gov, call (888) 326-2822, or contact: California State Parks Division of Boating and Waterways One Capitol Mall, Suite 500 Sacramento, CA 95814

STATIONARY PUMPOUT

Pumpout systems are typically found as a stand-alone feature within a marina. They are located dockside where there is sufficient space for a boater to dock and not affect others around them. There are several configurations for these systems:



This diagram shows the pump system (hose station and pump) as one unit, at the point of service.



This diagram shows the pump as two separate entities. The hose rack is at the point of service while the pump is set apart, either at the end of the dock or it can be located landside.



This diagram shows a multiple hose station layout. A single pumpout unit can be plumbed to multiple hose stations, and equipped with a Remote Service System as shown in the diagram. There are limitations to multiple hose station configurations.

IN-SLIP PUMPOUT

Another option available to marinas includes in-slip pumpout systems. There are several variations to this type of system. However, this system allows a boater to empty the sewage holding tank without leaving the slip. Variations include:



In-slip hose cart at West Point Harbor.
Photo by Adrien Baudrimont

Option 1: The marina installs a centralized pumpout station with multiple pumpout hydrants located throughout the marina, and spaced (approximately 40 feet to 60 feet apart) so that a portable hose can reach from the hydrant, located on the dock, to each nearby vessel. The pumpout hose is mounted on a mobile cart. The cart with the hose is wheeled to each boat as it needs pumpout servicing. The hose is unreeled and connected to both the hydrant and boat to be serviced. Wireless transmitters are available that allow convenient on-off operation without the need for someone to run back to the pump each time it needs activating.

Option 2: The marina installs multiple pumpout hydrants throughout the marina, and spaced so that a portable hose can reach from the hydrant to each nearby vessel. A mobile cart containing both a sewage pump and hose is then wheeled to each boat as it needs pumpout servicing. The hose is unreeled and connected to both the hydrant and boat to be serviced. The sewage pump is activated and uses the hydrant and piping system to discharge the boats holding tank contents.



In-slip pumpout tank at Oyster Cover Marina.
Photo by Adrien Baudrimont

Option 3: The marina uses a mobile cart that is equipped with a sewage pumpout, hose, and small holding tank (typically 20 to 40 gallons). This cart is located on the docks and is wheeled to each boat as it needs pumpout servicing. The cart, now loaded with sewage is then wheeled to a hydrant located somewhere on the docks and the pump is now used to discharge the sewage landside for disposal and treatment.

MOBILE PUMPOUT

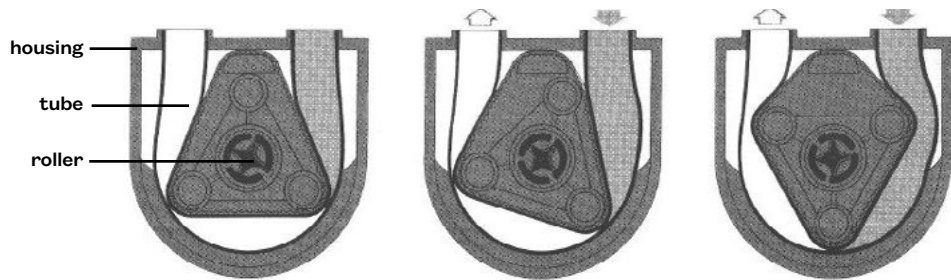
In many areas of California, boaters can have their boat sewage removed by a [mobile service](#). Mobile service vessels are retrofitted to hold a large quantity of sewage and can typically pump out dozens of vessels without having to discharge into a dockside pumpout system. This service can be managed by a contractor or provided by the marina itself, or simply allowed on premises as a boater solicited service.

There are benefits and drawbacks to each of these setups, but the benefits of mobile pumpouts are very clear. One of the largest obstacles boaters cite when asked about their sewage discharge is convenience. Mobile pumpouts are a great solution as they can be arranged when boaters are not at the marina. This hands free option is relatively inexpensive and can be a very attractive addition to a marina's compendium of services.

There are three primary types of pumps used in a sewage pumpout system.

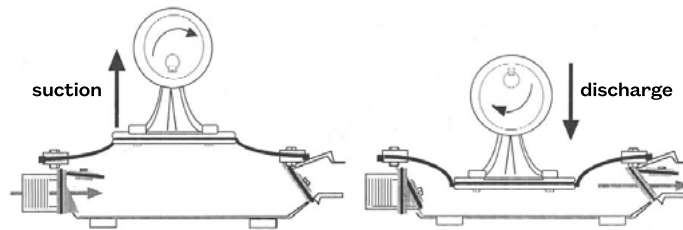
PERISTALTIC

Peristaltic pumps work by displacement, alternating compression and relaxation on a tube, drawing contents into the tube and creating suction. The tube is located in an enclosed housing and is compressed by a roller.



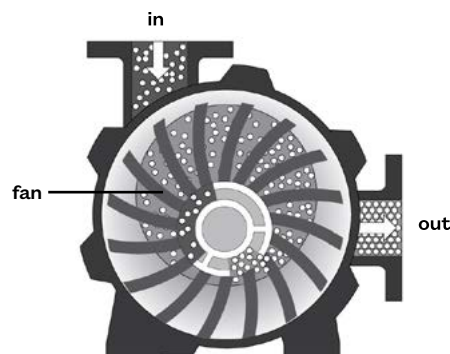
DIAPHRAGM

Diaphragm pumps work by displacement. They use the backward and forward motion of a diaphragm (or membrane) to fill and empty a chamber with the contents being pumped, creating a suction. This pump works like a plunger.



VACUUM

Vacuum pumps work by creating a pressure difference, usually with the use of a fan. The fan forces contents forward increasing pressure in front and decreasing pressure behind the fan, this creates suction. A vacuum (which creates a pressure difference) is what allows humans to drink through a straw.



→ MAINTENANCE RECOMMENDATIONS



Preventative maintenance is the best solution for avoiding problems. Marina operators should inspect the pump and pump enclosure on a weekly basis and, when possible, daily. These inspections should check for leaks, cracks, unusual wear, and if there is missing equipment.

HOSE

Look for damage that could affect performance of the system, like tears or a collapsed hose wall. To keep repair costs down, sections of hose can be repaired rather than replacing the entire hose; however the number of repairs on one hose should be limited as to not impede optimum operation.



SIGHT GLASS

Look for cracks and make sure the movement of effluent is visible through the sight glass.



NOZZLE

Look for signs of wear, including cracks and tears. Ensure that the tip has not been cut off and there is a backflow flap in place.



BALL VALVE

Check that handles are not broken and can be easily rotated.



HOOR COUNTER

Ensure that the hour counter is not broken and functions properly.



SIGNAGE

Ensure there is adequate signage and it is legible. Signage should include pumpout symbol, funding credit, instructions, hours of operation, pumpout cost, contact number for problems, and on/ off buttons.

UNUSUAL NOISES

Turn the pump on and listen for unusual noises including squeaking, rattling, and grinding, also listen for air leaks, specifically around threaded connections.

Photo credit:

1. Victoria Gambale, 2. The Bay Foundation,
3. J. Harvell, 4. Michelle Stafffield,
5. Victoria Gambale, 6. Carrie Baldwin

→ WHY MONITOR PUMPOUT STATIONS?

The goal of pumpout station monitoring is to promote a sense of accountability for condition and operational status of pumpout stations, promote useful pollution prevention amenities for boaters, and decrease the amount of sewage discharged into waterways.

Pumpout station monitoring allows San Francisco Estuary Partnership and The Bay Foundation to:

- ensure stationary pumpout equipment is operational for use at all times.
- track the general condition and evaluate performance of pumpout stations.
- assist facilities that do not meet Division of Boating and Waterways grant requirements by offering a reliable source of technical assistance and resources.
- promote the installation and proper maintenance of pumpout stations.
- maintain contact with recipients of DBW's grant.

→ MONITORING RANGE & FREQUENCY

SOUTHERN CALIFORNIA

The Bay Foundation monitors 71 public sewage pumpout stations in 13 Southern California harbors from Santa Barbara to San Diego.

NORTHERN CALIFORNIA

San Francisco Estuary Partnership monitors 83 public pumpout stations in 66 Northern California marinas throughout the San Francisco Bay and Delta.

All units are monitored on a quarterly basis in the months of February, May, August, and November. Since monitoring is only conducted four times a year, the analysis presented in this report is a window into how the unit operates based on this limited data.

→ MONITORING PARAMETERS



Pumpout Nav app is used to standardize data collection, improve efficiency, and reduce error.

San Francisco Estuary Partnership and The Bay Foundation note presence or absence of the following signage:

- Pumpout symbol
- Funding credit
- Instructions for pumpout operation
- Hours of operation
- Pumpout usage cost
- Contact number for problems
- On/off buttons

Signage in Balboa Yacht Basin
Photo by Carrie Baldwin

Condition of parts are rated.

0 = absent, 1 = needs repair, 2 = worn, 3 = excellent

Specific parts rated by San Francisco Estuary Partnership
and The Bay Foundation

Part

Hose

Nozzle

Sight glass

Pedestal

On/ off buttons

Motor unit

Ball valve

Nozzle's backflow flap



Hour counter
Photo by The Bay Foundation

Each motor unit is equipped with an hour counter meter. During site visits, a reading from the meter is recorded. The meter is activated by the motor once it is engaged and counts the elapsed time that the motor runs. The time logged by the meter gives insight to how often the unit is being used. However, due to the immense variation in pumpout type, process technique, and the use of “delay” switches, determining an accurate quantity of sewage pumped from the hour counter is not feasible.

Vacuum pressure is an indication of how well the unit operates and is measured during each monitoring event, in inches of mercury (inHg). By attaching a vacuum gauge to the end of a pumpout hose or nozzle, a reading is taken after a one minute adjustment period has elapsed. Vacuum pressure varies from 0 to 30 inHg. According to equipment manufacturers the optimum vacuum pressure is 22 inHg.



Vacuum pressure
Photo by Victoria Gambale

Vacuum time is another indication of how well the unit operates. During each monitoring event, this is measured by timing how long it takes a pumpout to evacuate five gallons of water. The optimum vacuum time is less than 10 seconds.



Vacuum time
Photo by Grace Lee



Dye tablet dissolving in 5 gallon bucket of water
Photo by Georgia Tunioli

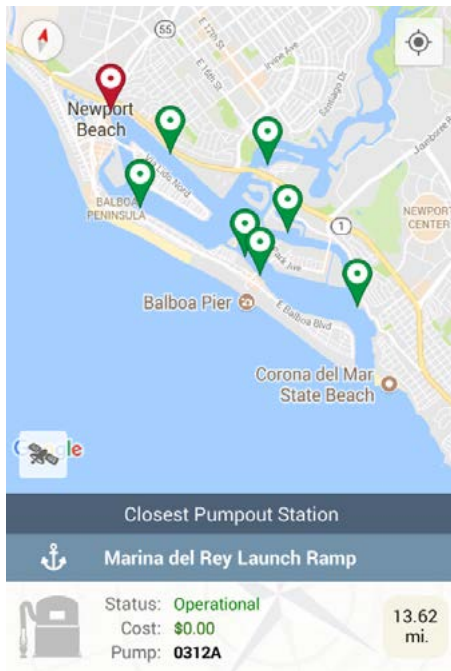
As a courtesy San Francisco Estuary Partnership and The Bay Foundation now offer complementary dye tablet testing. This test can help identify leaks in the plumbing of a sewage pumpout system. This is a courtesy test offered to facility managers, it is not mandated and is not conducted at each unit. For these reasons the results of this test are not presented in this report.

Other parameters recorded during site visits include: make and model of pumpout, pump type, approximate distance from pump to hose stand, and any recent developments.

Although vacuum pressure and vacuum time tests are used as an indication of how well a unit works, they are not directly comparable to how quickly the unit will empty sewage from a boat's holding tank. These measurements, along with other data collected, are used collaboratively to determine the overall condition of a pumpout station and offer assistance and recommendations to facility operators when needed.

It is important to San Francisco Estuary Partnership, The Bay Foundation, and California State Parks Division of Boating and Waterways to keep in close contact with facility managers and be available for questions, clarification on monitoring, and be a reliable source for technical assistance. All monitoring results get emailed directly to participating facility managers through the Pumpout Nav app. Additional follow up is initiated via e-mail or phone with the managers if there were issues of concern from the monitoring. The monitoring effort and follow-up allow staff to work collaboratively with facility managers to resolve any problems that may arise.

→ PUMPOUT NAV APP



Pumpout Nav, a free iOS and Android app, is designed for boater use while on-the-go and aboard the vessel. It helps boaters geo-locate sewage pumpout stations closest to their present location. The Pumpout Nav app automatically finds the boater's location, and suggests the closest pumpout stations on a map or as a list. The app displays each facility's operational status, cost, hours, and detailed location within the marina for each unit. It also provides instructions on how to use a pumpout station and information about the environmental risks and applicable regulations regarding sewage discharge.

Pumpout Nav is equipped with a crowdsourcing function that allows any user to flag non-functional pumpouts throughout California. If boaters find a non-operational pumpout, they can report the issue directly through the app, and even submit photos. On the marina side, once a boater reports a problem, the marina manager and the local Clean Vessel Act Program are notified via email. The email alert will let marinas know their pumpout could be down and should be inspected. The local Clean Vessel Act Program staff can now follow up with marinas in real time, offer assistance if applicable, and encourage marina managers to apply for Clean Vessel Act funding to address the issue if needed.

Pumpout Nav also has a monitoring feature that allows San Francisco Estuary Partnership and The Bay Foundation to record monitoring data while in the field. The Pumpout Nav app is used to standardize data collection, improve efficiency, and reduce error. Once the data is entered and submitted through the app an automatic email is sent to the facility manager summarizing the results of that monitoring effort.

Percentage	Description
90-100	Excellent
80-89	Good
70-79	Fair
60-69	Poor
0-59	Very Poor

In order to standardize the analysis throughout the state for direct comparisons, three parameters are used to determine percentages: vacuum pressure, vacuum time, and condition of parts (specifically hose and nozzle). These three parameters are considered equally important and therefore each parameter represents 33.33% of the total percentages.

The vacuum pressure is calculated as a percentage. The reading is divided by 22. I.E. a reading of 21 divided by 22 is 0.9545, which equals 95.45% for vacuum pressure.

Vacuum time is grouped into 5 second increments from 0 to 60 and assigned a number:

0	to < 5	seconds = 12
5	to < 10	seconds = 11
10	to < 15	seconds = 10
15	to < 20	seconds = 9
20	to < 25	seconds = 8
25	to < 30	seconds = 7
30	to < 35	seconds = 6
35	to < 40	seconds = 5
40	to < 45	seconds = 4
45	to < 50	seconds = 3
50	to < 55	seconds = 2
55	to < 60	seconds = 1

The assigned number is divided by 12. I.E. a vacuum time of 9.95 seconds is assigned an 11, divided by 12 is 0.9166, which equals 91.66% for vacuum time.

The condition of parts is calculated as a percentage. The hose and nozzle are rated on a scale of 0 to 3: 0 absent, 1 needs repair, 2 worn, 3 excellent. The two readings are averaged and divided by 3. I.E. if the nozzle was rated as a 2 and the hose rated as a 3, the average is 2.5 divided by 3 is 0.8333, which equals 83.33% for condition of parts.

The three percentages from vacuum pressure, vacuum time, and condition of parts are then averaged together. I.E. the average of the three percentages above is 90.15%. This percentage indicates the likelihood that a boater will have a successful experience at the pump. We will define this concept as “usability percentage” in the tables to follow.

