

Figure 1: Environmental Sensitive Sites + Operational Divisions Overview

ACP 2 – San Pablo Bay

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9818 San Pablo Bay (GRA 5)

9818.1 Geographic Response Strategies for Environmental Sensitive Sites

9818.1.1 GRA 5 Site Index

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2-501-A Site Summary - Castro Creek and Marshes**2-501-A****County:** Contra Costa **ACP Division/Segment:** CC - O - S006 CC - O - S007**NOAA Chart:** 18649 Entrance SF 18654 **Map Book:** AAA West Contra **Decimal Degrees:** 37.958606 -122.398447
San Pablo Bay**Site Description:**

The site includes Castro Creek and the surrounding salt-marsh perimeter. Beginning from the Richmond Parkway and extends bayward (west) from the tip of the channel jetty to San Pablo Creek. Salt-marshes along northern shoreline is adjacent to Richmond Chevron Facility. The creek, shallow embayment and the partially diked pond on the north have extensive marshes, eelgrass beds, and mudflats. Castro Creek, which joins this bay on its southeast side.

Resources at Risk:

ESI and Habitat: 8C Sheltered riprap
10A Salt - and brackish-water marshes
9A Sheltered tidal flats

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	California Ridgeway's rail	FE, SE	Year-round	Feb-Aug
Birds	California black rail	FP, ST	Year-round	Mar-Aug
Fish	longfin smelt	ST	Year-round	Nov-May
Fish	steelhead - Central/Northern California	FT	Year-round	Nov-Apr
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Mammals	San Pablo vole	SSC	Year-round	

FT-Federally Threatened, FE-Federally Endangered, FP-Federally Protected, SE-State Endangered, ST-State Threatened, SP -State Protected, SR-State Rare, SSC-Species of Special Concern, BGEPA-Bald and Golden Eagle Protection Act, SSSP-State Special Status Species

List of Key Contacts:

Type	Name/Title	Organization	Phone
C	/Coordinator	Native American Heritage Commission	(916) 373-3710
C	/Coordinator	Northwest Information Center	(707) 588-8455
E	/Operations, 24-hr	Chevron Corporation, Long Wharf	(510) 242-4494
E	/Dispatch, 24-hr	East Bay Regional Park District	(510) 881-1833
E	/Point Pinole Park Supervisor	East Bay Regional Park District	(510) 544-3062
O	/24hr Emergency Pager	Contra Costa County Hazardous Materials	(925) 655-3232
O	/Dispatch, 24-hr	Contra Costa County Office of the Sheriff	(925) 468-4421
T	/Spill Response Coordinator	USFWS, SF Bay-Delta Office	(916) 799-0588

C – Cultural, Historic, Archaeological; E – Entry/Owner/Access; O – Other; S – Safety; T – Trustee; X – Exclusion or Security

Additional Site Summary Comments:

This area is extremely shallow (tide dependent) with submerged hazards. Proceed with great caution. Avoid eelgrass beds with outboard motors/props.

Concerns and Advice to Responders:

The concern is the vulnerability of the creek, marshes, eelgrass beds, mudflats, diked ponds and the wildlife which are concentrated here. The south and east sides of Castro Cove and Castro Creek have extensive marshes. This makes it very important that oil be excluded from the cove. If necessary, deploy boom to drive oil to the shore: the southwest rip-rap shoreline has the best cleanup and recovery possibilities.

Hazard and Restrictions:

This area has many shallow and under water obstructions (tide dependent) including submerged pilings.

Site Strategies:

Site Validation Level: III

Strategy: 2-501.1 Objective: Exclusion booming of mouth of Castro Cove, adjacent partially diked pond, and mouth of Castro Creek

Strategy: a) Close the mouth of Castro Cove with 3800' 9X9+ Hboom from the jetty on the south to the dike on the north. This deployment may need to be angled to direct oil toward a shoreline collection (preferably to the south). A backup layer (2-501.2) may be needed as a result of wind chop. Report back to IC on need for land collection at the jetty or open water skimmer between boom layers.

b) Close the westerly opening of the partially diked pond with a chevron deployment with 200' 9X9+ Hboom.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		4000	feet	
Anchor	Danforth	22 lb		10		
Vessel	Boom Boat			2		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			8		

Strategy: 2-501.2 Objective: Backup exclusion at mouth of Castro Cove

Strategy: a) Backup initial closure of the mouth of Castro Cove (2-501.1) with a second layer (3800') of swamp boom set a few yards behind the harbor boom. It will capture oil cresting the first boom as a result of wind chop. This deployment may need to be angled to direct oil toward a shoreline collection (preferably to the south).

B) Close the inner (southerly) opening of the partially diked pond with a chevron deployment (200' 9X9+ Hboom).

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		200	feet	<i>Strategy Updated: 7/11/2018</i>
Boom	Swamp	6x6 inch		3800	feet	<i>Last Test: 7/11/2018</i>
Anchor	Danforth	22 lb		10		
Vessel	Boom Boat			2		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			8		

Strategy: 2-501.3 Objective: Exclusion at Creek mouth for inland spill or backup backup

Strategy: Close the mouth of Castro Creek with 2000' swamp boom. This requires a boom boat which can tolerate stranding and should be undertaken with care at higher tides.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Swamp	6x6 inch		2000	feet	
Anchor	Danforth	22 lb		5		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Strategy: 2-501.4 Objective: Exclusion booming of entries to nearby harbors and channels

Strategy: a) Deploy 1600' of swamp boom across the mouth of the Chevron Rod & Gun Club channel to the west at a diagonal to the jetty and down the jetty to tie into the exclusion boom.

b) Deploy 200' of exclusion boom across the mouth of the marina. Very shallow, strandable boom boat with protected props will be necessary.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Swamp	6x6 inch		1800	feet	
Anchor	Danforth	22 lb		5		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Logistics:

Directions: There is a poor land access from the Chevron Rod and Gun Club which requires pre-arrangements with Chevron. From on-water vessel, proceed north from the San Rafael Bridge and past Pt San Pablo, continue east in the channel past the Brothers Marina toward the Chevron Refinery.

Land Access: Very limited (by foot), except good on SW side.

On-Water Limitations: Very shallow and with obstructions. Boat launch at Brothers Marina, Richmond Harbor, possibly at Chevron Richmond. Full services available in Richmond.

Facilities, Staging Areas, Command Posts, Available Equipment: Boom may be staged locally at Richmond Rod & Gun and at Brothers Marina. Both may provide field posts and Brothers has food and water. Full services and ample staging are available in Richmond Inner Harbor.

Communications Problems: Cell reception good.



CDFW - OSPR & USCG Site: 2-501 Name: Castro Creek and Marshes

G. Ewing (OSPR) & M.Schommer (OSPR) Date: 5/4/2020

●●●●●●●● Harbor Boom

■ Eelgrass

XXXXXXXXXXXXXXXXXXXX Swamp Boom

County: Contra Costa **ACP Division/Segment:** CC - O - S004 CC - O - S005

NOAA Chart: 18649 Entrance SF 18654 **Map Book:** AAA Richmond **Decimal Degrees:** 37.975428 -122.38146
San Pablo Bay

Site Description:

The site is bounded on the south by the West Contra Costa Sanitary Landfill and on the north by Richmond Rod & Gun Club. Salt-marshes front most of the two miles of shoreline from 0.3 mi. south of the San Pablo Creek mouth to 0.5 mi. south of Pinole Point. The salt-marsh is up to 0.4 mi. wide and vulnerable to oiling along the entire length of the shoreline as there are no levees. There are also extensive intertidal mudflats to the north and west of the salt-marsh. Access to shoreline from on-water may be difficult based on tides as water depths range from 0.5-3.0 ft deep.

Resources at Risk:

ESI and Habitat: 10A Salt - and brackish-water marshes

8D Sheltered rocky rubble shores

9A Sheltered tidal flats

9A Sheltered tidal flats

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	California Ridgeway's rail	FE, SE	Year-round	Feb-Aug
Birds	California black rail	FP, ST	Year-round	Mar-Aug
Fish	longfin smelt	ST	Year-round	Nov-May
Fish	steelhead - Central/Northern California	FT	Year-round	Nov-Apr
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Mammals	salt-marsh wandering shrew	SSC	Year-round	
Mammals	San Pablo vole	SSC	Year-round	

FT-Federally Threatened, FE-Federally Endangered, FP-Federally Protected, SE-State Endangered, ST-State Threatened, SP -State Protected, SR-State Rare, SSC-Species of Special Concern, BGEPA-Bald and Golden Eagle Protection Act, SSSP-State Special Status Species

List of Key Contacts:

Type	Name/Title	Organization	Phone
C	/Coordinator	Native American Heritage Commission	(916) 373-3710
C	/Coordinator	Northwest Information Center	(707) 588-8455
E	/Operations, 24-hr	Chevron Corporation, Long Wharf	(510) 242-4494
E	/Dispatch, 24-hr	East Bay Regional Park District	(510) 881-1833
E	/Point Pinole Park Supervisor	East Bay Regional Park District	(510) 544-3062
O	/24hr Emergency Pager	Contra Costa County Hazardous Materials	(925) 655-3232
O	/Dispatch, 24-hr	Contra Costa County Office of the Sheriff	(925) 468-4421
T	/Oil Spill Point of Contact	NOAA National Marine Fisheries Service	(707) 480-3496
T	/Spill Response Coordinator	USFWS, SF Bay-Delta Office	(916) 799-0588

C – Cultural, Historic, Archaeological; E – Entry/Owner/Access; O – Other; S – Safety; T – Trustee; X – Exclusion or Security

Additional Site Summary Comments:

Very shallow water access at low tides. Potentially submerged hazards.