This report analyzes the data from the four monitoring efforts in 2018.

Each section includes a map of the region, table of usability percentages and pump type, and table of monitoring details. Monitoring details include facility information, indication of which unit (if multiple units), unit status, and in some cases, notes. An "Operational" status indicates that the unit was operational and accessible during the four monitoring efforts. If a unit was non-operational or non-accessible during one or more monitoring effort(s), the month of the monitoring effort will be indicated.

In some instances, a unit's analysis is determined based on less than four monitoring efforts or less parameters. In these instances, an asterisk (*) is placed next to the percentage and an explanation is provided under monitoring details.

SANTA BARBARA COUNTY

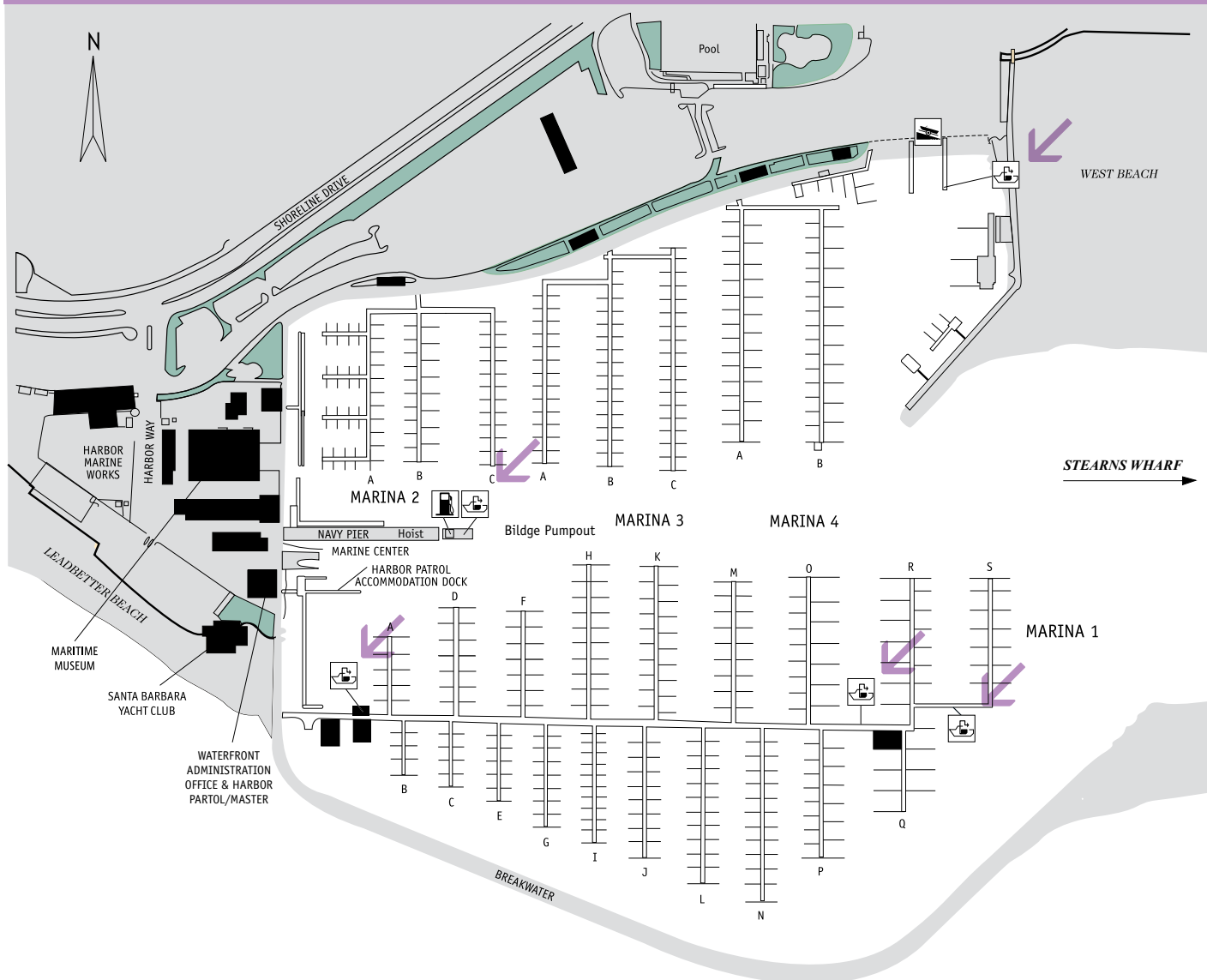


Santa Barbara Harbor features beautiful views from the Harbor Walkway. Photo by Victoria Gambale

SANTA BARBARA COUNTY IS HOME TO ONE HARBOR

SANTA BARBARA — SANTA BARBARA HARBOR

SANTA BARBARA — SANTA BARBARA HARBOR



FACILITY	2018 USABILITY %	PUMP TYPE
Boat Launch	95	Peristaltic
Fuel Dock	88	Peristaltic
Marina One, far/RS finger	90	Peristaltic
Marina One, mid/PQ finger	93	Peristaltic
Marina One, near/west	93	Peristaltic

SANTA BARBARA — **SANTA BARBARA HARBOR**



Photo by Vicki Gambale

→ **MONITORING DETAILS**

FACILITY		STATUS
Boat Launch		Operational
Fuel Dock		Operational
Marina One		
Far		Operational
Mid		Operational
Near		Operational

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

VENTURA COUNTY



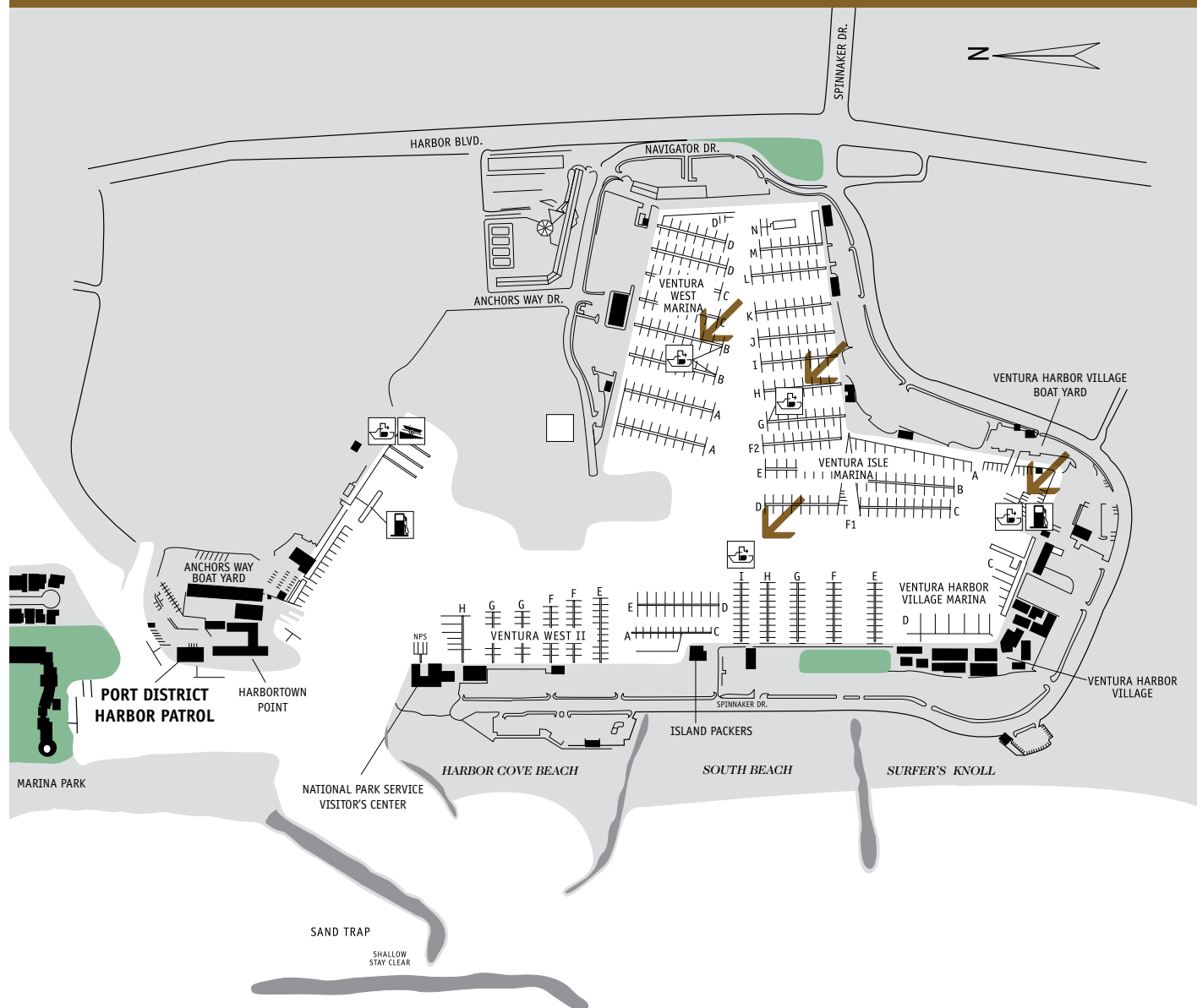
Mountain and harbor view from Ventura Harbor. Photo by Michelle Staffield

VENTURA COUNTY IS HOME TO TWO HARBORS

VENTURA — **VENTURA HARBOR**

VENTURA — **CHANNEL ISLANDS HARBOR**

VENTURA — VENTURA HARBOR



FACILITY	2018 USABILITY %	PUMP TYPE
Island Packers, I dock	74	Peristaltic
Ventura Harbor Marine Fuel, far	95	Diaphragm
Ventura Harbor Marine Fuel, near	91	Diaphragm
Ventura Isle Marina, G dock	90	Diaphragm
Ventura West Marina, B dock left/east	85	Diaphragm
Ventura West Marina, B dock right/west	85	Diaphragm

VENTURA — VENTURA HARBOR

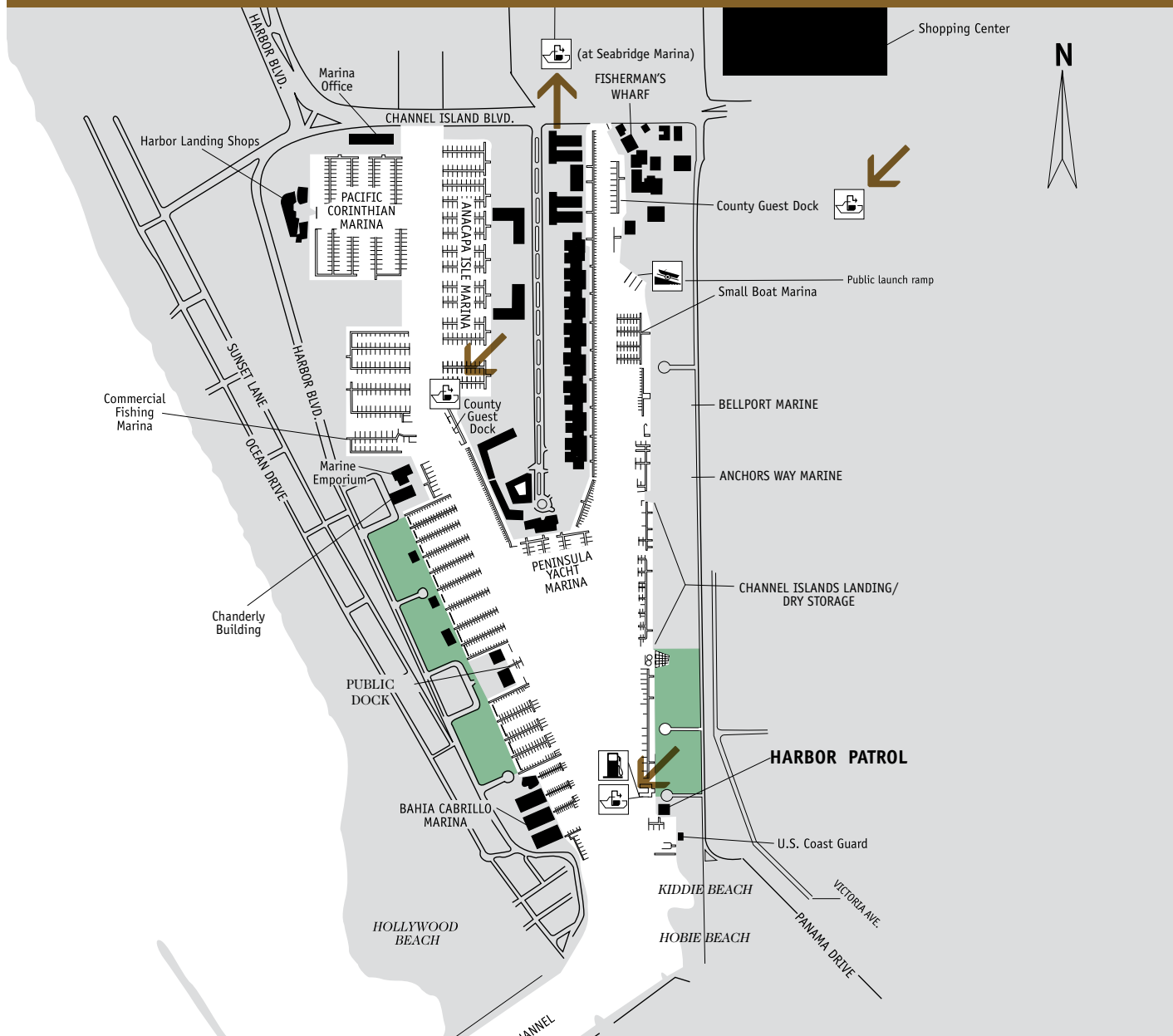


→ MONITORING DETAILS

FACILITY	STATUS
Island Packers	Operational
Ventura Harbor Marine Fuel	
far	Operational
near	Operational
Ventura Isle Marina	Operational
Ventura West Marina	
B Dock Left Unit	Operational
B Dock Right Unit	Operational

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

VENTURA — CHANNEL ISLANDS HARBOR



FACILITY	2018 USABILITY %	PUMP TYPE
East Bank Guest Dock, far	96	Peristaltic
East Bank Guest Dock, near	97	Peristaltic
Harbor Patrol Dock	98	Peristaltic
Peninsula Park, County Guest Dock	90	Peristaltic
Seabridge Marina, F dock	*97	Peristaltic

*See Notes under Monitoring Details.

VENTURA — CHANNEL ISLANDS HARBOR



Photo by Michelle Staffield

→ MONITORING DETAILS

FACILITY		STATUS
East Bank Guest Dock		
Far		Operational
Near		Operational
Harbor Patrol Dock		Operational
Peninsula Park, County Guest Dock		Operational
Seabridge Marina		Non-accessible August
*Notes		Staff could not access unit in February, usability % based on three of four monitoring efforts.

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

LOS ANGELES COUNTY



Sea lions rest on a buoy just outside King Harbor. Photo by John Hollenbeck

LOS ANGELES COUNTY IS HOME TO FIVE HARBORS

LA — **MARINA DEL REY HARBOR**

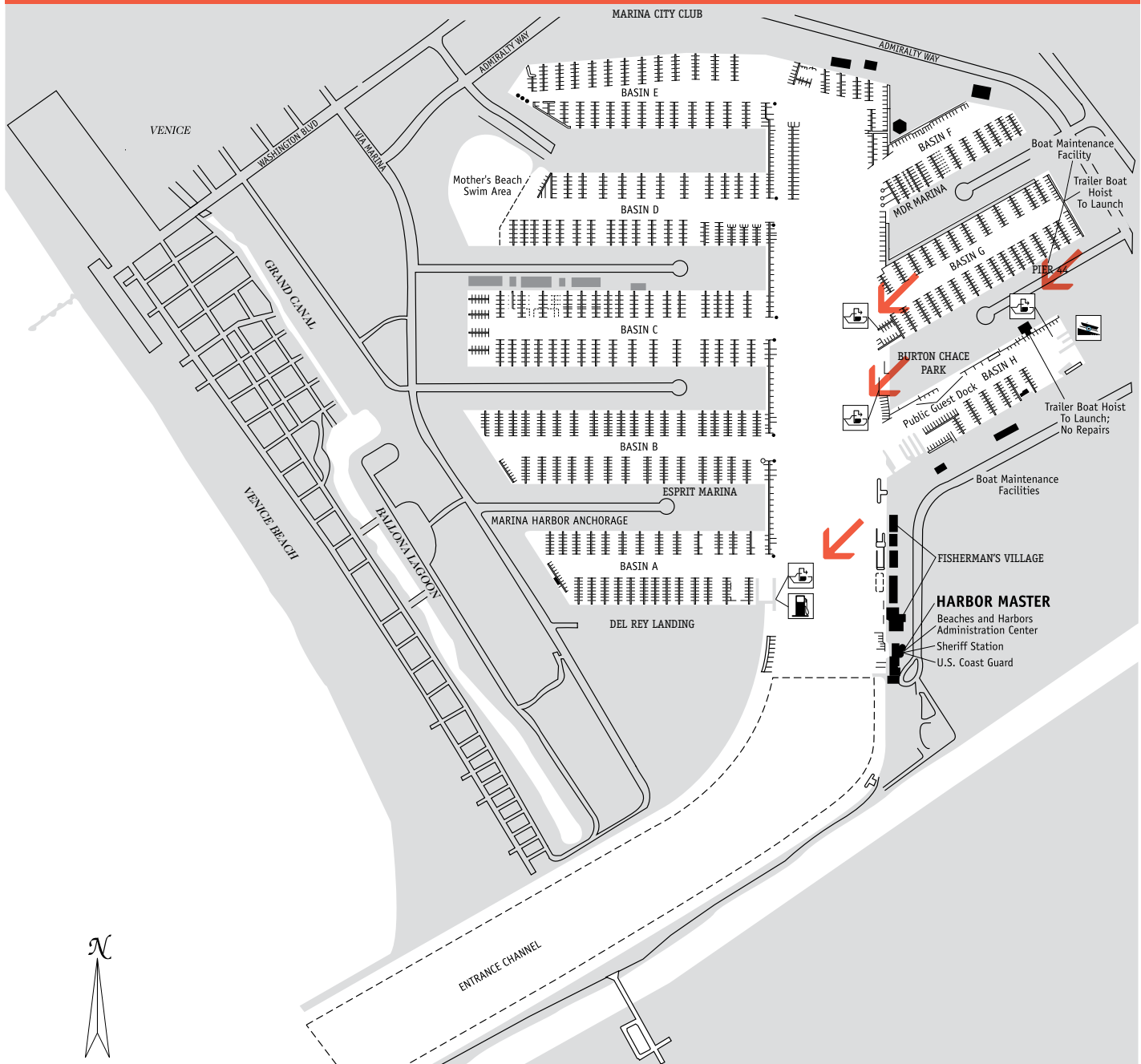
LA — **KING HARBOR**

LA — **PORT OF LOS ANGELES**

LA — **PORT OF LONG BEACH** / Shoreline

LA — **PORT OF LONG BEACH** / Los Alamitos

LA — MARINA DEL REY HARBOR



FACILITY	2018 USABILITY %	PUMP TYPE
Anchorage 47	54	Peristaltic
Burton Chase Park	60	Peristaltic
Del Rey Landing, far	78	Peristaltic
Del Rey Landing, near	70	Peristaltic
Launch Ramp	27	Peristaltic

LA — MARINA DEL REY HARBOR



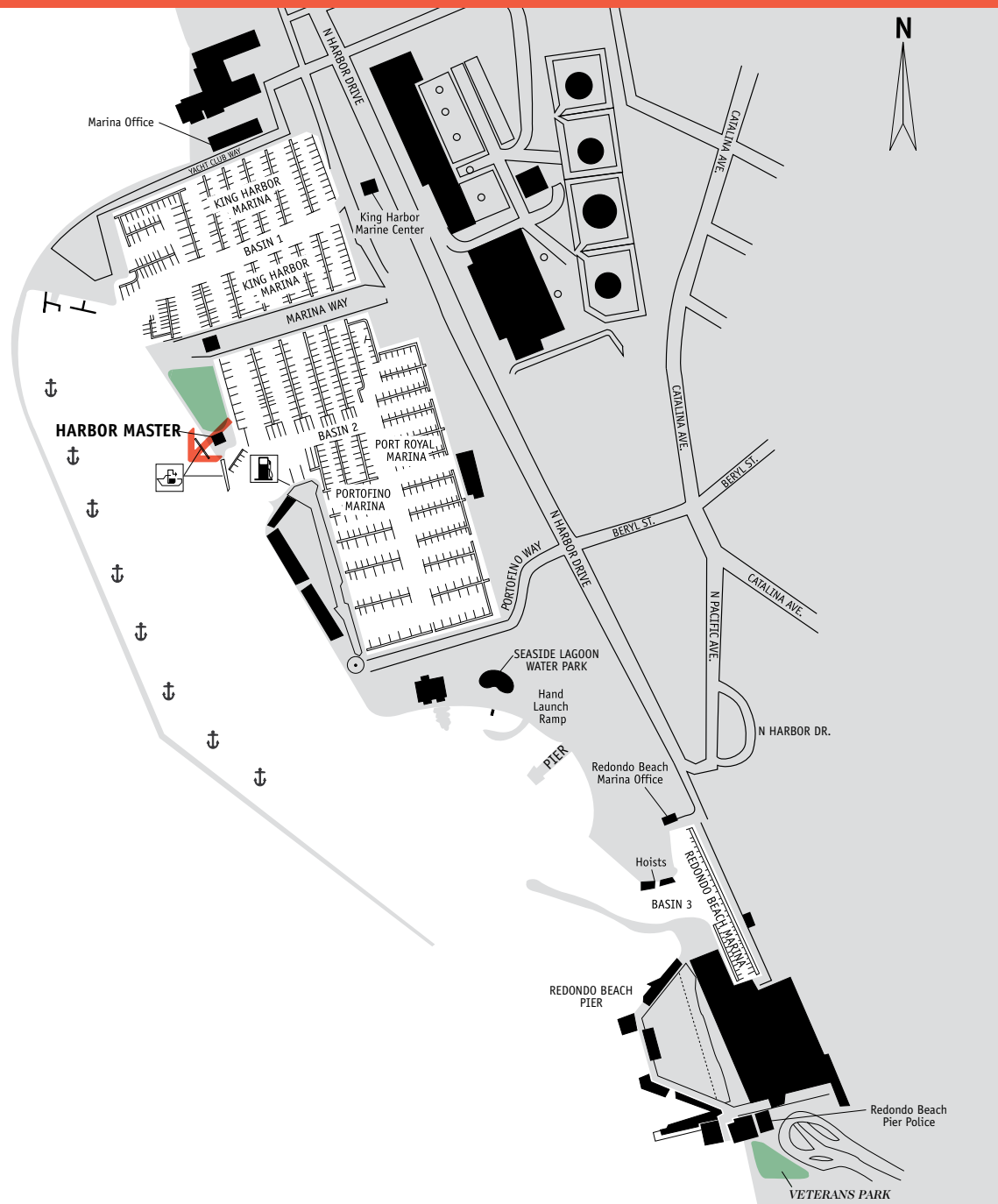
Photo by Thomas Poster

→ MONITORING DETAILS

FACILITY		STATUS
Anchorage 47		Non-operational August, November
Burton Chace Park		Non-operational August, November
Del Rey Landing		
Far		Operational
Near		Non-operational May
Launch Ramp		Non-operational May, August, November

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

LA — KING HARBOR



FACILITY	2018 USABILITY %	PUMP TYPE
Harbor Patrol, small boat dock	96	Peristaltic

LA — KING HARBOR



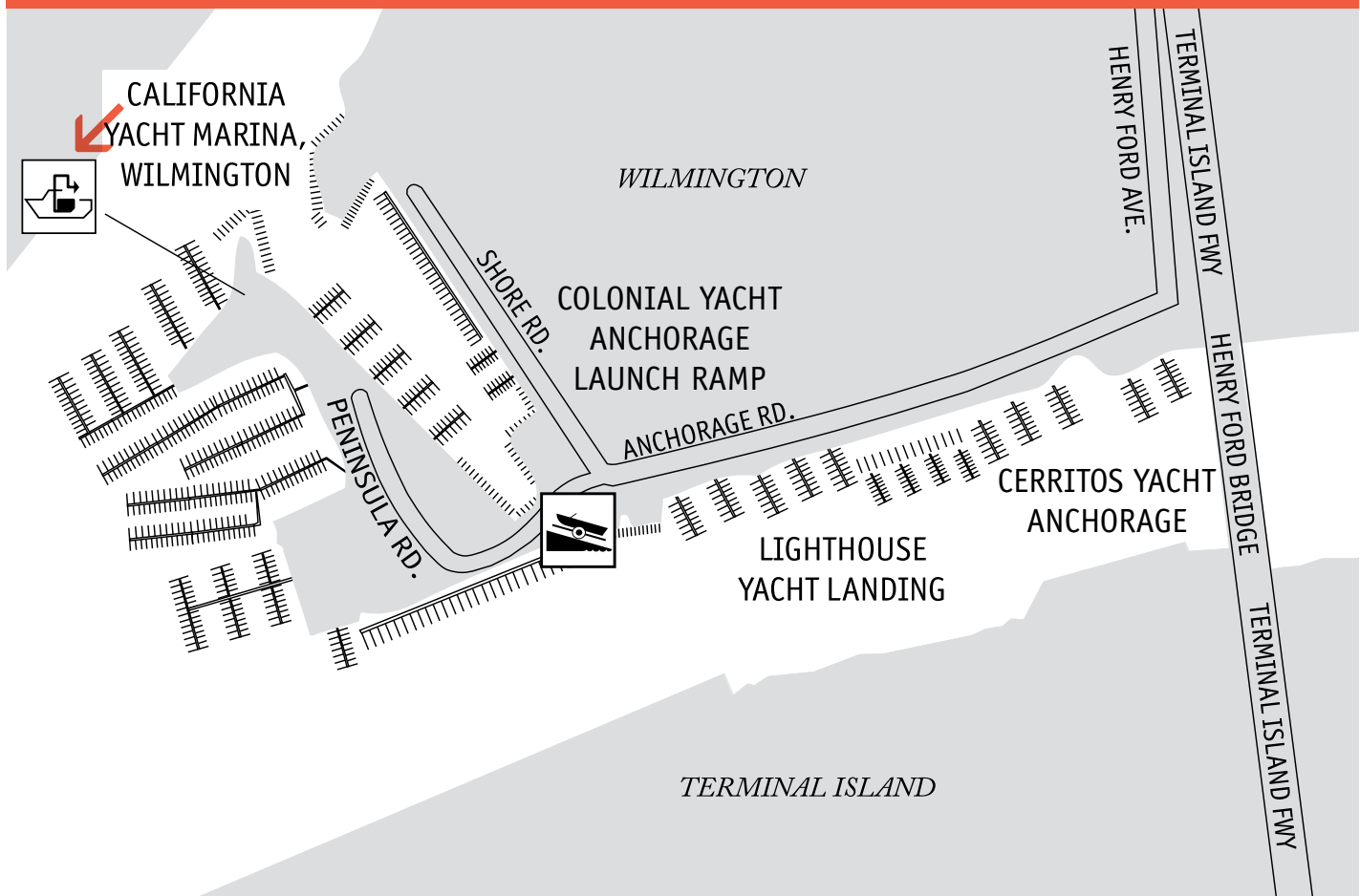
Photo by John Hollenbeck

→ MONITORING DETAILS

FACILITY	STATUS
Harbor Patrol	Operational

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

LA — PORT OF LOS ANGELES



FACILITY	2018 USABILITY %	PUMP TYPE
Cabrillo Way Marina	97	Diaphragm
California Yacht Marina, Wilmington, F dock	*95	Peristaltic

*See Notes under Monitoring Details.

LA — PORT OF LOS ANGELES



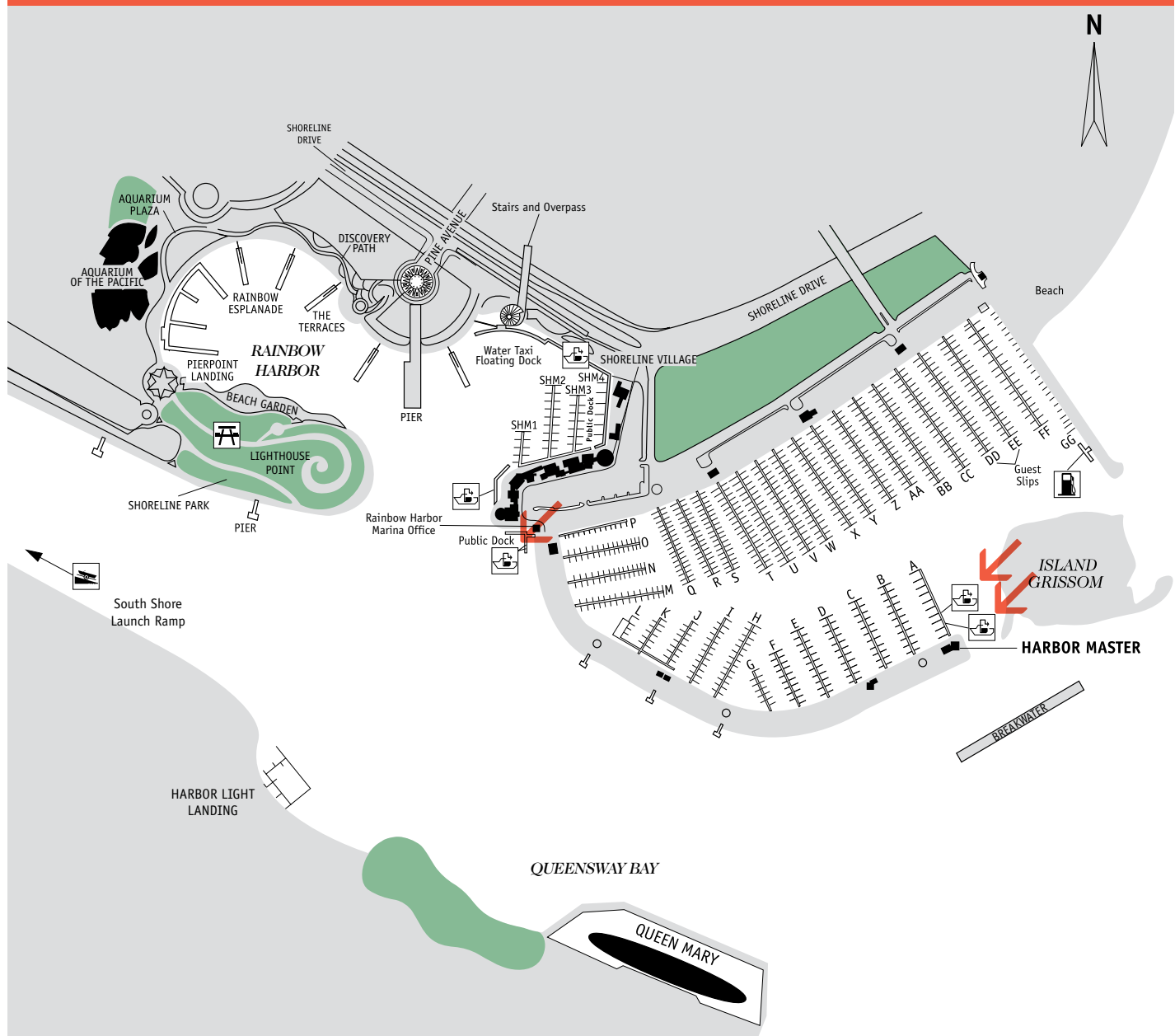
Photo by Thomas Poster

→ MONITORING DETAILS

FACILITY	STATUS
Cabrillo Way Marina	Operational
CYM Wilmington, F dock	Non-accessible February
<i>*Notes</i>	<i>Staff could not access unit in February, usability % based on three of four monitoring efforts.</i>