Concerns and Advice to Responders:

Multiple tidal inlets present a high risk of oil penetrating deeply into the marsh.

Hazard and Restrictions:

Very shallow water. Submerged obstructions likely, proceed with caution.

Site Strategies:**Site Validation Level: III**

Strategy: 2-502.1 Objective: Exclusion booming of marsh shoreline and mouths of tidal inlets to prevent oil from entering salt-marsh habitat.

Strategy: Deploy at least one layer of 9X9+ Hboom from Richmond Rod & Gun Club Boat Launch (terminal end of Goodrick Ave) to point NE of San Pablo Creek Mouth. Back with equal amount of adsorbent boom if necessary.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch	2300	feet		<i>Strategy Updated: 2/12/2020</i>
Anchor	Danforth	22 lb	7			<i>Last Test: 12/11/2019</i>
Vessel	Boom Boat		1			
Vessel	Skiff or Punt		1			
Staff	Staff to Deploy		6			
Staff	Staff to Tend		2			

Strategy: 2-502.2 Objective: Exclusion booming of creek to prevent oil from entering San Pablo Creek and affecting salt-marshes.

Strategy: Deploy 300 ft Hboom in a chevron configuration at mouth of San Pablo Creek Mouth. Back with adsorbent boom if necessary to prevent oil from entering creek and affecting adjacent marsh habitat.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Swamp	9x9 inch	300	feet		<i>Strategy Updated:</i>
Anchor	Danforth	22 lb	3			<i>Last Test: 12/11/2019</i>
Vessel	Boom Boat		1			
Vessel	Skiff or Punt		1			
Staff	Staff to Deploy		3			
Staff	Staff to Tend		2			

Logistics:

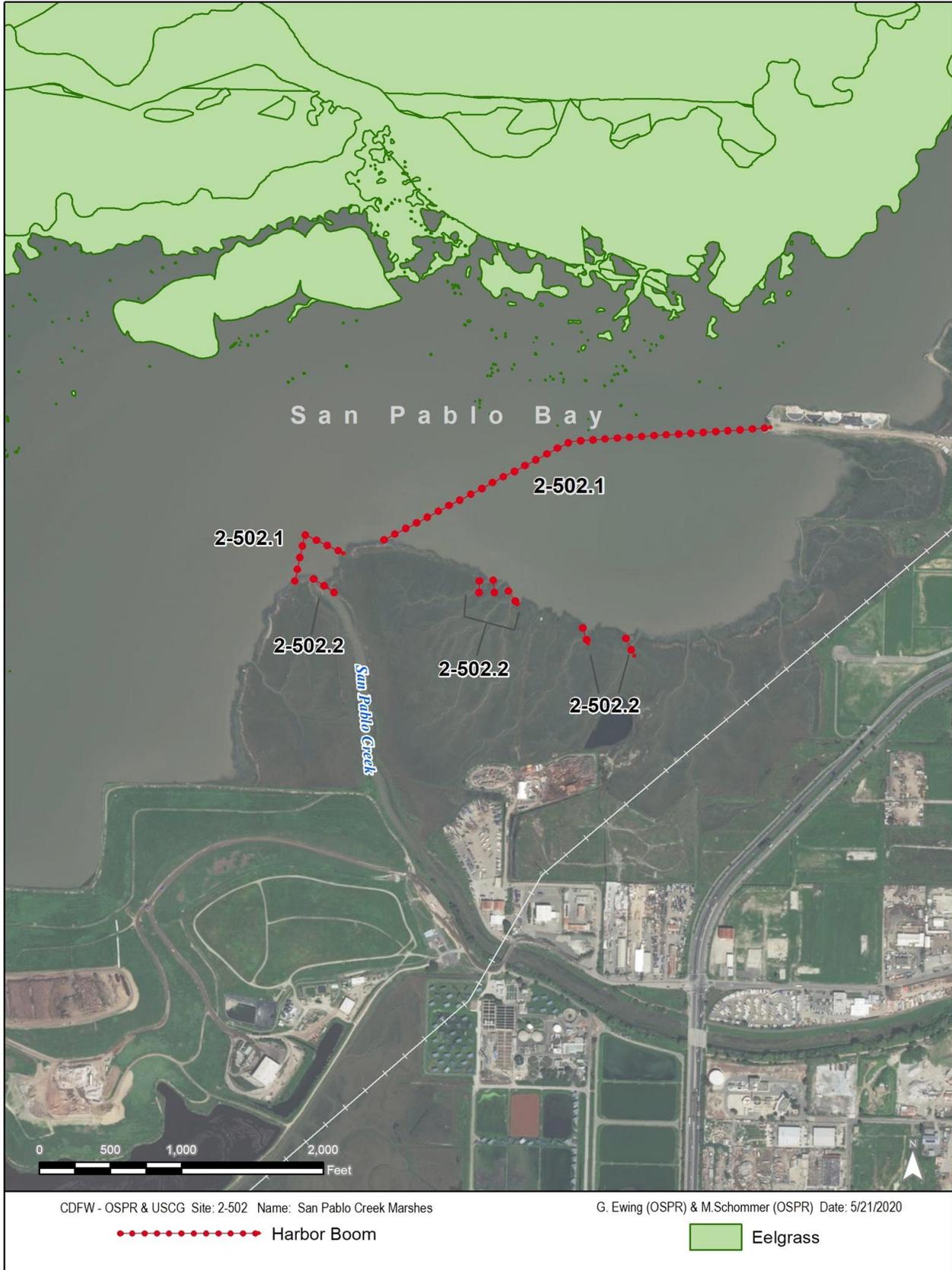
Directions: Access by shallow draft vessel only. Launch ramp at Richmond Rod & Gun Club and at Chevron Refinery. Hoist available at Pt San Pablo Yacht Harbor. Richmond Rod & Gun Club 3155 Goodrick Ave

Land Access: None; access from water.

On-Water Limitations: Shallow water with numerous obstructions. Boat services available at Pt. San Pablo Yacht Harbor and Richmond Marina. Richmond Rod & Gun Club (3155 Goodrick Ave) has a boat launch, behind a locked gate, business hrs vary, contact # (510) 621-3120

Facilities, Staging Areas, Command Posts, Available Equipment: The Chevron Refinery offers the nearest ICP facilities. The Pt. San Pablo Yacht Harbor may be suitable for staging or a field post.

Communications Problems: Good cell reception throughout area.



County: Contra Costa ACP Division/Segment: CC - O - S001 CC - O - S003

NOAA Chart: San Pablo Bay 18654 Map Book: AAA Richmond Decimal Degrees: 37.990181 -122.359397

Site Description:

The site is bounded on the north by Point Pinole Pier and continues south approx 2 miles to the Richmond Rod and Gun Club. Point Pinole (North & South Marshes) is under management of East Bay Regional Park District (EBRPD). Approximately 50 acres of salt-marshes run intermittently from one mile south of Pinole Point to a filled area approx 2 miles south of Pinole Pt. Predominately contained within the Point Pinole Regional Shoreline. The south 0.5 mile of shoreline access is controlled by private owners (Richmond Rod and Gun Club). Salt-marshes front most of the two miles of shoreline from 0.3 mi. south of the San Pablo Creek mouth to 0.5 mi. south of Pinole Point. This prograding salt-marsh is up to 0.4 mi. wide and vulnerable to oiling along the entire shoreline since there are no levees or rip-rapped shorelines.

Resources at Risk:

- ESI and Habitat: 10A Salt - and brackish-water marshes
- 9B Vegetated low banks
- 5 Mixed sand and gravel beaches

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	California Ridgeway's rail	FE, SE	Year-round	Feb-Aug
Birds	California black rail	FP, ST	Year-round	Mar-Aug
Birds	song sparrow	FP, SSC	Year-round	Mar-Jul
Fish	longfin smelt	ST	Year-round	Nov-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Mammals	salt-marsh wandering shrew	SSC	Year-round	
Mammals	San Pablo vole	SSC	Year-round	

FT-Federally Threatened, FE-Federally Endangered, FP-Federally Protected, SE-State Endangered, ST-State Threatened, SP -State Protected, SR-State Rare, SSC-Species of Special Concern, BGEPA-Bald and Golden Eagle Protection Act, SSSP-State Special Status Species

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O	/Dispatch, 24-hr	Contra Costa County Office of the Sheriff	(925) 468-4421

C – Cultural, Historic, Archaeological; E – Entry/Owner/Access; O – Other; S – Safety; T – Trustee; X – Exclusion or Security

Additional Site Summary Comments:

There are truncated concrete pier pilings running parrallel to shoreline that are underwater at less than 2.5+ tides. Proceed on-water with great caution. Avoid eelgrass beds with props. Wind chop to three feet possible

Concerns and Advice to Responders:

Should oil enter the salt-marsh severe impacts to sensitive vegetation and wildlife can be expected.

Hazard and Restrictions:

Shallow water, submerged concrete piling parallel to shoreline may be underwater (tide dependent), eelgrass may foul propellers. Avoid eelgrass beds with props. Wind chop to three feet possible.

Site Strategies:**Site Validation Level: III**

Strategy: 2-503.1 Objective: Exclusion booming to prevent oil from entering the salt-marsh.