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

LA — PORT OF LONG BEACH – SHORELINE



FACILITY	2018 USABILITY %	PUMP TYPE
Shoreline Marina Office, A dock far	96	Peristaltic
Shoreline Marina Office, A dock near	97	Peristaltic
Shoreline Marina, public dock far	84	Peristaltic
Shoreline Marina, public dock mid	94	Peristaltic
Shoreline Marina, public dock near	55	Peristaltic

LA — PORT OF LONG BEACH – SHORELINE



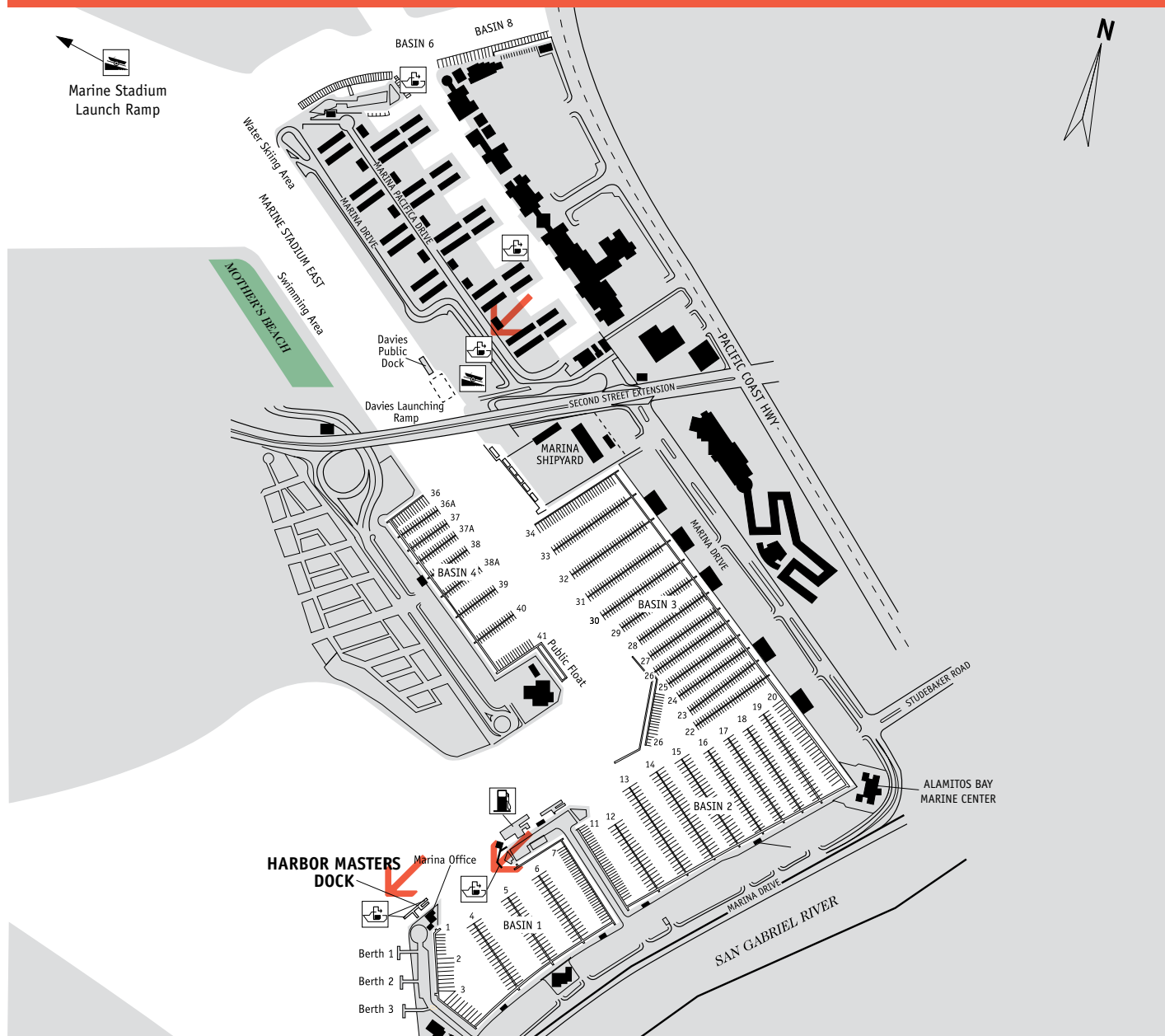
Photo by John Hollenbeck

→ MONITORING DETAILS

FACILITY		STATUS
Shoreline Marina Office		
	Far	Operational
	Near	Operational
Shoreline Marina, public dock		
	Far	Operational
	Mid	Operational
	Near	Non-operational May, August

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

LA — PORT OF LONG BEACH – LOS ALAMITOS



FACILITY	2018 USABILITY %	PUMP TYPE
Los Alamitos Davies Launch Ramp	90	Peristaltic
Los Alamitos Fire Department, Marine Station	84	Peristaltic
Los Alamitos Harbor Master Dock, far	71	Peristaltic
Los Alamitos Harbor Master Dock, near	97	Peristaltic
Marina Pacifica, Slip #039 at Key 15	*97	Peristaltic
Marina Pacifica, Slip #165 at Key 1	*97	Peristaltic

*See Notes under Monitoring Details.

LA — PORT OF LONG BEACH – LOS ALAMITOS



Photo by John Hollenbeck

→ MONITORING DETAILS

FACILITY		STATUS
Los Alamitos Davies Launch Ramp		Operational
Los Alamitos Fire Department, Marine Station		Operational
Los Alamitos Harbor Master Dock		
Far		Non-operational August
Near		Operational
Marina Pacifica		
Slip #039 at Key 15		Operational
Slip #165 at Key 1		Operational
*Notes		The units at Marina Pacifica were installed with CVA funding in 2018 and TBF began monitoring in November.

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

ORANGE COUNTY



Clouds over Newport Harbor make for a picturesque scene. Photo by John Hollenbeck

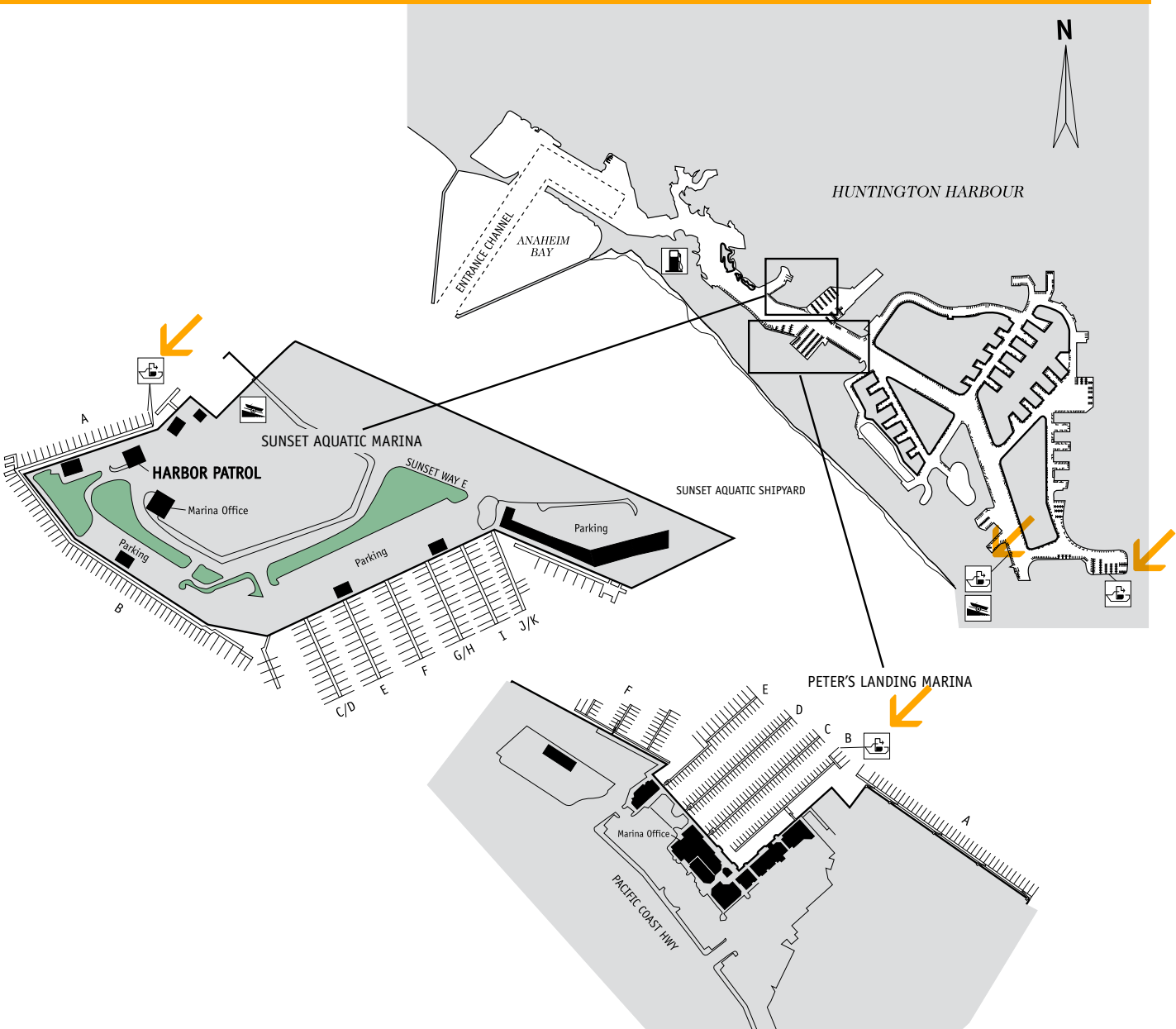
ORANGE COUNTY IS HOME TO THREE HARBORS

ORANGE — **HUNTINGTON HARBOUR**

ORANGE — **NEWPORT HARBOR**

ORANGE — **DANA POINT HARBOR**

ORANGE — HUNTINGTON HARBOUR



FACILITY	2018 USABILITY %	PUMP TYPE
Huntington Harbour Yacht Club, Fire Department	38	Diaphragm
Peter's Landing Marina, B dock	78	Peristaltic

ORANGE — HUNTINGTON HARBOUR



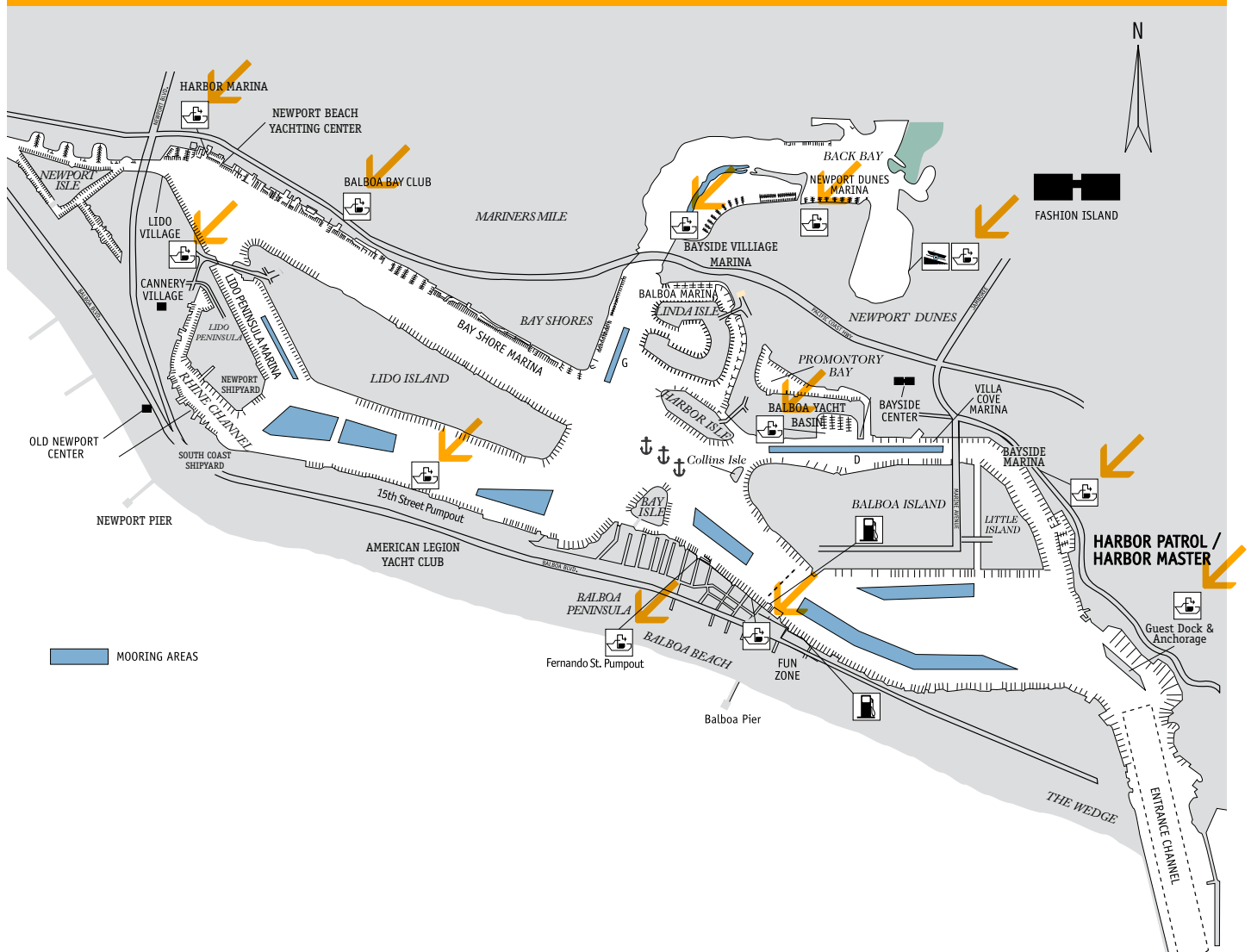
Photo by John Hollenbeck

→ MONITORING DETAILS

FACILITY	STATUS
Huntington Harbour Yacht Club, Fire Department	Non-operational February, May, August
Peter’s Landing Marina, B dock	Operational

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

ORANGE — NEWPORT HARBOR



FACILITY	2018 USABILITY %	PUMP TYPE
15th Street, far	82	Diaphragm
15th Street, near	65	Peristaltic
Balboa Bay Club	48	Peristaltic
Balboa Fun Zone	82	Peristaltic
Balboa Yacht Basin, E dock	92	Peristaltic
Bayside Village Marina	96	Peristaltic
Fernando St. & Edgewater, public dock	81	Peristaltic
Lido Marina Village	*81	Peristaltic
OC Harbor Patrol	73	Peristaltic

*See Notes under Monitoring Details.