Strategy: Exclude oil from the tidal inlets leading into Parchester Marsh. Place harbor or swamp boom backed by sorbent boom in each of the four inlets draining the marsh. From the South inlet -boom lengths of each inlet are: 200', 300' (deploy boom from jetty to jetty to close off inlet and protect secondary inlet), 200' and 200'. The type of sorbent should be adjusted to the type of oil spilled. Use plastic pompoms for heavy oils and rubberizer boom for light oils.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Swamp	6x6 inch		1400	feet	<i>Strategy Updated:</i> 11/17/2015
Boom	Sorbent			1400	feet	<i>Last Test:</i> 11/17/2015
Anchor	Danforth	22 lb		12		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			4		

Strategy: 2-503.2 Objective: Exclusion/Protection booming of entire emergent marshfront

Strategy: If high tides are anticipated, protection of the marsh front is needed. Deploy 5,400 feet of 9X9+ Hboom (2 layers of swamp boom held by 3 to 6 feet apart may be substituted) immediately east of the rows of piles offshore of Parchester Marsh. Backed with 6,000 feet of sorbent boom or oil snare (pom-poms).

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		5400	feet	
Boom	Sorbent			6000	feet	
Anchor	Danforth	22 lb		16		
Vessel	Boom Boat			2		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			8		

Logistics:

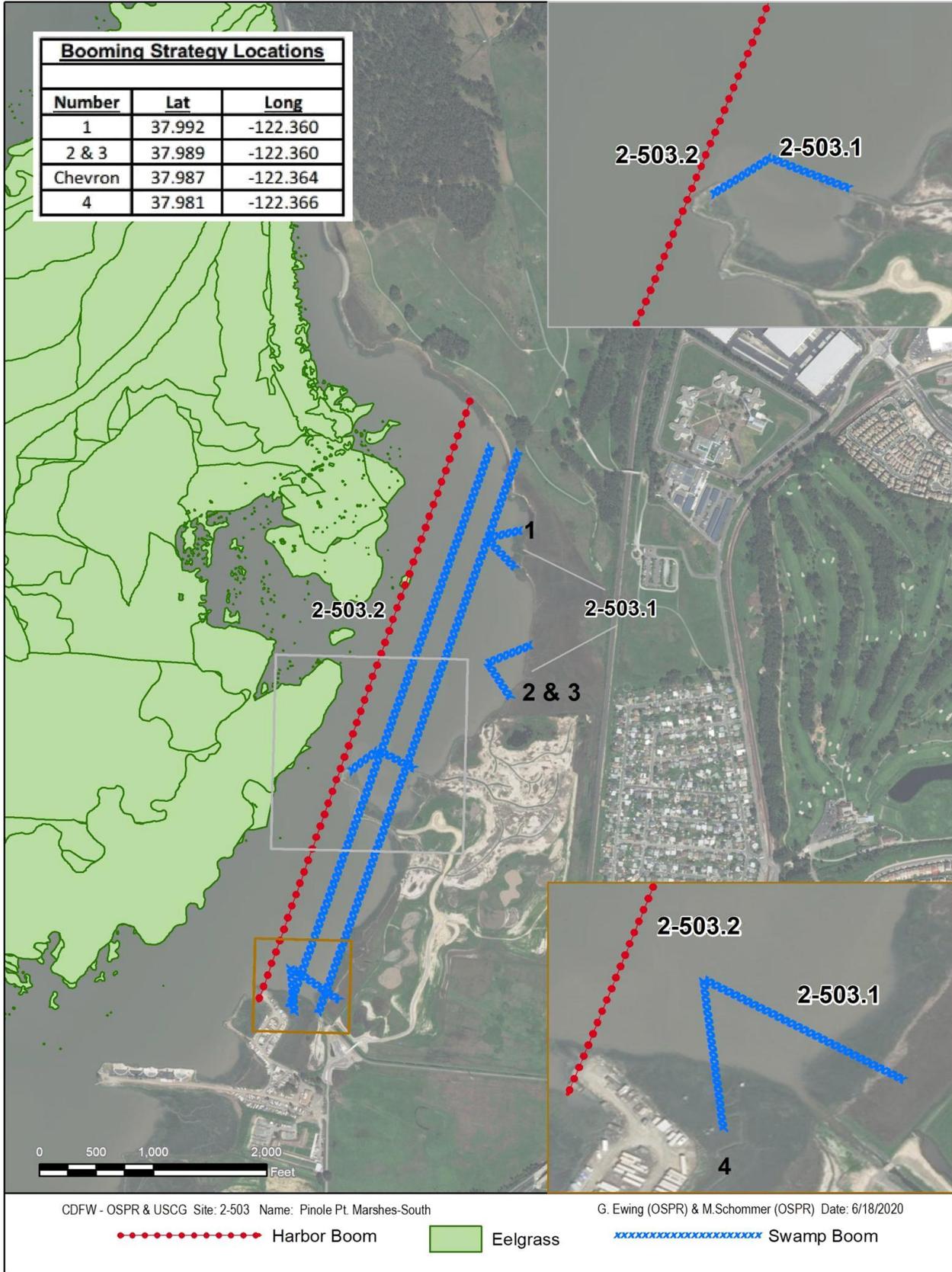
Directions: From I-80 in Richmond, exit at the Richmond Parkway. From the Richmond Parkway, turn right onto Giant Highway and proceed to the park entrance. Limited access can also be obtained through Goodrick Ave, off Richmond Parkway. The site is bounded on the north by Point Pinole and continues south approximately 2 miles to the Richmond Rod and Gun Club. Point Pinole is under management of East Bay Regional Park District (EBRPD).

Land Access: Access thru EBRPD locked Gate. Coordinate/communicate with EBRPD Staff for access.

On-Water Limitations: Multiple submerged hazards just offshore. Concrete pilings run parallel to shoreline and may be underwater based on tidal height.

Facilities, Staging Areas, Command Posts, Available Equipment: Good staging area and field post available, contact EBRPD for further information/coordination.

Communications Problems: Good cell reception.



Concerns and Advice to Responders:

Extensive cleanup and site remediation would be required should oil enter Whittell Marsh or Garrity Creek, there would be long term loss of sensitive species and their habitat.

Hazard and Restrictions:

Shallow water, limited approach from water, only during high tides, submerged obstructions likely, avoid eelgrass with propellers. Wind chop to three feet possible.

Site Strategies:

Site Validation Level: II

Strategy: 2-504.1 Objective: Exclude oil from the inner marshes of Whittell and Garrity Creek.

Strategy: a) Exclude oil from the inlets leading into Whittell Marsh (a large salt-marsh and several pocket marshes). There are 10 inlets. The largest inlets are on the west side of the site. The largest will require 200 feet of swamp boom and 200 feet of sorbent boom. Set each layer (100') of swamp boom at a steep angle across the largest inlet and back with several layers of sorbent boom. The type of sorbent should be adjusted to the type of oil spilled. Use plastic pom-poms (Oil-snare) for heavy oils and rubberizer boom for light oils.

Oil can be excluded from the remaining 9 inlets by placing 100 feet of swamp boom and backing with 100 feet of sorbent boom or 300 feet of oil snare rope in each channel so it forms a solid layer on the surface of the water from bank to bank for 6 feet of the channel length. The boom and the sorbents must be able to rise and fall with the tide. If high tide expected, exclude from marsh front.

B) Exclude oil from Garrity Creek by placing three 100 foot sections of swamp boom at a 45 degree angle across the creek. Back with sorbents. Use 300 feet of oil snare on a rope or 100 feet of 4 high construction fence with oil snares fastened every 14 inches in 3 rows.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Swamp	6x6 inch		1400	feet	
Anchor	Danforth	22 lb		5		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Strategy: 2-504.2 Objective: If high tide expected, exclude oil from marsh front.

Strategy: The natural berm separating the marshes from San Pablo Bay is topped by waves at only the highest spring tides. If such tides are expected, five layers of oil snare on a rope, or other sorbent appropriate to the type of oil spilled, should be placed along the top of the berm for its entire length. This will require approximately 25,000 feet of oil snare on a rope.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Oil Snare (pom-pom)			25000	feet	
Anchor	Danforth	22 lb		50		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			3		
Staff	Staff to Deploy			9		

Logistics:

Directions: On the east along the south shore of San Pablo Bay. Access to Whittell Marsh is via shallow water craft. In dry weather some access may be possible through Point Pinole Regional Park, via Pt. Pinole Road and Marsh Trail. There is parking areas on the shoreline at either side of Whittell Marsh. Access to Garrity Creek is via San Pablo Ave and Tara Hills Drive. The site occurs between Pinole and Wilson Point, covering a distance of approximately 2 miles. Point Pinole is under management of East Bay Regional Park District (EBRPD). East Bay Regional Park District (EBRPD).

Land Access: Access thru EBRPD Gate. Coordinate with EBRPD Staff for access.

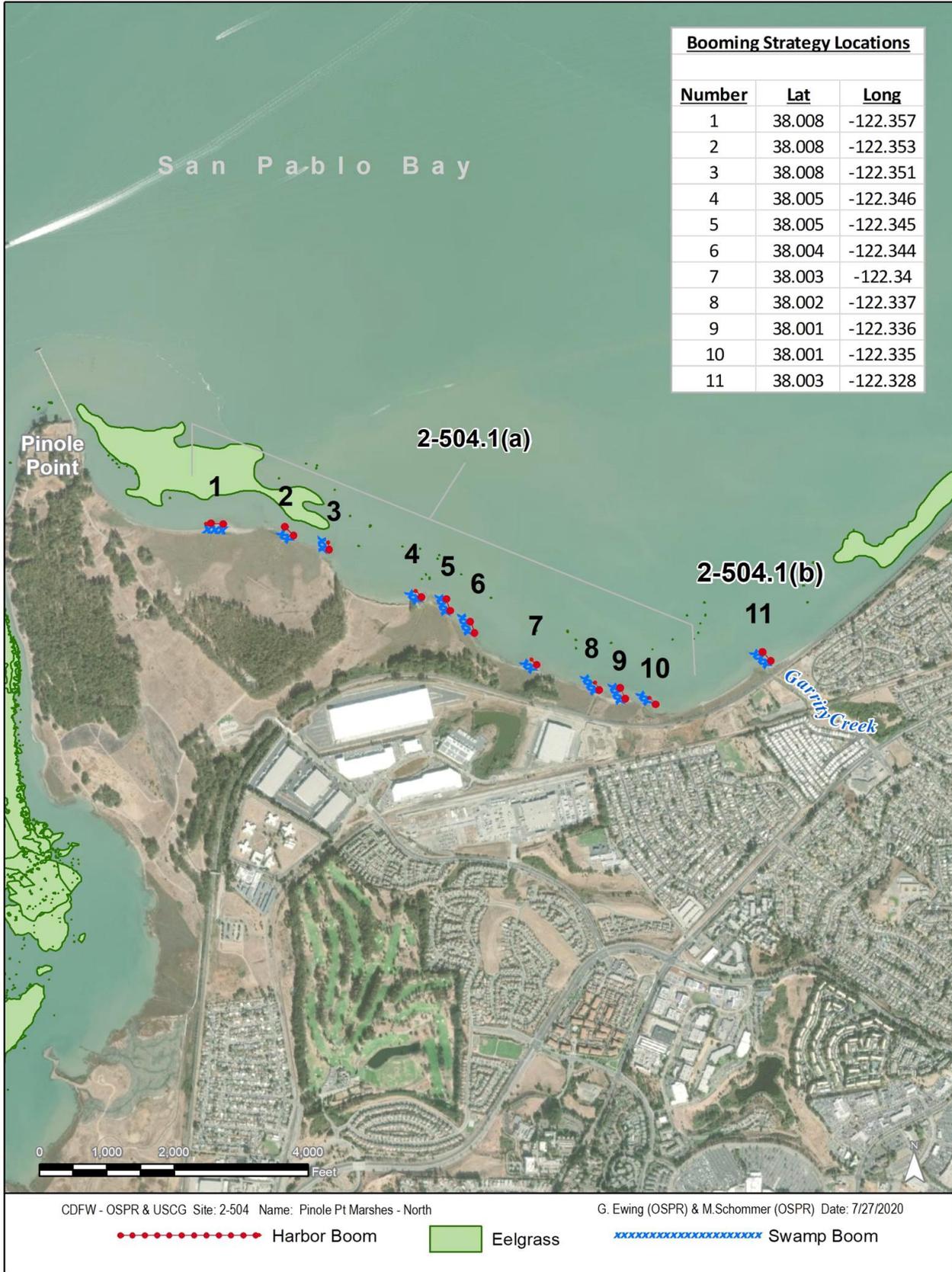
2-504-A Site Strategy - Pinole Point Marshes - North

2-504-A

On-Water Limitations: Very shallow (tide dependent) with submerged hazards.

Facilities, Staging Areas, Command Posts, Available Equipment: Contact EBRPD for staging ares and potential field post.

Communications Problems: Good cell reception throughout.



County: Contra Costa **ACP Division/Segment:** CC - N - S007 CC - N - S008

NOAA Chart: 18654 SAN PABLO BAY **Map Book:** AAA Richmond **Decimal Degrees:** 38.014171 -122.296883

Site Description:

The site includes one-half mile in both directions along shoreline from Pinole Creek. The shoreline and salt-marshes are under management of East Bay Regional Park District (EBRPD). Pinole Creek is a narrow channel (~40 ft) wide with a cordgrass salt-marsh along its banks inland upstream to the Railroad bridge. A sand/gravel bar extends from the east side creek mouth out into bay. Shorelines on either side of creek are exposed tidal flats backed by salt-marsh habitat in a residential area. An eelgrass bed lies directly north of creek mouth. Pinole Municipal Wastewater Treatment Plant on the south side of Pinole Creek. The UPRR line lies parallel to shoreline and directly southeast of the site.

Resources at Risk:

ESI and Habitat: 9B Vegetated low banks

5 Mixed sand and gravel beaches

6B Riprap

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	California black rail	FP, ST	Year-round	Mar-Aug
Birds	song sparrow	FP, SSC	Year-round	Mar-Jul
Fish	longfin smelt	ST	Year-round	Nov-May

FT-Federally Threatened, FE-Federally Endangered, FP-Federally Protected, SE-State Endangered, ST-State Threatened, SP -State Protected, SR-State Rare, SSC-Species of Special Concern, BGEPA-Bald and Golden Eagle Protection Act, SSSP-State Special Status Species

List of Key Contacts:

Type	Name/Title	Organization	Phone
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C	/Coordinator	Northwest Information Center	(707) 588-8455
E	/Dispatch, 24-hr	East Bay Regional Park District	(510) 881-1833
E	/Shoreline Parks Manager	East Bay Regional Park District	(510) 881-1832
O	/Dispatch, 24-hr	Contra Costa County Office of the Sheriff	(925) 468-4421
T	/Spill Response Coordinator	USFWS, SF Bay-Delta Office	(916) 799-0588

C – Cultural, Historic, Archaeological; E – Entry/Owner/Access; O – Other; S – Safety; T – Trustee; X – Exclusion or Security

Additional Site Summary Comments:

Very shallow water, limited approach from water, only during high tides, submerged obstructions likely, avoid eelgrass beds with propellers. Wind chop to three feet possible.

Concerns and Advice to Responders:

Impacts to salt-marsh, mudflat, and eelgrass beds, and their associated wildlife.

Hazard and Restrictions:

Union Pacific Railroad (UPRR) tracks across creek. Very shallow water, limited approach from water, only during high tides, submerged obstructions likely, avoid eelgrass beds with propellers. Wind chop to three feet possible.

Site Strategies:**Site Validation Level: II**

Strategy: 2-505.1 Objective: Exclude oil from entering the creek.

Strategy: Exclusion boom: Deploy 200 ft curtain boom (small skirt) across creek channel mouth. Deploy at angle to current from rip rap point west back to beginning of marsh bank on east side. Deploy from levee.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Swamp	6x6 inch		200	feet	
Anchor	Danforth	22 lb		2		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			2		

Strategy: 2-505.2 Objective: Protective booming to prevent oil from coming in contact with the bayfront marsh vegetation.

Strategy: Line marsh fronts with small curtain boom backed with sorbent boom (500 ft west, 3000 ft east of creek mouth).

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Swamp	6x6 inch		3500	feet	
Boom	Sorbent			3500	feet	
Anchor	Danforth	22 lb		8		
Vessel	Backhoe			2		
Vessel	Skiff or Punt			2		
Staff	Staff to Deploy			8		

Logistics:

Directions: Key access is from I-80 to City of Pinole. Exit Pinole Valley Road. Proceed north across San Pablo Ave. where Pinole Valley Rd. turns into Tennent. Proceed north to Waste Water treatment plant at shoreline. Parking and gate to levee road is here.

Land Access: Access is good for all vehicles including heavy equipment.

On-Water Limitations: Very shallow water offshore. Small vessels can be launched at Pinole Creek.

Facilities, Staging Areas, Command Posts, Available Equipment: Stage from area around Pinole Municipal waste-water treatment plant.

Communications Problems: Good cell reception in area.



CDFW - OSPR & USCG Site: 2-505 Name: Pinole Creek and Wetlands

G. Ewing (OSPR) & M.Schommer (OSPR) Date: 7/28/2020

XXXXXXXXXXXXXXXXXXXXX Swamp Boom

Eelgrass

County: Contra Costa **ACP Division/Segment:** CC - O - S001 CC - O - S010

NOAA Chart: 18654 San Pablo Bay **Map Book:** AAA West Contra **Decimal Degrees:** 37.986642 -122.399007

Site Description:

This massive eelgrass bed is located between Point San Pablo and Point Pinole, approx one mile northwest of the West Contra Costa Sanitary Land Fill. This eelgrass bed, like all eelgrass beds can vary in distribution, density, and height from year to year. Since most of the bed is deeper than 10 feet (MLLW), it is rarely exposed to oiling, only when tides are so low that the eelgrass tops (fronds) are exposed on the surface. This is a shallow subtidal soft substrate area of the bay with potential submerged hazards. San Pablo Bay eelgrass bed occupies approximately 300 acres and is easily visible from the air during low tides.