ORANGE — NEWPORT HARBOR



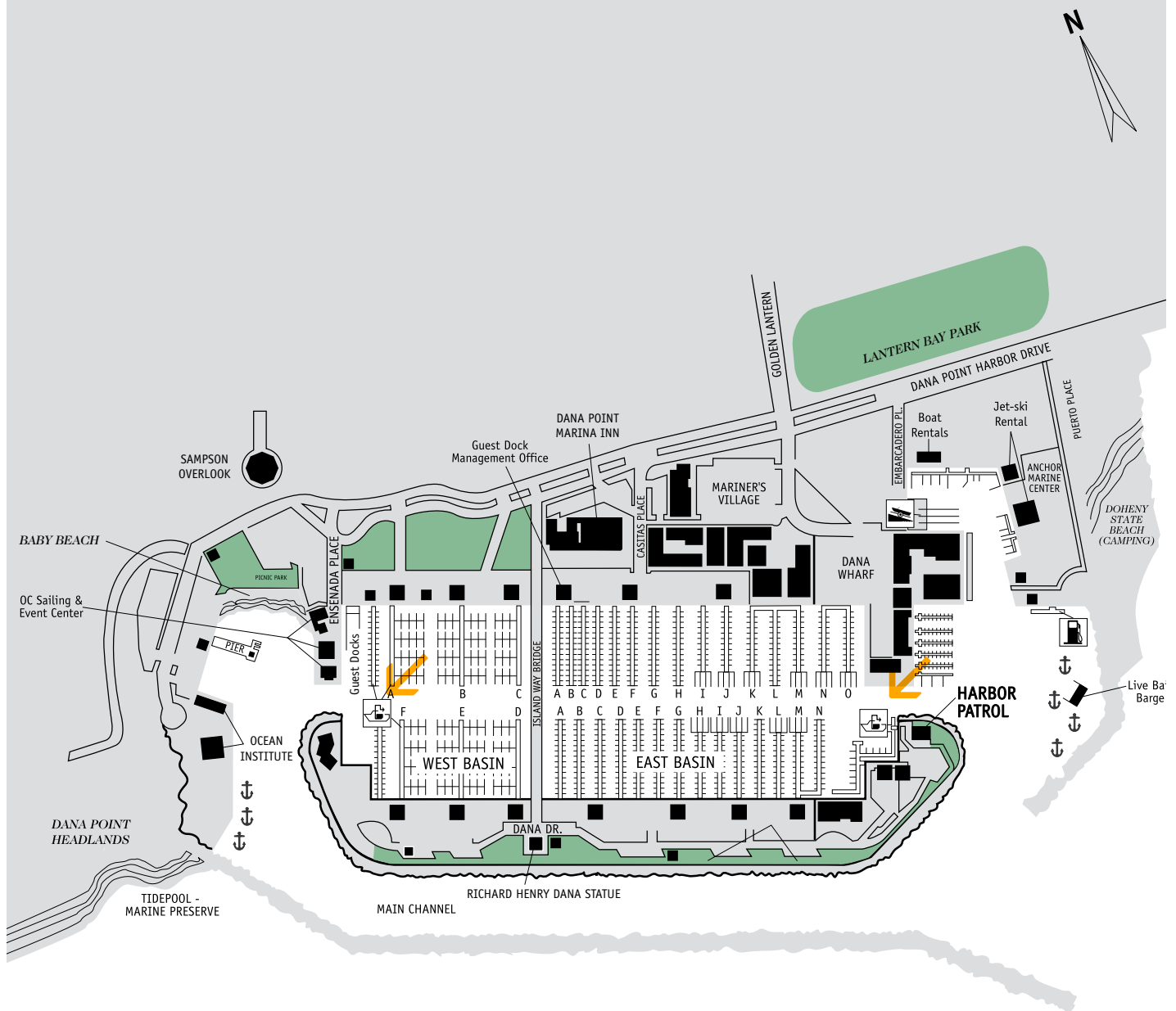
Photo by Jason Middlekauff

→ MONITORING DETAILS

FACILITY	STATUS
15th Street	
Far	Operational
Near	Operational
Balboa Bay Club	Non-operational February, August
Balboa Fun Zone	Operational
Balboa Yacht Basin, E dock	Operational
Lido Marina Village	Non-accessible February
*Notes	Staff could not access unit in February, usability % based on three of four monitoring events. Unit was removed and replaced using CVA funding after February monitoring effort.
Bayside Village Marina	Operational
Fernando St. & Edgewater, public dock	Operational
OC Harbor Patrol	Non-operational February

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

ORANGE — DANA POINT HARBOR



FACILITY	2018 USABILITY %	PUMP TYPE
Dana West Basin, A dock side tie	80	Peristaltic
Dana West Basin, F dock end tie	64	Peristaltic
OC Dana Point Harbor, Guest Docks end tie	71	Peristaltic
Sheriff's Harbor Patrol, pumpout dock	80	Peristaltic

ORANGE — DANA POINT HARBOR



Photo by Pat Douglass

→ MONITORING DETAILS

FACILITY	STATUS
Dana West Basin, A dock	Non-operational May
Dana West Basin, F dock	Non-operational February
OC Guest Dock	Non-operational May
Sheriff's Harbor Patrol	Operational

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

SAN DIEGO COUNTY



A view of downtown San Diego. Photo by Victoria Gambale

SAN DIEGO COUNTY IS HOME TO THREE HARBORS

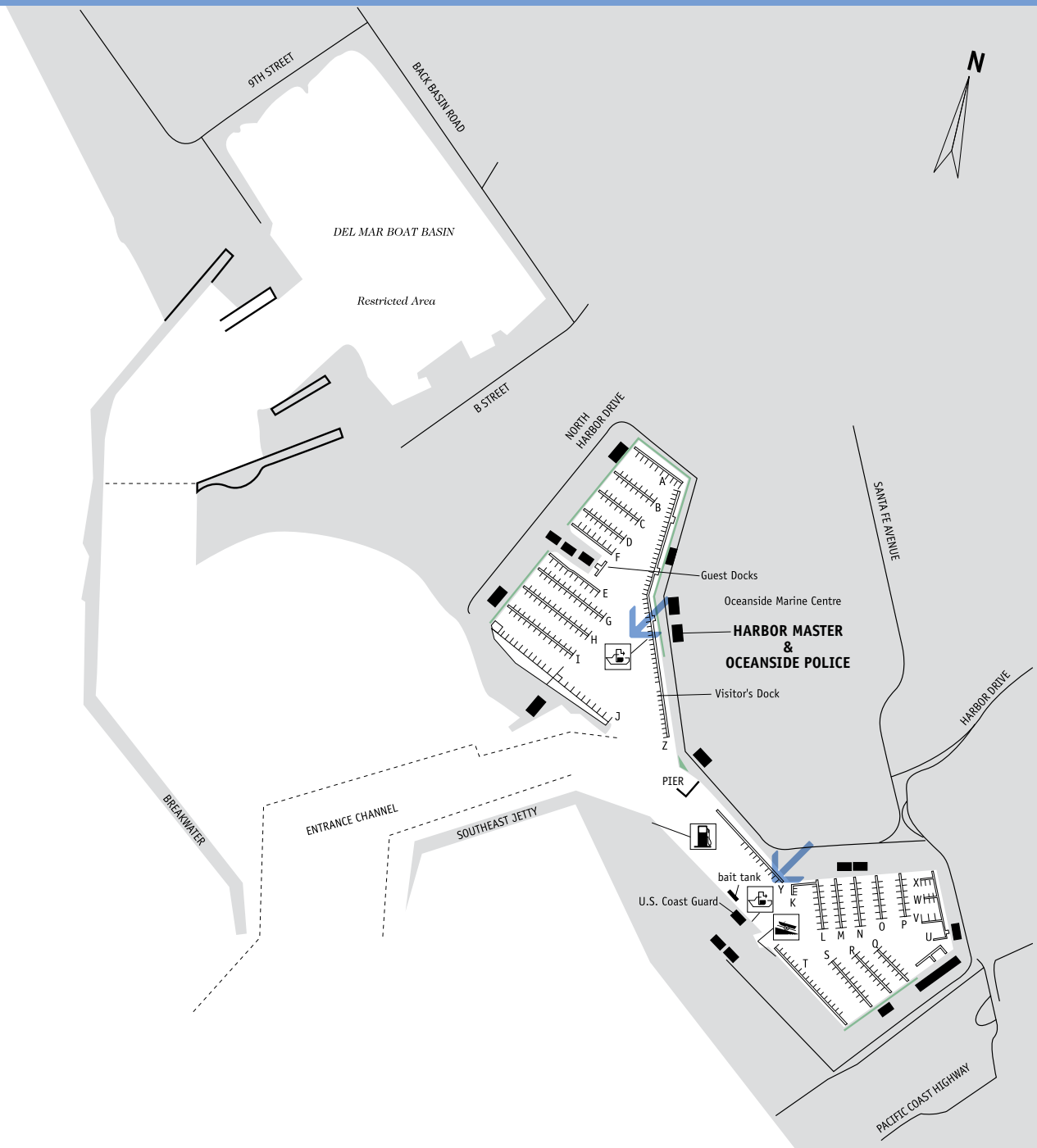
SAN DIEGO — **OCEANSIDE HARBOR**

SAN DIEGO — **MISSION BAY**

SAN DIEGO — **SAN DIEGO BAY** / Shelter and Harbor Islands

SAN DIEGO — **SAN DIEGO BAY** / Glorietta Bay & South San Diego Bay

SAN DIEGO — OCEANSIDE HARBOR



FACILITY	2018 USABILITY %	PUMP TYPE
Department of Harbor & Beaches	78	Peristaltic
US Coast Guard Auxiliary, far	96	Peristaltic
US Coast Guard Auxiliary, near	78	Peristaltic

SAN DIEGO — OCEANSIDE HARBOR



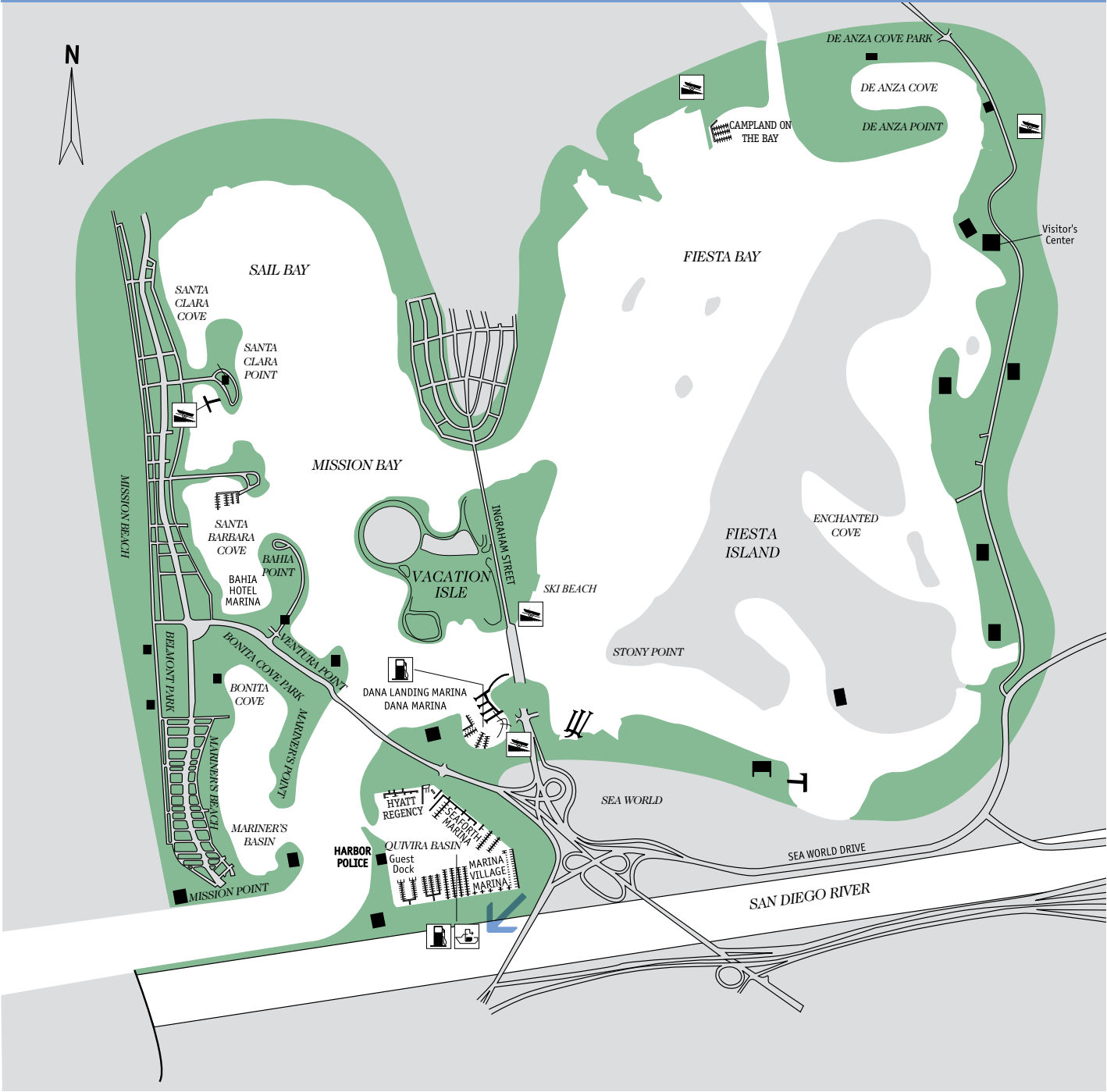
Photo by Grace Lee

→ MONITORING DETAILS

FACILITY		DESCRIPTION
Department of Harbor & Beaches		Non-operational May
US Coast Guard Auxiliary		
Far		Operational
Near		Non-operational August

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

SAN DIEGO — MISSION BAY



FACILITY	2018 USABILITY %	PUMP TYPE
Hyatt Regency, Mission Bay	96	Peristaltic
Mission Bay Park Headquarters, left	89	Peristaltic
Mission Bay Park Headquarters, right	97	Peristaltic

SAN DIEGO — MISSION BAY



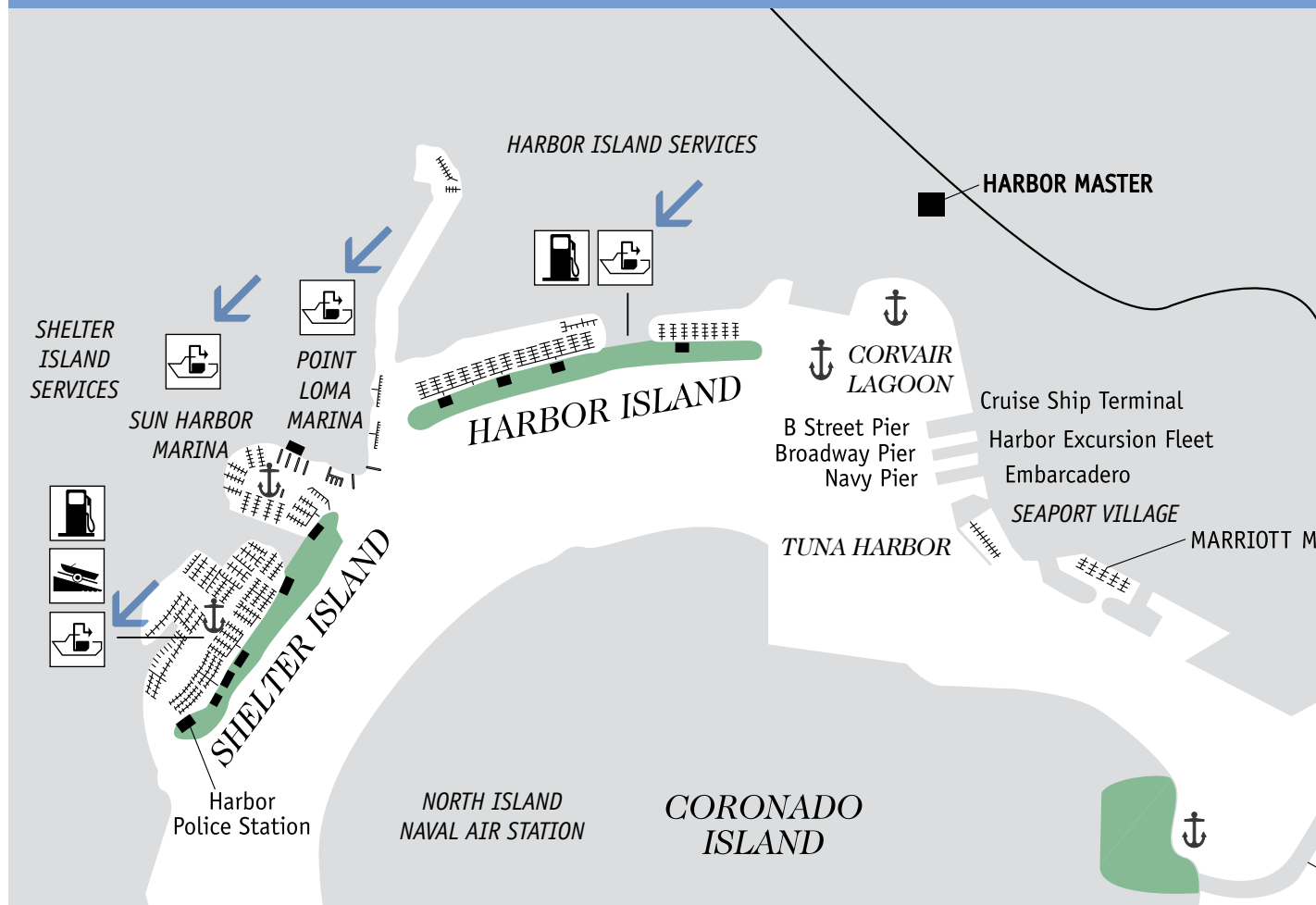
Photo by Lee Louis

→ MONITORING DETAILS

FACILITY	STATUS
Hyatt Regency	Operational
Mission Bay Park Headquarters	
Left	Operational
Right	Operational

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

SAN DIEGO — SAN DIEGO BAY / Shelter and Harbor Islands



FACILITY	2018 USABILITY %	PUMP TYPE
Cabrillo Isle Marina, G Dock	97	Peristaltic
Kona Kai Marina, far	*17	Peristaltic
Kona Kai Marina, near	*50	Peristaltic
Laurel St. & Harbor Dr. / airport	97	Peristaltic
Pearson's Marine Fuel	*33	Diaphragm
Shelter Island Harbor Police Dock, far	88	Diaphragm
Shelter Island Harbor Police Dock, near	70	Diaphragm
Shelter Island Public Dock, far	61	Peristaltic
Shelter Island Public Dock, near	77	Peristaltic
Sun Harbor Marina, public dock	77	Peristaltic

*See Notes under Monitoring Details.

SAN DIEGO — SAN DIEGO BAY / Shelter and Harbor Islands



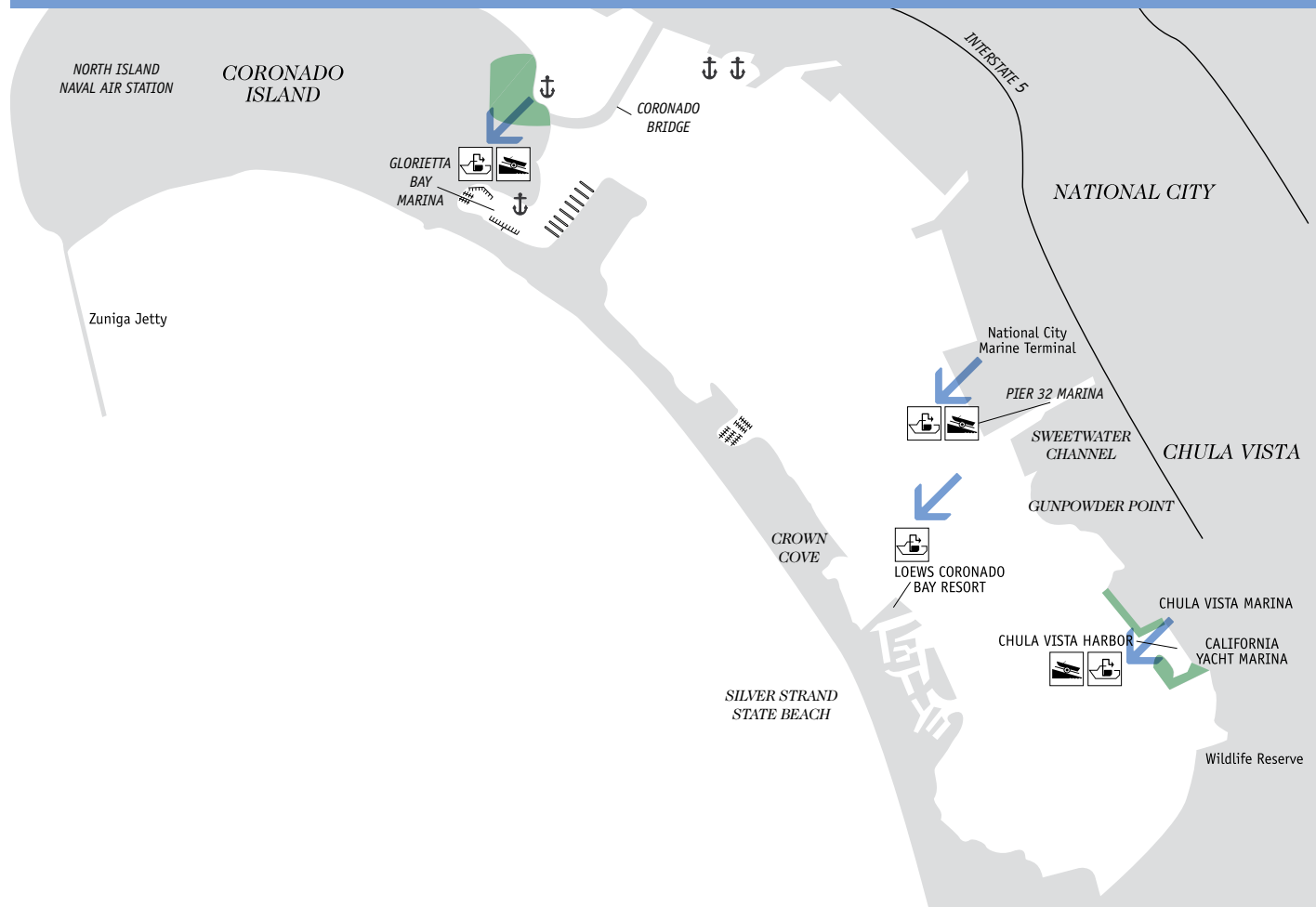
Photo by Kim Riley

→ MONITORING DETAILS

FACILITY	STATUS
Cabrillo Isle Marina	Operational
Kona Kai Marina	
Near	Non-operational February, May
Far	Non-operational February, May, August, November
<i>*Notes</i>	<i>Both Kona Kai units removed from monitoring efforts after November.</i>
Pearson's Marine Fuel	Non-operational February
<i>*Notes</i>	<i>Unit was removed from monitoring efforts after February, usability % based on one monitoring effort.</i>
Shelter Island Harbor Police Dock	
Far	Non-operational November
Near	Operational
Shelter Island Public Dock (far & near)	Operational
Sun Harbor Marina, public dock	Operational

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

SAN DIEGO — SAN DIEGO BAY / Glorietta Bay & South San Diego



FACILITY	2018 USABILITY %	PUMP TYPE
Chula Vista Launch Ramp	97	Peristaltic
Chula Vista Marina, A dock	85	Peristaltic
Glorietta Bay Marina, A dock	85	Peristaltic
Glorietta Bay Marina, B dock left	86	Peristaltic
Glorietta Bay Marina, B dock right	79	Peristaltic
Pepper Park Launch Ramp	97	Peristaltic



Photo by Kim Riley

→ **MONITORING DETAILS**

FACILITY	STATUS
Chula Vista Launch Ramp	Operational
Chula Vista Marina	Operational
Glorietta Bay Marina (A dock, B dock left & right)	Operational
Pepper Park Launch Ramp	Operational

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

SAN FRANCISCO BAY – NORTH BAY



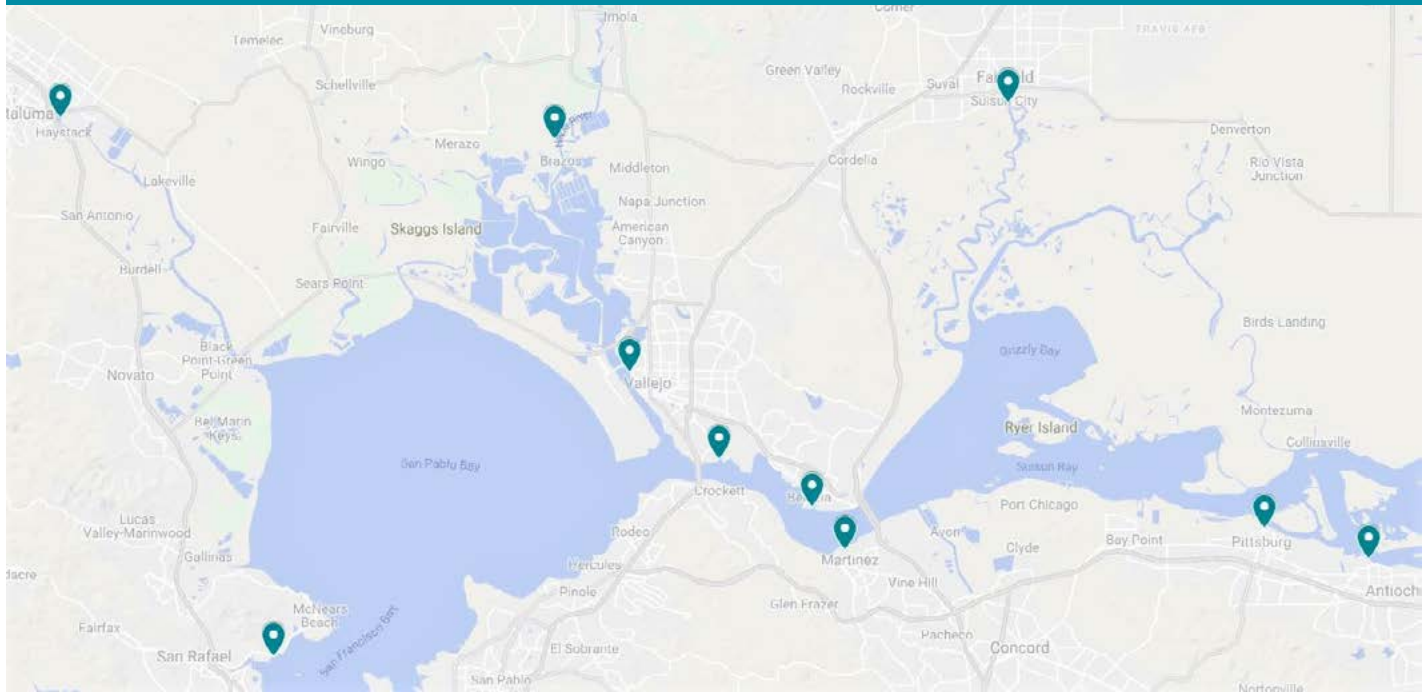
Photo by James Muller

SAN FRANCISCO BAY'S NORTHERN REGION HOUSES TEN MARINAS

SAN FRANCISCO — NORTH BAY

Antioch Marina
Benicia Marina
Glen Cove Marina
Loch Lomond Marina
Martinez Marina
Napa Valley Marina
Petaluma Marina
Pittsburg Marina
Suisun City Marina
Vallejo Municipal Marina

SAN FRANCISCO — NORTH BAY



FACILITY	2018 USABILITY %	PUMP TYPE
Antioch, Fuel Dock	*52	Vacuum
Antioch, Guest Dock	60	
Benicia	82	Peristaltic
Glen Cove	95	Peristaltic
Loch Lomond, Fuel Dock (north)	65	Peristaltic
Loch Lomond, Fuel Dock (south)	65	
Martinez	86	Peristaltic
Napa Valley	92	Custom Build
Petaluma	57	Diaphragm
Pittsburg, Fuel Dock (north)	87	Peristaltic
Pittsburg, Fuel Dock (south)	94	
Pittsburg, Guest Dock	93	
Suisun City	65	Peristaltic
Vallejo, J Dock	95	Peristaltic
Vallejo, Fuel Dock	*85	

*See Notes under Monitoring Details.