Resources at Risk:

ESI and Habitat: 5 Mixed sand and gravel beaches

10A Salt - and brackish-water marshes

6B Riprap

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Fish	Pacific herring		Year-round	Nov-Apr
Fish	longfin smelt	ST	Year-round	Nov-May
Plants	eelgrass		Year-round	

FT-Federally Threatened, FE-Federally Endangered, FP-Federally Protected, SE-State Endangered, ST-State Threatened, SP -State Protected, SR-State Rare, SSC-Species of Special Concern, BGEPA-Bald and Golden Eagle Protection Act, SSSP-State Special Status Species

List of Key Contacts:

Type	Name/Title	Organization	Phone
C	/Coordinator	Native American Heritage Commission	(916) 373-3710
C	/Coordinator	Northwest Information Center	(707) 588-8455
E	/Operations, 24-hr	Chevron Corporation, Long Wharf	(510) 242-4494
E	/Dispatch, 24-hr	East Bay Regional Park District	(510) 881-1833
E	/Point Pinole Park Supervisor	East Bay Regional Park District	(510) 544-3062
O	/Dispatch, 24-hr	Contra Costa County Office of the Sheriff	(925) 468-4421
T	/Agency Representative	NOAA National Marine Fisheries Service	(562) 980-3232

C – Cultural, Historic, Archaeological; E – Entry/Owner/Access; O – Other; S – Safety; T – Trustee; X – Exclusion or Security

Additional Site Summary Comments:

Avoid eelgrass beds with outboard engines/props.

Concerns and Advice to Responders:

Avoid vessel transit through eelgrass beds with propellers.

Hazard and Restrictions:

Shallow water, submerged obstructions likely based on tidal height. Wind chop to three feet possible.

Site Strategies:**Site Validation Level: II**

Strategy: 2-506.1 Objective: Assess need for protective booming: Eelgrass is only vulnerable at very low tides when eelgrass tops are exposed to floating oil.

Strategy: Biological staff must assess this site to determine if eelgrass is at risk. Because this bed is fairly deep, eelgrass tops are rarely, if ever, exposed to floating oil, and then only at very low tides. Oil readily sticks to floating eelgrass tops, and once eelgrass gets fouled with oil, oil becomes a subsurface threat to fish and other organisms which thrive in this cover. Scientific staff must review tidal information to see if minus tides less than -0.5 may result in eelgrass exposure, and must conduct on-site evaluation as necessary. Any booming recommendations should be expedited through ICS to operations.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Staff	OSPR Staff ES			1		

Strategy: 2-506.2 Objective: Deflect oil from coming into contact with the eelgrass during low tides.

Strategy: Deflection booming: if a large amount of heavy oil is expected to enter the eelgrass bed within 2 hours of low tide, 2000 feet of 9X9+ Hboom should be deployed in an attempt to deflect the oil around the eelgrass. The location and manner in which the boom is deployed will depend upon the wind and current at the time of the deployment. The deflection is unlikely to be effective if any portion of the boom is perpendicular to the wind or current. Oil can pass directly over the eelgrass at high tide without sticking to the eelgrass fronds.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		2000	feet	
Anchor	Danforth	22 lb		8		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Logistics:

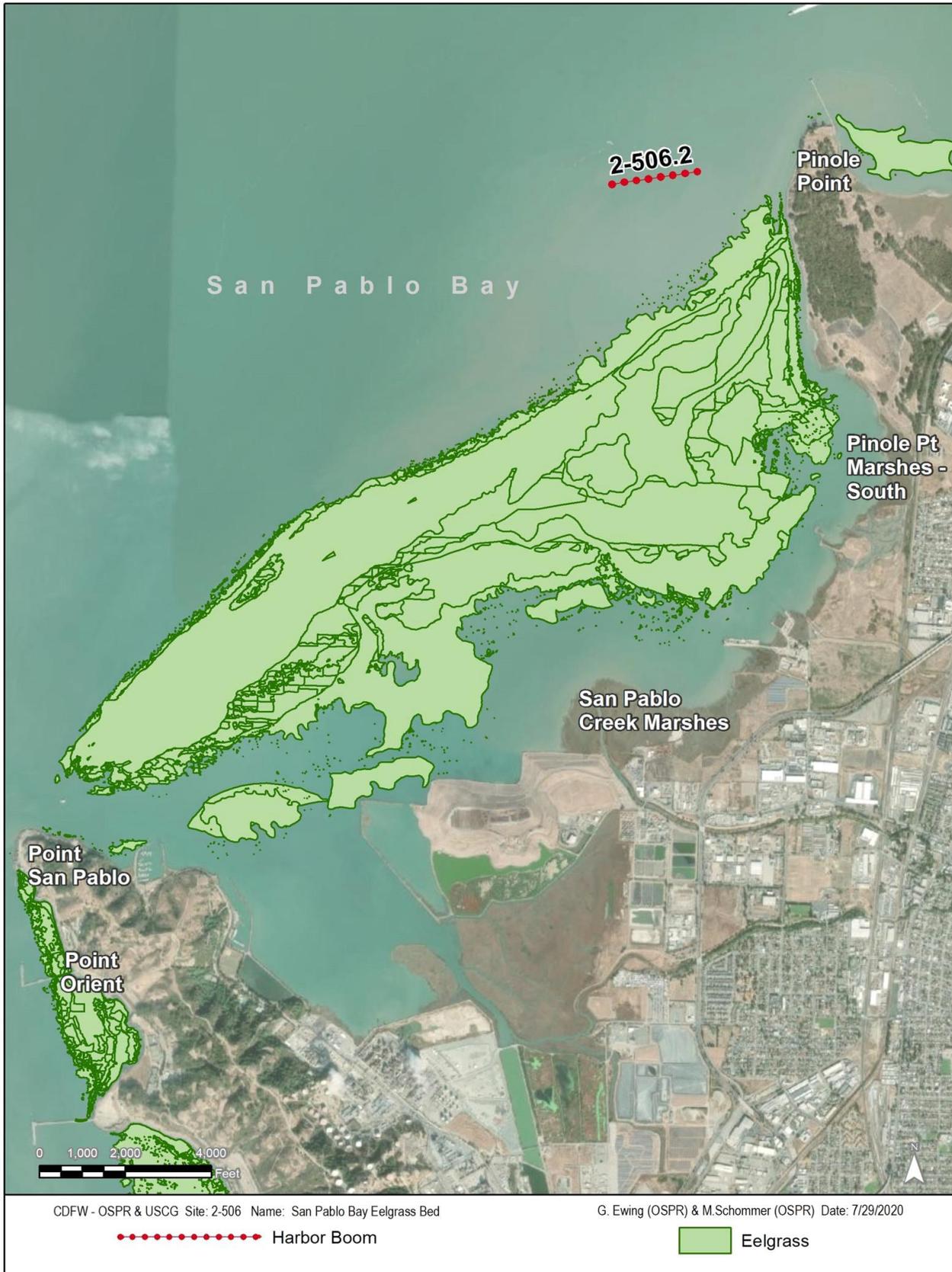
Directions: Access by water only. Launch ramp at Richmond Marina or Chevron Refinery in Richmond.

Land Access: Boat access only.

On-Water Limitations: Shallow draft vessels only. Richmond Marina, Pt San Pablo Yacht Harbor, and Chevron Refinery.

Facilities, Staging Areas, Command Posts, Available Equipment: Richmond Harbor and Chevron Refinery.

Communications Problems: Good cell reception throughout area.



County: Marin**ACP Division/Segment:** MR - V - S008 MR - V - S012**NOAA Chart:** 18654 San Pablo Bay**Map Book:** Marin County, S**Decimal Degrees:** 38.010451 -122.487525**Site Description:**

China Camp includes the salt-marshes and mudflats of China Camp State Park. Historical China Camp is a state managed park. Approx boundaries are Rat Rock/Five Pines Point on the east to Gallinas Creek on the west (approx the power line tower). Nearly 3 miles of bayfront salt-marshes, mudflats and rocky intertidal shorelines. The largest pickleweed salt-marsh extends from Gallinas Creek to Buckeye Point (1.5 miles). This is a pristine salt-marsh with extensive tidal channels. Three narrow pocket marshes of cordgrass and pickleweed are present between Buckeye Point to Weber Point, Weber Point to Bullhead Flat, and Bullhead Flat to Five Pines Point.

Resources at Risk:*ESI and Habitat:* 10A Salt - and brackish-water marshes

8D Sheltered rocky rubble shores

5 Mixed sand and gravel beaches

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	California Ridgeway's rail	FE, SE	Year-round	Feb-Aug
Birds	California black rail	FP, ST	Year-round	Mar-Aug
Birds	song sparrow	FP, SSC	Year-round	Mar-Jul
Fish	longfin smelt	ST	Year-round	Nov-May
Invertebrates	Olympia oyster		Year-round	
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Plants	Marin knotweed	SSSP	Year-round	May-Aug

FT-Federally Threatened, FE-Federally Endangered, FP-Federally Protected, SE-State Endangered, ST-State Threatened, SP -State Protected, SR-State Rare, SSC-Species of Special Concern, BGEPA-Bald and Golden Eagle Protection Act, SSSP-State Special Status Species

List of Key Contacts:

Type	Name/Title	Organization	Phone
C	/Coordinator	Native American Heritage Commission	(916) 373-3710
C	/Coordinator	Northwest Information Center	(707) 588-8455
E	/Ranger	China Camp State Parks	(415) 456-0766
O	/Dispatch, 24-hr	California State Parks, Bay Area District	(916) 358-1300
O	/Emergency Service Coordinator	Marin County Office of Emergency Services	(415) 250-0267
O	/Dispatch, 24-hr	Marin County Sheriff's Department	(415) 479-2311
O	/Research Coordinator	San Francisco Bay Estuarine Research Reserve	(415) 338-3724
T	/Spill Response Coordinator	USFWS, SF Bay-Delta Office	(916) 799-0588

C – Cultural, Historic, Archaeological; E – Entry/Owner/Access; O – Other; S – Safety; T – Trustee; X – Exclusion or Security

Additional Site Summary Comments:

Small skiffs can be launched directly from China Camp Beach in coordination of State Parks Personnel. There is a locked gate at the entrance from sunset to sunrise.