SAN FRANCISCO — NORTH BAY

→ MONITORING DETAILS

FACILITY	STATUS
Antioch, Fuel Dock Antioch, Guest Dock <i>*Notes</i>	Non-operational August, November Operational <i>Fuel dock unit being replaced.</i>
Benicia	Operational
Glen Cove	Operational
Loch Lomond, Fuel Dock (north) Loch Lomond, Fuel Dock (south)	Operational
Martinez	Operational
Napa Valley	Operational
Petaluma	Non-operational August, November
Pittsburg, Fuel Dock (north) Pittsburg, Fuel Dock (south) Pittsburg, Guest Dock	Operational Operational Operational
Suisun City	Operational
Vallejo, J Dock Vallejo, Fuel Dock <i>*Notes</i>	Operational Non-accessible June <i>Staff could not access unit in June, usability % based upon three of four monitoring events.</i>



Photo by Adrien Baudrimont

See page 10 for follow-up taken after each monitoring site visit. A status of “Operational” indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

SAN FRANCISCO BAY – EAST BAY



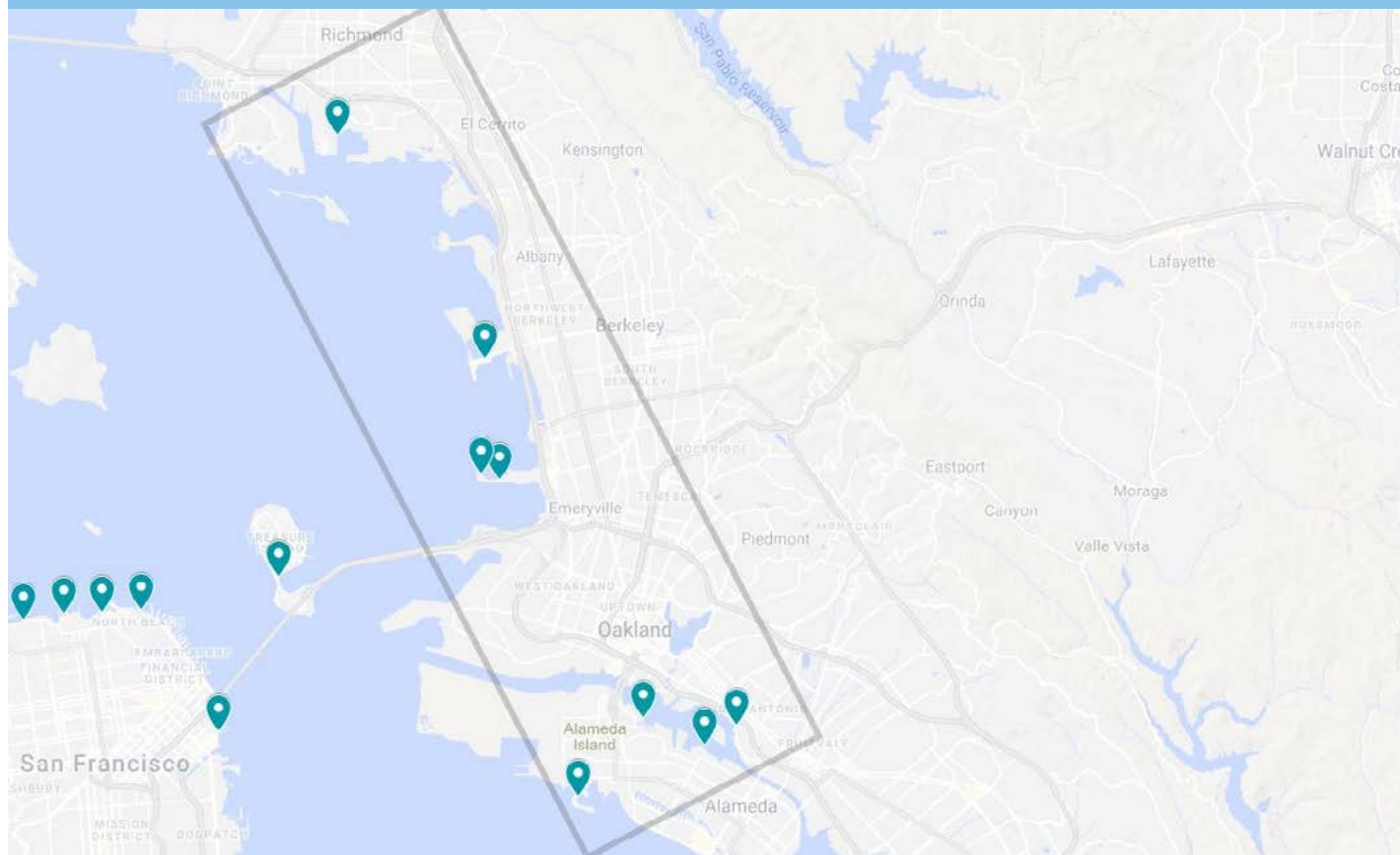
Photo by James Muller

SAN FRANCISCO BAY'S EASTERN REGION HOUSES EIGHT MARINAS

SAN FRANCISCO — **EAST BAY**

Ballena Isle Marina
Berkeley Marina
Emery Cove Yacht Harbor
Emeryville Marina
Grand Marina
Marina Bay Yacht Harbor
Marina Village Yacht Harbor
Oakland Marina

SAN FRANCISCO — EAST BAY



FACILITY	2018 USABILITY %	PUMP TYPE
Bellena Isle Marina	70	Peristaltic
Berkeley Marina, G Dock	89	Peristaltic
Berkeley Marina, I Dock	31	
Berkeley Marina, C Dock (east)	91	
Berkeley Marina, C Dock (west)	93	
Emery Cove Yacht Harbor, A Dock	81	Peristaltic
Emery Cove Yacht Harbor, S Dock	80	
Emeryville Marina	35	Peristaltic
Grand Marina	97	Peristaltic
Marina Bay Yacht Harbor, D Dock	*78	Peristaltic
Marina Bay Yacht Harbor, G Dock	85	
Marina Village Yacht Harbor, Gate 8	94	Peristaltic
Marina Village Yacht Harbor, Gate 10	94	
Oakland Marina, Jack London Square	77	Peristaltic

*See Notes under Monitoring Details.

SAN FRANCISCO — EAST BAY

→ MONITORING DETAILS

FACILITY	STATUS
Bellena Isle Marina	Operational
Berkeley Marina, G Dock	Operational
Berkeley Marina, I Dock	Non-operational June, August, November
Berkeley Marina, C Dock (east)	Operational
Berkeley Marina, C Dock (west)	Operational
Emery Cove Yacht Harbor, A Dock	Operational
Emery Cove Yacht Harbor, S Dock	Operational
Emeryville Marina	Non-operational June, August, November
Grand Marina	Operational
Marina Bay Yacht Harbor, D Dock	Operational
Marina Bay Yacht Harbor, G Dock	Operational
*Notes	Staff could not access D Dock unit in February, usability % based on three of four monitoring events.
Marina Village Yacht Harbor, Gate 8	Operational
Marina Village Yacht Harbor, Gate 10	Operational
Oakland Marina, Jack London Square	Operational



Photo by Natasha Dunn

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

SAN FRANCISCO BAY – WEST BAY



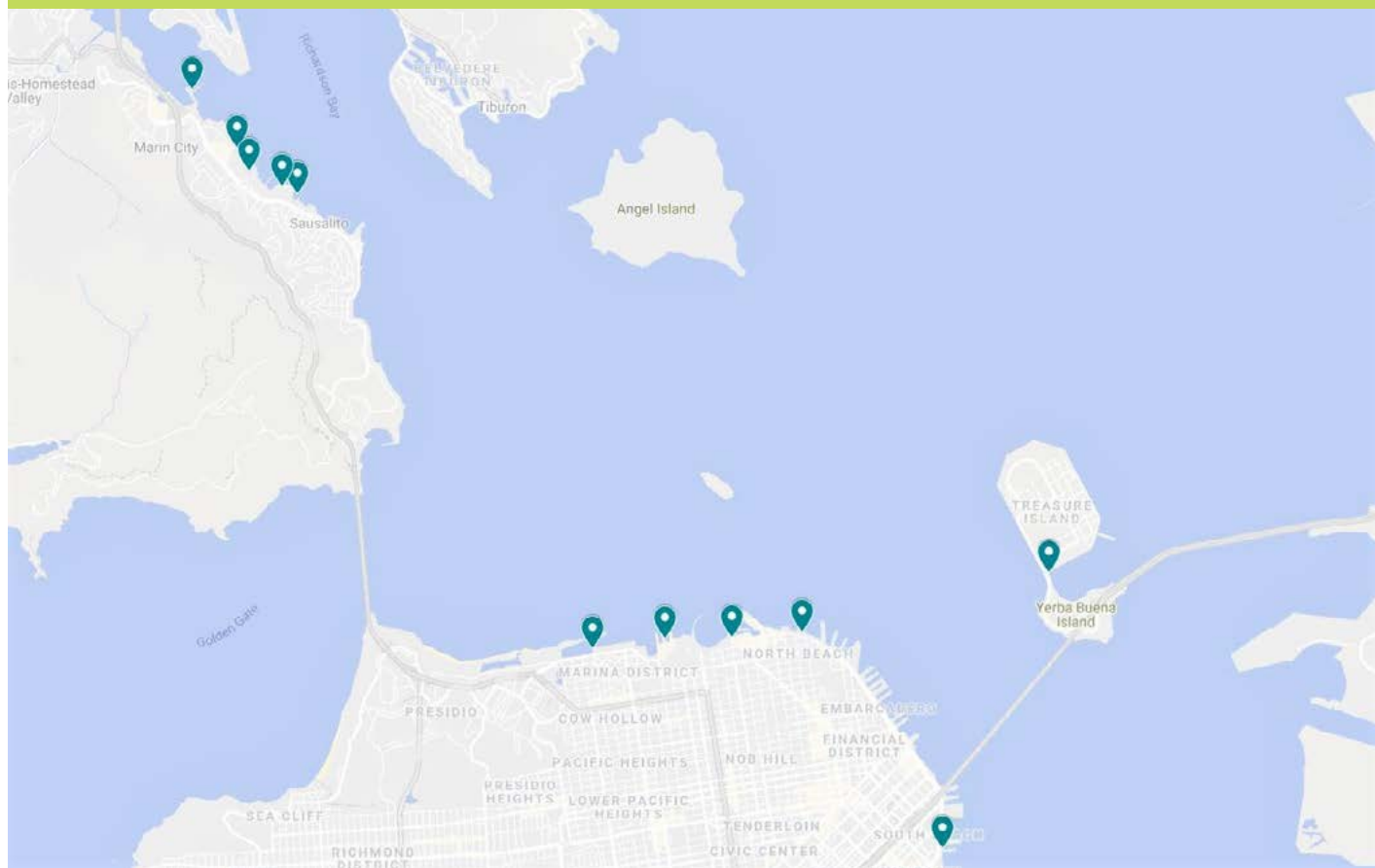
Photo by Adrien Baudrimont

SAN FRANCISCO BAY'S WESTERN REGION HOUSES ELEVEN MARINAS

SAN FRANCISCO — WEST BAY

Clipper Yacht Harbor
Fisherman's Wharf
Galilee Harbor
Marina Plaza Harbor
Pier 39 Marina
Richardson Bay Marina
San Francisco Marina - Gashouse Cove
San Francisco Marina - West Harbor
Schoonmaker Point Marina
South Beach Yacht Harbor
Treasure Island Marina

SAN FRANCISCO — WEST BAY



FACILITY	2017 USABILITY %	PUMP TYPE
Clipper Yacht Harbor	73	Peristaltic
Fisherman's Wharf	64	Peristaltic
Galilee Harbor	80	Diaphragm
Marina Plaza Harbor	61	Peristaltic
Pier 39 Marina	96	Peristaltic
Richardson Bay Marina	94	Peristaltic
San Francisco Marina, Gashouse Cove	68	Peristaltic
San Francisco Marina, West Harbor	87	
Schoonmaker Point Marina	93	Peristaltic
South Beach Yacht Harbor, End of South Guest Dock	90	Peristaltic
Treasure Island Marina	*96	Peristaltic

SAN FRANCISCO — WEST BAY

→ MONITORING DETAILS

FACILITY	STATUS
Clipper Yacht Harbor	Operational
Fisherman's Wharf	Non-operational August, December
Galilee Harbor	Operational
Marina Plaza Harbor	Operational
Pier 39 Marina	Operational
Richardson Bay Marina	Operational
San Francisco Marina, Gashouse Cove	Non-operational June
San Francisco Marina, West Harbor	Operational
Schoonmaker Point Marina	Operational
South Beach Yacht Harbor (End of South Guest Dock)	Non-operational February
Treasure Island Marina	Non-accessible February

**Notes*

Staff could not access unit in February, usability % based on three of four monitoring events.



Photo by Adrien Baudrimont

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

SAN FRANCISCO BAY – SOUTH BAY



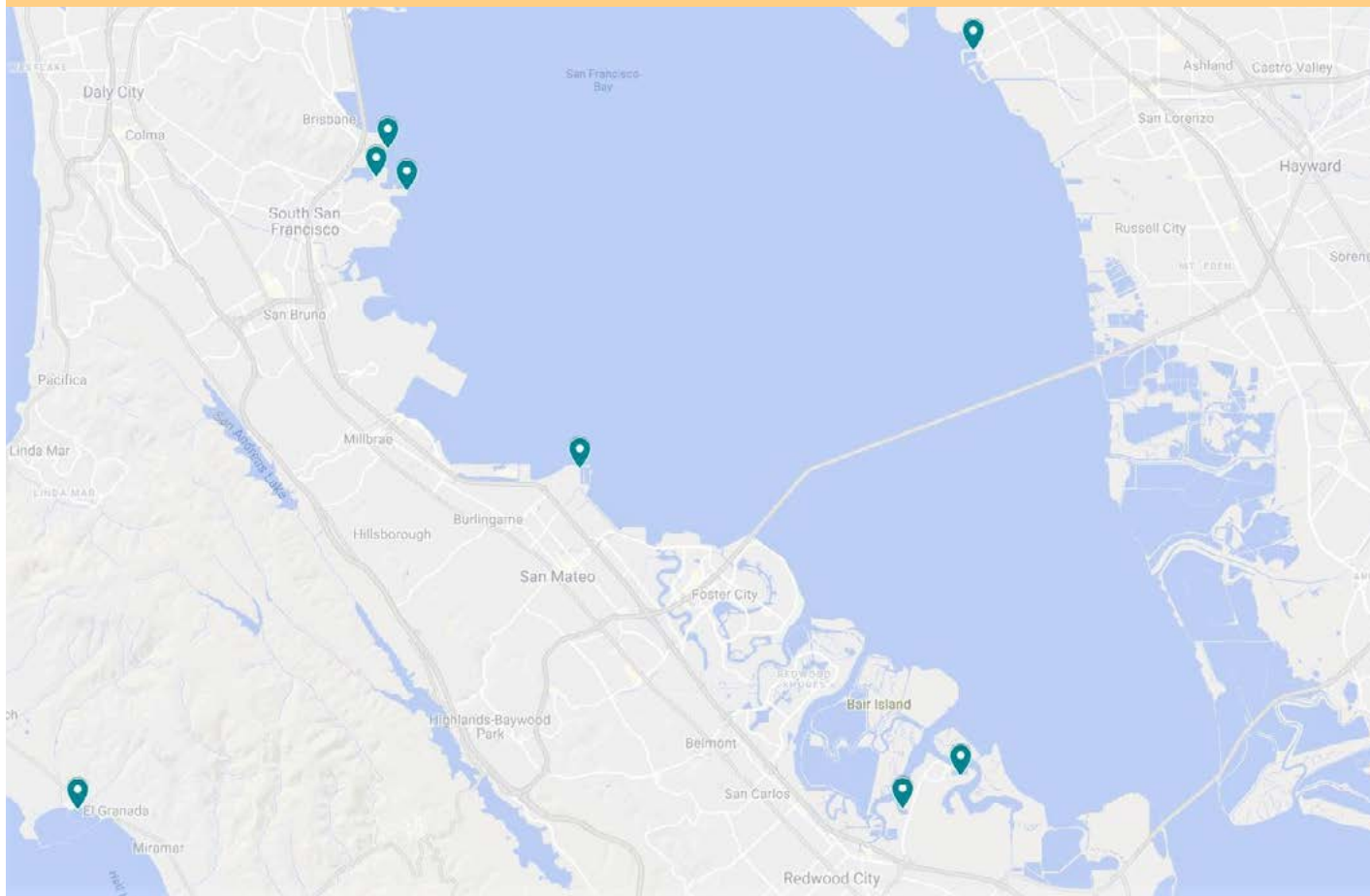
Photo by Adrien Baudrimont

SAN FRANCISCO'S SOUTHERN REGION INCLUDES EIGHT MARINAS

SAN FRANCISCO — **SOUTH BAY**

Brisbane Marina
Coyote Point Marina
Oyster Cove Marina
Oyster Point Marina
Pillar Point Marina
Port of Redwood City
San Leandro Marina
West Point Harbor

SAN FRANCISCO — SOUTH BAY



FACILITY	2018 USABILITY %	PUMP TYPE
Brisbane Marina	87	Peristaltic
Coyote Point Marina	92	Peristaltic
Oyster Cove Marina	88	Peristaltic
Oyster Point Marina	74	Peristaltic
Pillar Point Marina	88	Peristaltic
Port of Redwood City	92	Peristaltic
San Leandro Marina	63	Peristaltic
West Point Harbor	97	Peristaltic