Concerns and Advice to Responders:

The large extensive salt-marsh with interior tidal channels is extremely vulnerable to oil. The presence of large tidal mudflats create access difficulties for protection measures thereby increasing the risk of oiling. First priority is to keep oil from being carried into inner marsh via tidal channels. Avoid trampling marsh vegetation and trampling oil into sediments.

Hazard and Restrictions:

Shallow water and mudflats extend out into the bay from all marsh areas. Power lines are present at the west end of the site across Gallinas Creek.

Site Strategies:**Site Validation Level: III**

Strategy: 2-552.1 Objective: On-water recovery of oil to prevent oil from entering marshes, tidal channels and mudflats.

Strategy: Conduct on-water recovery in deeper water and channels near Rat Rock and east of China Camp State Park.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
skimmer	self propelled			2		
Staff	Staff to Deploy			4		

Strategy: 2-552.2 Objective: Deflect oil away from shoreline into main channel. Prevent oil from entering marshes and tidal channels.

Strategy: Deploy deflection 9X9+ Hboom from mainland shore near Rat Rock and at Buckeye Point (at pier pilings). Deploy in 200-500 ft. sections. 500 ft. at each site.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		1000	feet	
Anchor	Danforth	22 lb		4		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Strategy: 2-552.3 Objective: Exclude oil from entering marshes and tidal channels from Gallinas Creek to Rat Rock.

Strategy: Exclusion booming of inlets in largest (west) marsh if limited by equipment/time. Seven tidal channels are present in the largest marsh. Deploy a combination of "V" shape swamp booms across channel openings (50 ft. each).

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Swamp	6x6 inch		350	feet	<i>Strategy Updated: 2/6/2019</i>
Anchor	Danforth	22 lb		8		<i>Last Test: 2/6/2019</i>
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Strategy: 2-552.4 Objective: Protective booming of marsh fronts from Gallinas Creek to Rat Rock

Strategy: Deploy swamp boom along marsh fronts to exclude oil. Deploy at high tide over mudflats as close to marsh front as possible. From west to east, the marshes at this site require 9000 ft Swamp boom. From Buckeye Pt to Rat Rock, use 3200 ft Harbor Boom (2200 ft west leg, 1000 ft east leg) to exclude shoreline.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Swamp	6x6 inch		9000	feet	Strategy Updated: 2/6/2019
Boom	Harbor Boom	9x9 inch		3200	feet	Last Test: 2/6/2019
Anchor	Danforth	22 lb		28		
Vessel	Boom Boat			4		
Vessel	Skiff or Punt			2		
Staff	Staff to Deploy			12		

Logistics:

Directions: From Hwy 101 in San Rafael, Marin County; take the San Pedro Road exit. Proceed east on San Pedro Road to China Camp State Park.

Land Access: Large trucks on pavement only. Coordinate with State Parks Personnel for access thru gate.

On-Water Limitations: Very shallow water (<3 ft.) Small boat launch at Buck's Landing. Water access also near Rat Rock (Bullshead flat). Skiff or punts can also be launched from China Camp Beach.

Facilities, Staging Areas, Command Posts, Available Equipment: Launch at at Buck's Landing. Staging at Buck's Landing, Bullhead Flat and McNear's Beach. No spill response equipment stored locally.

Communications Problems: Good cell reception in area.



Imagery: NAIP 2010 (Summer) 4-Band

County: Marin**ACP Division/Segment:** MR - W - S001 MR - W - S002**NOAA Chart:** 18654 San Pablo Bay**Map Book:** Marin County, S**Decimal Degrees:** 38.021801 -122.5025**Site Description:**

This site includes Gallinas Creek and the bayfront salt-marshes from the creek north to Hamilton Field. Boundaries include the south shore of Gallinas Creek as the south boundary, to the levee and tower at the south end of Hamilton Field Marsh as the north boundary. Site is under jurisdiction of Marin County Open Space. Extensive cordgrass and pickleweed salt-marsh habitats are present on both sides of Gallinas Creek and on the San Pablo Bay marshfront. Mudflats extend out into San Pablo Bay from the marshes during low tides. At least seven major interior tidal channels (lat/lon locations on diagram) into the salt-marsh exposed to San Pablo Bay.

Resources at Risk:*ESI and Habitat:* 10A Salt - and brackish-water marshes

9B Vegetated low banks

8B Sheltered solid man-made structures

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	California Ridgeway's rail	FE, SE	Year-round	Feb-Aug
Birds	California black rail	FP, ST	Year-round	Mar-Aug
Birds	song sparrow	FP, SSC	Year-round	Mar-Jul
Birds	burrowing owl	SSC	Year-round	Mar-Apr
Fish	longfin smelt	ST	Year-round	Nov-May
Fish	chinook salmon - Winter-run	FE, SE	Year-round	Oct-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Plants	Pt. Reyes bird's-beak	SSSP	Year-round	May-Jun

FT-Federally Threatened, FE-Federally Endangered, FP-Federally Protected, SE-State Endangered, ST-State Threatened, SP -State Protected, SR-State Rare, SSC-Species of Special Concern, BGEPA-Bald and Golden Eagle Protection Act, SSSP-State Special Status Species

List of Key Contacts:

Type	Name/Title	Organization	Phone
C	/Coordinator	Native American Heritage Commission	(916) 373-3710
C	/Coordinator	Northwest Information Center	(707) 588-8455
E	/Office	Bucks Landing	(415) 472-1502
E	/Office	Marin County Open Space District, McInnis Park	(415) 446-4423
O	/Dispatch, 24-hr	California State Parks, Bay Area District	(916) 358-1300
O	/Emergency Service Coordinator	Marin County Office of Emergency Services	(415) 250-0267
O	/Dispatch, 24-hr	Marin County Sheriff's Department	(415) 479-2311
O	/Research Coordinator	San Francisco Bay Estuarine Research Reserve	(415) 338-3724
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Spill Response Coordinator	USFWS, SF Bay-Delta Office	(916) 799-0588

C – Cultural, Historic, Archaeological; E – Entry/Owner/Access; O – Other; S – Safety; T – Trustee; X – Exclusion or Security

Additional Site Summary Comments:

Access to shoreline via on-water is shallow. Submerged hazards from old pier pilings and rocks.

Concerns and Advice to Responders:

The large and extensive salt-marsh along Gallinas Creek and north of the creek mouth with several interior tidal channels are extremely vulnerable to oil. The large tidal mudflats create access difficulties and potentially increase the risk of oiling. There are numerous channels that connect the marshes with San Pablo Bay. Avoid trampling of marsh vegetation and trampling oil into mud.

Hazard and Restrictions:

Shallow water and mudflats are extensive. Power lines over creek running north to south and parallel to shoreline will be a hazard to low flying aircraft. HAZARD: there is a poorly marked submerged wreck in the Bay-side entrance to the channel.

Site Strategies:**Site Validation Level: III**

Strategy: 2-553.1 Objective: Deflect/collect oil to prevent from entering Gallinas Creek and interior marsh channels along bayfront.

Strategy: Charts do not properly reflect the mouth of the Gallinas Creek. The creek is drained through the main channel and smaller channels serve the salt marshes.

Deploy 1000 ft. of deflection harbor boom across Gallinas Creek to boat ramp. Anchor boom on north shore in the high marsh near the power line tower. May need tidal barrier boom across mudflat and marsh to provide an adequate seal.

Deploy 500 ft. of swamp boom on south shore from boat ramp, extending towards the bay, in front of dock, across mudflat and marsh towards power line tower.

Deflect to collection pocket at boat ramp. Skim oil at boat ramp.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch	2500	feet		<i>Strategy Updated: 12/1/2016</i>
Anchor	Danforth	22 lb	12			<i>Last Test: 12/1/2016</i>
Vessel	Boom Boat		1			
Vessel	Skiff or Punt		1			
skimmer	shoreside		1			
Staff	Staff to Deploy		7			

Strategy: 2-553.2 Objective: Exclude oil from entering marsh channels and/or marshfront north of Gallinas Creek.

Strategy: Seven interior tidal channels exist in the marsh north of Gallinas Creek. Use exclusion booming techniques to prevent oil entry. Deploy a combination of "V" shaped swamp booms across each channel opening (50 ft. each). Back each chevron with sorbent boom.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Swamp	6x6 inch	350	feet		<i>Strategy Updated: 2/6/2019</i>
Boom	Sorbent		350	feet		<i>Last Test: 2/6/2019</i>
Anchor	Danforth	22 lb	4			
Anchor	Stakes		8			
Vessel	Skiff or Punt		1			
Staff	Staff to Deploy		2			

Strategy: 2-553.3 Objective: Prevent oil from entering Gallinas Creek.

Strategy: This is a fall-back strategy to strategy 2-553.1:

Further inside Gallinas Creek, on a flood tide, deploy 600 ft. of harbor (300 ft each leg) boom in a "V" formation with an apex at mouth of skimmer.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		600	feet	<i>Strategy Updated: 2/6/2019</i>
Boom	Sorbent			200	feet	<i>Last Test: 2/6/2019</i>
Anchor	Danforth	22 lb		4		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
skimmer	self propelled			1		
Staff	Staff to Deploy			8		

Logistics:

Directions: From Hwy 101 in San Rafael, Marin County, take the San Pedro Road exit east towards China Camp State Park. Turn left at road to Buck's Landing and launch ramp for access to Gallinas Creek. There is no road access to the shore north of Gallinas Creek.

Land Access: Large truck okay on south side, no land access on north side.

On-Water Limitations: Shallow draft vessels only, Small boat launch at Buck's Landing. Additional water access at China Camp, Bullhead Flat. And at McNear's Beach.

Facilities, Staging Areas, Command Posts, Available Equipment: Staging and launch at Buck's Landing.

Communications Problems: Good cell reception throughout area.



Imagery: NAIP 2010 (Summer) 4-Band

County: Marin**ACP Division/Segment:** MR - W - S003**NOAA Chart:** 18654 SAN PABLO BAY**Map Book:****Decimal Degrees:** 38.054575 -122.494398**Site Description:**

Hamilton Field Marsh is a recently restored 622 acre salt-marsh previously known as USAF Hamilton Airfield. This salt-marsh, sheltered mudflat restoration project is connected to San Pablo Bay by one main tidally influenced channel (approx 50m wide). This prograding salt-marsh connects to a wildlife corridor which also serves as a storm water discharge channel from the City of Novato. The restored wetland salt-marsh was designed to provide sheltered bird nesting/rookery and upland ecotone habitat to support a number of listed species. Marin County Open Spaces manage all county parks, shorelines and open spaces.

Resources at Risk:**ESI and Habitat:** 10A Salt - and brackish-water marshes

9A Sheltered tidal flats

9B Vegetated low banks

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	Northern harrier	FP, SSC	Year-round	Jun-Jul
Birds	burrowing owl	SSC	Year-round	Mar-Apr
Birds	California Ridgeway's rail	FE, SE	Year-round	Feb-Aug
Birds	common yellowthroat	FP, SSC	Year-round	Jan-Aug
Birds	California black rail	FP, ST	Year-round	Mar-Aug
Birds	Western snowy plover	FT, SSC		Mar-Oct
Fish	longfin smelt	ST	Year-round	Nov-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	

FT-Federally Threatened, FE-Federally Endangered, FP-Federally Protected, SE-State Endangered, ST-State Threatened, SP -State Protected, SR-State Rare, SSC-Species of Special Concern, BGEPA-Bald and Golden Eagle Protection Act, SSSP-State Special Status Species

List of Key Contacts:

Type	Name/Title	Organization	Phone
C	/Coordinator	Native American Heritage Commission	(916) 373-3710
C	/Coordinator	Northwest Information Center	(707) 588-8455
O	/Dispatch, 24-hr	California State Parks, Bay Area District	(916) 358-1300
O	/Emergency Service Coordinator	Marin County Office of Emergency Services	(415) 250-0267
O	/Dispatch, 24-hr	Marin County Parks, Open Space District	(415) 479-2311
O	/Dispatch, 24-hr	Marin County Sheriff's Department	(415) 479-2311
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Oil Spill Point of Contact	NOAA National Marine Fisheries Service	(707) 480-3496

C – Cultural, Historic, Archaeological; E – Entry/Owner/Access; O – Other; S – Safety; T – Trustee; X – Exclusion or Security

Additional Site Summary Comments:

Additional bird species of concern at this site include Cliff swallows, California horned lark and migratory waterfowl.

Concerns and Advice to Responders:

Access to marsh is by foot only to either north or south levees. The tidal channel is impassable on foot.

Hazard and Restrictions:

Power lines run north to south near shoreline edge of San Pablo Bay. Any air operations need to be aware.

Site Strategies:**Site Validation Level: I****Strategy: 2-555.1 Objective:** Exclude Oil

Strategy: Using three 500 ft of Hboom legs, cascade two legs to a collection pocket. Use 100 ft of swamp boom to form collection pocket where skimmable quantities of oil for removal (sub-strategy 2-555.2).

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9		1500	ft	
Boom	Swamp	6x6		100	ft	
Vessel	boomboat			1		
Vessel	Skiff			1		
Anchor	Danforth	22 lb		15		
Staff	Staff to Deploy			5		
Staff	Staff to Tend			2		

Strategy: 2-555.2 Objective: Collect Oil with Skimmer

Strategy: At northern end of deflection to collection strategy, activate skimmer to collect accumulated oil pockets for removal. Be advised that oil collection via vacc-truck is not a viable option at this location.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
skimmer	self propelled			1		
Staff	Staff to Deploy			3		

Logistics:

Directions: Hwy 101 exit Bel Marin Keys Blvd. Right On Nave Dr. Left on Hamilton Parkway, Left on South Palm Dr. Right on Hanger Dr. Access to marsh thru residential area. Park along Hanger Ave.

Land Access: Access to marsh is by foot only to either north or south levees. For north levee, park in Serra Court, enter thru gate. For south levee, park at South Hamilton Park at the south end of Hangar Ave. However the the tidal channel is impassable on foot.

On-Water Limitations: Nearest vessel launch is Black Point Launch (Hwy 37 & Petaluma River).

Facilities, Staging Areas, Command Posts, Available Equipment: USCG Pacific Strike Team has complete facilities available, contact to make arrangements.

Communications Problems: Good cell reception throughout.



Imagery: NAIP 2010 (Summer) 4-Band

County: Marin**ACP Division/Segment:** MR - W - S003 MR - W - S004**NOAA Chart:** 18654 San Pablo Bay**Map Book:****Decimal Degrees:** 38.09624 -122.488768**Site Description:**

Site includes the San Pablo Bay shoreline from mouth of Petaluma River extending 2.3 miles southerly to the levee at Hamilton Marsh and includes a mile of Novato Creek to the Bel Mar Keys locks and adjacent salt-marshes. Site is under jurisdiction of Marin County Open Space. The bay frontage marshes between Petaluma River and Hamilton Marsh are prograding and shallow very gradually, supporting 100 to 200 meter wide variety of biota from tidal flat to high marsh. The salt-marsh consists of unvegetated to cordgrass to pickleweed dominated. Novato Creek is an incised channel through a wide flood plain of pickleweed salt-marsh. In addition, there is much larger high pickleweed salt-marsh both north and south of Novato Creek; the Northerly side is a tidal tributary to Novato Creek, while the marshes to the South are predominantly tributary directly to San Pablo Bay with several mosquito abatement outlets.

Resources at Risk:*ESI and Habitat:* 10A Salt - and brackish-water marshes

9B Vegetated low banks

8C Sheltered riprap

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	California Ridgeway's rail	FE, SE	Year-round	Feb-Aug
Birds	California black rail	FP, ST	Year-round	Mar-Aug
Birds	song sparrow	FP, SSC	Year-round	Mar-Jul
Fish	longfin smelt	ST	Year-round	Nov-May
Fish	steelhead - Central/Northern California	FT	Year-round	Nov-Apr
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	

FT-Federally Threatened, FE-Federally Endangered, FP-Federally Protected, SE-State Endangered, ST-State Threatened, SP -State Protected, SR-State Rare, SSC-Species of Special Concern, BGEPA-Bald and Golden Eagle Protection Act, SSSP-State Special Status Species

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C	/Coordinator	Native American Heritage Commission	(916) 373-3710
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O	/Dispatch, 24-hr	Marin County Parks, Open Space District	(415) 479-2311
O	/Dispatch, 24-hr	Marin County Sheriff's Department	(415) 479-2311
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Oil Spill Point of Contact	NOAA National Marine Fisheries Service	(707) 480-3496
T	/Research Wildlife Biologist	US Geological Survey, SF Bay Estuary	(415) 859-1511
T	/Spill Response Coordinator	USFWS, SF Bay-Delta Office	(916) 799-0588

C – Cultural, Historic, Archaeological; E – Entry/Owner/Access; O – Other; S – Safety; T – Trustee; X – Exclusion or Security

Additional Site Summary Comments:

Aircraft should beware of high power lines running parallel to shoreline. This area is very shallow except in Novato Creek Channel.

Concerns and Advice to Responders:

This is very sensitive habitat with listed species present. Exclude oil from entering Novato Creek to prevent oil from conveying into the north side marsh via tidal channels. Boom tidal inlets to the southerly marsh. Deflect oil away from Novato Creek mouth and this site. Any oil arriving at this site should be deflected to collection locales and prevented from remobilizing where possible. Protect marsh fronts from oiling and oil penetration. Avoid trampling marsh and driving oil into marsh sediments during cleanup. Be aware of oil penetrating animal burrows.

Hazard and Restrictions:

Aircraft should beware of high power lines running parallel to shoreline. This area is very shallow except in Novato Creek Channel.

Site Strategies:

Site Validation Level: III

Strategy: 2-557.1 Objective: Exclusion booming of Novato Creek and the three major and any minor tidal channels south of Novato Creek to prevent oil from penetrating to interior marshes (and upstream tidal channels)

Strategy: Exclude oil at Novato Creek mouth by deploying 300' of 9X9+ Hboom diagonally across the mouth & direct oil to accumulate in a pocket (lined with boom) at the northern shore (if opportunity permits, a cleared or excavated pocket may be prepared to enhance capture and collection for possible skimming). Run boom high onto marsh margin. This deployment requires a midchannel anchorage.

Also, boom each of the eight (3 major, 5 minor) small inlets in Novato Creek by staking short lengths of swamp boom to exclude. Exclude oil from entering tidal channels south of Novato Creek with chevron booming of inlets with 100' of boom each. Back with sorbent boom. Repeat deployment if severe oiling or wave action threaten to defeat the strategy.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		600	feet	
Boom	Swamp	6x6 inch		200	feet	
Boom	Sorbent			400	feet	
Anchor	Danforth	22 lb		6		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Strategy: 2-557.2 Objective: Deflection when oil is approaching from South or East of Novato Creek, deflect past Novato Creek mouth toward Petaluma River.