SAN FRANCISCO — SOUTH BAY



Photo by Adrien Baudrimont

→ MONITORING DETAILS

FACILITY	STATUS
Brisbane Marina	Operational
Coyote Point Marina	Operational
Oyster Cove Marina	Operational
Oyster Point Marina	Operational
Pillar Point Marina	Operational
Port of Redwood City	Non-operational August
San Leandro Marina	Non-operational June
West Point Harbor	Operational

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

SACRAMENTO-SAN JOAQUIN RIVER DELTA – NORTH DELTA



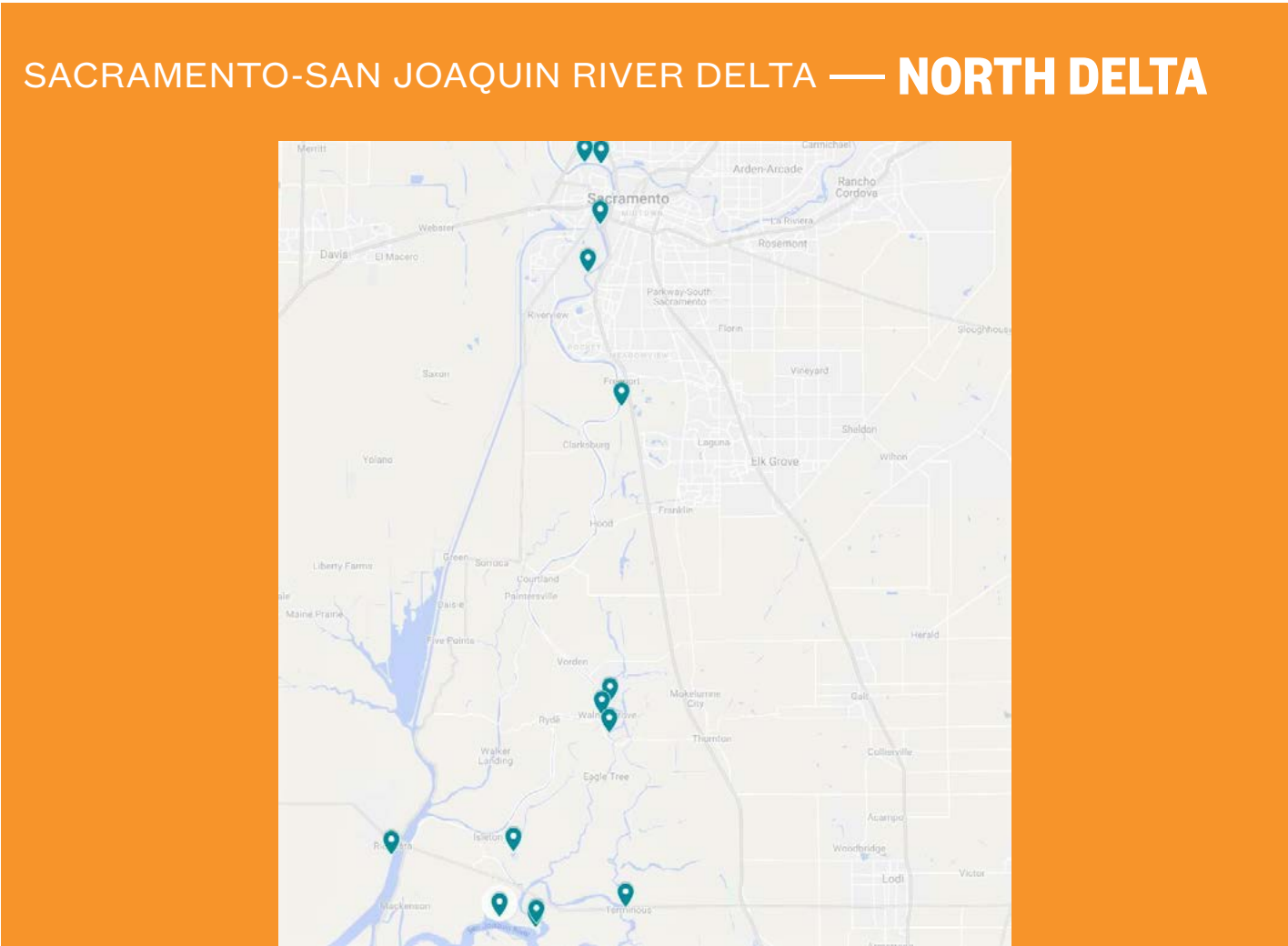
Photo by Natasha Dunn

THE SACRAMENTO-SAN JOAQUIN RIVER DELTA NORTH REGION HOUSES FOURTEEN MARINAS

SACRAMENTO & SAN JOAQUIN RIVER DELTA — **NORTH DELTA**

Boathouse Marina
Cliff's Marina
Dagmar's Landing
Delta Marina Yacht Harbor
Korth's Pirate's Lair Marina
Oxbow Marina
Riverbank Marina
Riverview Marina
Sacramento Delta Bay Marina
Sacramento Marina
Sherwood Harbor Marina
Tower Park Marina
Walnut Grove Marina
Willow Berm Marina

RESOURCES SOUTH DELTA NORTH DELTA SOUTH BAY WEST BAY EAST BAY NORTH BAY SO. CAL. INTRODUCTION



FACILITY	2018 USABILITY %	PUMP TYPE
Boathouse Marina	*91	Peristaltic
Cliff's Marina	64	Peristaltic
Dagmar's Landing	*82	Peristaltic
Delta Marina Yacht Harbor	84	Peristaltic
Korth's Pirate's Lair Marina	84	Diaphragm
Oxbow Marina	83	Peristaltic
Riverbank Marina	92	Unknown
Riverview Marina	*56	Peristaltic
Sacramento Delta Bay Marina	83	Peristaltic
Sacramento Marina	67	Peristaltic
Sherwood Harbor Marina	*24	Peristaltic
Tower Park Marina	86	Vacuum
Walnut Grove Marina	74	Vacuum
Willow Berm Marina, Fuel Dock North	80	Peristaltic
Willow Berm Marina, Fuel Dock South	87	Peristaltic

*See Notes under Monitoring Details.

SACRAMENTO-SAN JOAQUIN RIVER DELTA — NORTH DELTA



Photo by Natasha Dunn

→ MONITORING DETAILS

FACILITY	STATUS
Boathouse Marina	Non-accessible February
<i>*Notes</i>	<i>Staff could not access unit in February, usability % based on three of four monitoring events.</i>
Cliff's Marina	Non-operational August
Dagmar's Landing	Non-accessible June, November
<i>*Notes</i>	<i>Staff could not access unit in June and November, usability % based on two of four monitoring events.</i>
Delta Marina Yacht Harbor	Operational
Korth's Pirate's Lair Marina	Operational
Oxbow Marina	Operational
Riverbank Marina	Operational
Riverview Marina	Non-accessible June, August
<i>*Notes</i>	<i>Staff could not access unit in June and August, usability % based on two of four monitoring events.</i>
Sacramento Delta Bay Marina	Operational

SACRAMENTO-SAN JOAQUIN RIVER DELTA — NORTH DELTA

Sacramento City Marina	Operational
Sherwood Harbor Marina <i>*Notes</i>	Non-operational February, June, August <i>New unit was installed in November.</i>
Tower Park Marina	Operational
Walnut Grove Marina	Non-operational November
Willow Berm Marina, Fuel Dock North	Operational
Willow Berm Marina, Fuel Dock South	Operational

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

SACRAMENTO-SAN JOAQUIN RIVER DELTA – SOUTH DELTA



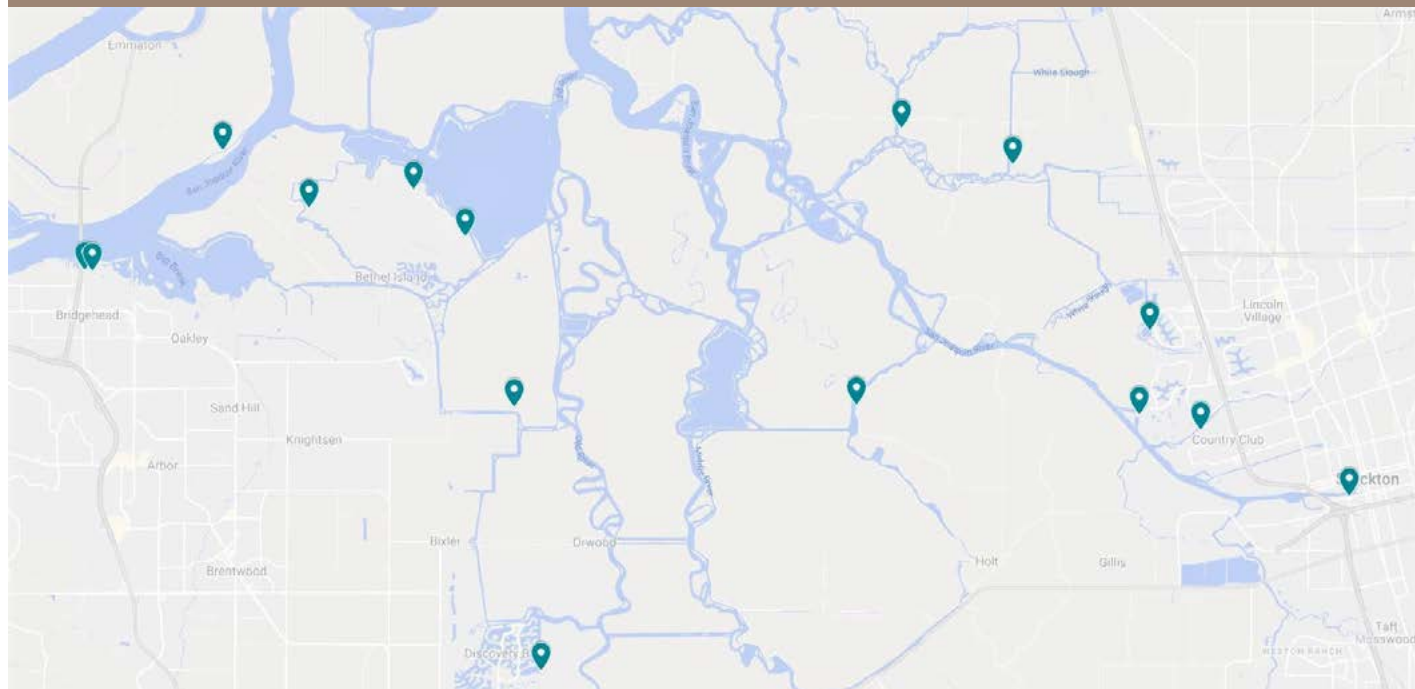
Photo by Natasha Dunn

THE SACRAMENTO-SAN JOAQUIN RIVER DELTA SOUTH REGION HOUSES FOURTEEN MARINAS

SACRAMENTO-SAN JOAQUIN RIVER DELTA — **SOUTH DELTA**

Bethel Harbor
Discovery Bay Yacht Harbor
Driftwood Marina
Eddo's Harbor
Holland Riverside Marina
King Island Resort
Lauritzen Yacht Harbor
New Life Marina
Paradise Point Marina
River Point Landing
Stockton Downtown Marina
Stockton Yacht Club
Sugar Barge Resort
Tiki Lagoon Resort

SACRAMENTO-SAN JOAQUIN RIVER DELTA — SOUTH DELTA



FACILITY	2018 USABILITY %	PUMP TYPE
Bethel Harbor, Service Dock (east)	95	Peristaltic
Bethel Harbor, Service Dock (west)	93	
Discovery Bay Yacht Harbor	83	Diaphragm
Driftwood Marina	76	Peristaltic
Eddo's Harbor	70	Peristaltic
Holland Riverside Marina	29	Vacuum
King Island Resort	*83	Peristaltic
Lauritzen Yacht Harbor, Fuel Dock (east)	*97	Peristaltic
Lauritzen Yacht Harbor, Fuel Dock (west)	*88	
New Life Marina	72	Unknown
Paradise Point Marina, Far Left Unit	34	Custom Build
Paradise Point Marina, Middle Left Unit	21	Custom Build
Paradise Point Marina, Middle Right Unit	22	Custom Build
Paradise Point Marina, Far Right Unit	58	Custom Build
River Point Landing Resort	76	Peristaltic
Stockton Downtown Marina	*91	Peristaltic
Stockton Yacht Club	79	Peristaltic
Sugar Barge Resort	*73	Peristaltic
Tiki Lagoon Resort	*73	Peristaltic
Village West Marina	91	Peristaltic

*See Notes under Monitoring Details.

SACRAMENTO-SAN JOAQUIN RIVER DELTA — SOUTH DELTA



Photo by Natasha Dunn

—→ MONITORING DETAILS

FACILITY	DESCRIPTION
Bethel Harbor, Service Dock (east)	Operational
Bethel Harbor, Service Dock (west)	Operational
Discovery Bay Yacht Harbor	Operational
Driftwood Marina	Operational
Eddo's Harbor	Operational
Holland Riverside Marina	Non-operational February, June, November
King Island Resort	Non-accessible September, November
*Notes	Staff could not access unit in September and November, usability % based on two of four monitoring events.
Lauritzen Yacht Harbor – Fuel Dock (east)	Non-accessible September, November
Lauritzen Yacht Harbor – Fuel Dock (west)	Non-accessible September, November
*Notes	Staff could not access units in September and November, usability % based on two of four monitoring events.
New Life Marina	Operational

SACRAMENTO-SAN JOAQUIN RIVER DELTA — SOUTH DELTA

Paradise Point Marina, Far Left Unit	Operational
Paradise Point Marina, Middle Left Unit	Non-operational February, June, November
Paradise Point Marina, Middle Right Unit	Non-operational February, August, November
Paradise Point Marina, Far Right Unit	Operational
River Point Landing Resort	Operational
Stockton Downtown Marina	Non-accessible in February
<i>*Notes</i>	<i>Staff could not access unit in February, usability % based on three of four monitoring events.</i>
Stockton Yacht Club	Non-operational November
Sugar Barge Resort	Non-accessible June
<i>*Notes</i>	<i>Staff could not access unit in June, usability % based on three of four monitoring events.</i>
Tiki Lagoon Resort	Non-accessible February, August, November
<i>*Notes</i>	<i>Staff could not access unit in February, August, and November, usability % based on one of four monitoring events.</i>
Village West Marina	Operational

See page 10 for follow-up taken after each monitoring site visit. A status of "Operational" indicates the unit was operational and accessible during the four monitoring efforts. Units that were non-operational or non-accessible are indicated, along with the month(s) of each status.

CALIFORNIA STATE PARKS DIVISION OF BOATING AND WATERWAYS

www.dbw.ca.gov

SAN FRANCISCO ESTUARY PARTNERSHIP

www.sfestuary.org/boating

THE BAY FOUNDATION

www.santamonicabay.org

THE BAY FOUNDATION CLEAN BOATING MATERIALS

www.santamonicabay.org/learn/publications

PUMPOUT NAV APP

iOS

<https://itunes.apple.com/us/app/pumpout-nav-marina-pumpout-finder/id1148752109?mt=8>

Android

<https://play.google.com/store/apps/details?id=com.ecom.cleanvessel&hl=en>

HONEY POT DAY

www.honeypotday.org

MOBILE PUMPOUT COMPANIES

www.dbw.parks.ca.gov/pages/28702/files/MobileServices_Feb2017.pdf