Strategy: Deflection boom: Establish a shore anchorage at least 100 yards south of the Novato Creek mouth and deploy a 1000' of 9X9+ Hboom at a diagonal to channel marker 23 and across the Novato Creek channel. Make an overlap to permit channel traffic. Deploy 2000' of 9X9+ Hboom at a slighter angle to the north of the first boom set.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		3000	feet	
Anchor	Danforth	22 lb		5		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Strategy: 2-557.3 Objective: Skimming in channel if heavy oil is threatening to overwhelm the exclusion strategy (.1) for Novato Creek mouth, deploy a vessel skimmer as a backup to the deflection strategy to capture oil.

Strategy: Deploy a skimmer in the Novato Creek channel as close to the mouth as feasible to capture oil. Deploy booms from right and left banks to funnel oil to the skimmer. Deploy a diagonal boom behind the skimmer to divert any escaping oil to the shore.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Swamp	6x6 inch		300	feet	
Anchor	Danforth	22 lb		2		
skimmer	self propelled			1		
Staff	Staff to Deploy			3		

Strategy: 2-557.4 Objective: Protective booming of the marshy shoreline north of Novato Creek to Petaluma River. Consider that this deployment will require intensive resources and time in the short navigable intervals.

Strategy: Protection booming of marshfront north of Novato Creek. Deploy a 2500' layer of harbor or swamp boom along the marshy bay frontage from southerly Petaluma River mouth to Novato Creek. Deploy during periods of higher tides to permit approach near shore using shallow draft boomboats capable of stranding without damage. Set boom close to vegetation, as may be possible. Anchor at 500' intervals with chevron apex around channel marker #21. Under severe oil threat, two layers and a sorbent backup may be required. Two layers of swamp boom set about 10 feet apart would be equivalent to harbor boom.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		2500	feet	<i>Strategy Updated:</i>
Anchor	Danforth	22 lb		7		<i>Last Test: 1/23/2019</i>
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Strategy: 2-557.5 Objective: Protective booming of the marshy shoreline south of Novato Creek

Strategy: Protect the 2.5 miles of marshy bay frontage south of Novato Creek with 13,000 feet of skirted boom (two layers of river boom are preferable to one layer of harbor boom). Deploy during periods of higher tides to permit approach near shore using shallow draft boomboats. Set boom close to vegetation, as may be possible. Anchor at 1000' intervals and stake as necessary to secure. Under severe oil threat, two layers and a sorbent backup may be required. Two layers of swamp boom set about 10 feet apart would be equivalent to harbor boom.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		13000	feet	
Anchor	Danforth	22 lb		27		
Vessel	Boom Boat			5		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			16		

Logistics:

Directions: There is no vehicle access to this site. The nearest vehicle accesses are at Petaluma River (at Hwy 37) and at Bel Mar Keys (exit Hwy 101 at Ignacio Blvd south of Novato and proceed bay-ward). Via water, proceed bay-ward from Petaluma River and then to the south: a line of channel markers lead from the river channel to the Novato creek channel.

Land Access: None except on foot.

2-557-A Site Strategy - Novato Creek Marshes

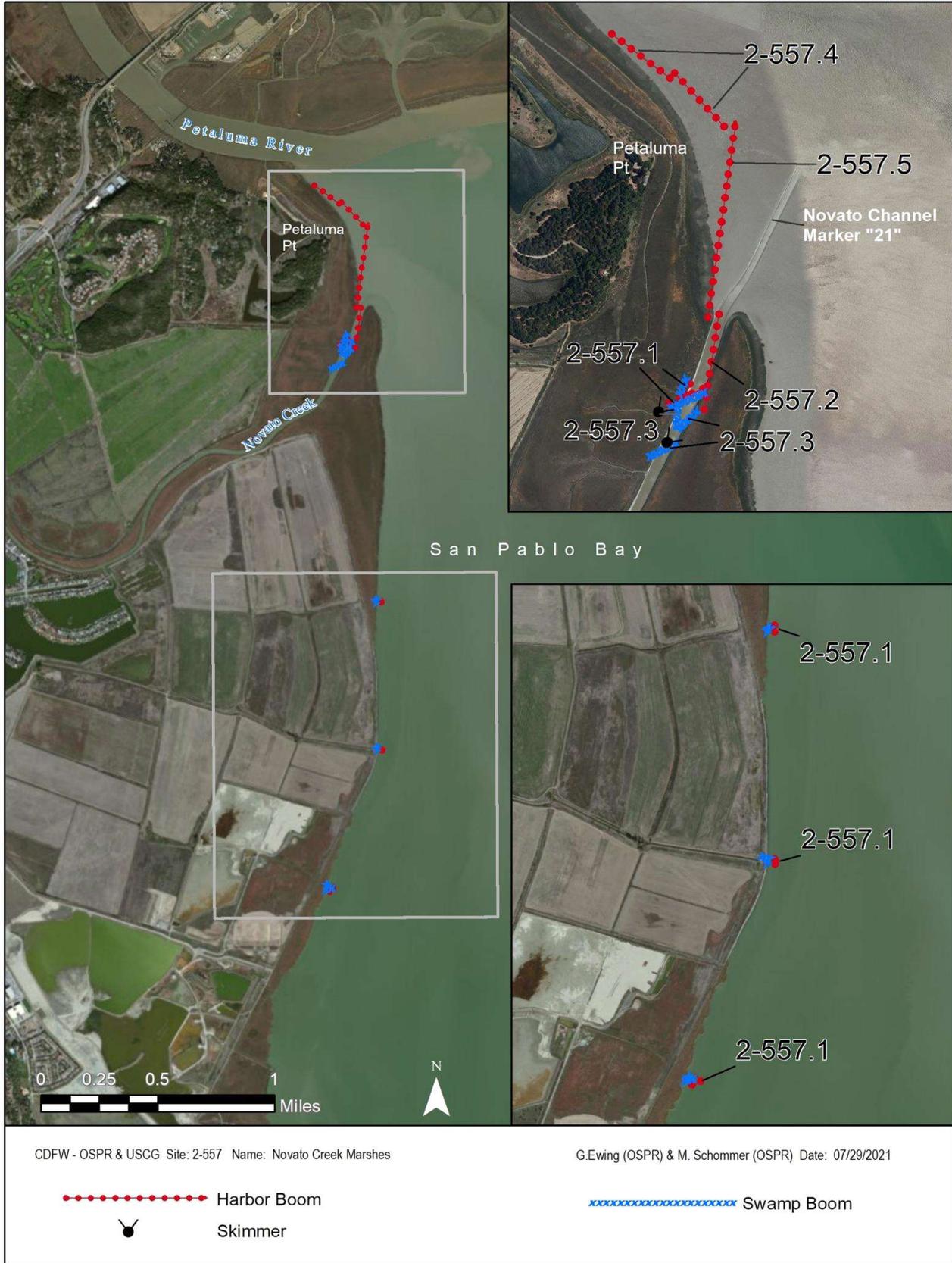
2-557-A

On-Water Limitations: Channel is navigable, use channel markers. Very shallow mudflats. Boat ramp at Black Point Launch one mile north. There is also less useful launch and moorage at Del Mar Keys.

Facilities, Staging Areas, Command Posts, Available Equipment: Best staging site is Black Point Launch, Hwy 37 and Petaluma River.

Communications Problems: None

Additional Operational Comments: Novato Creek serves as vessel traffic for Bel Marin Keyes Community. The channel frequently silts in and is well marked.



Imagery: NAIP 2010 (Summer) 4-Band

County: Sonoma*ACP Division/Segment:* MR - W - S004 SN - S - S001*NOAA Chart:* 18654 San Pablo Bay*Map Book:**Decimal Degrees:* 38.112692 -122.498698**Site Description:**

This site begins at the mouth of the river and includes all the salt-marshes between the river levees and all tidally exposed marshes including "Carl Wilcox" marsh just north of Hwy 37. Area is under jurisdiction of Marin County Open Space. The Petaluma River has been diked along its length and the river channels are maintained for vessel traffic up to the city of Petaluma. The marshes extend several miles up the river. There are diked ponds and extensive salt-marshes on either side of Petaluma river. At the rivermouth, near Hwy 37, there are numerous residences with private docks and the Port Sonoma Marina (currently closed) and a public boat ramp at Black Point. It is imperative that floating oil does not flow upstream on flood tides. River current velocity varies based upon current tide cycle and precipitation runoff volumes.

Resources at Risk:*ESI and Habitat:* 10A Salt - and brackish-water marshes

9B Vegetated low banks

8B Sheltered solid man-made structures

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	California Ridgeway's rail	FE, SE	Year-round	Feb-Aug
Birds	California black rail	FP, ST	Year-round	Mar-Aug
Birds	California least tern	FE, SE	Year-round	Apr-Jun
Birds	Western snowy plover	FT, SSC		Mar-Oct
Birds	common yellowthroat	FP, SSC	Year-round	Jun-Aug
Fish	longfin smelt	ST	Year-round	Nov-May
Fish	chinook salmon - Winter-run	FE, SE	Year-round	Oct-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	

FT-Federally Threatened, FE-Federally Endangered, FP-Federally Protected, SE-State Endangered, ST-State Threatened, SP -State Protected, SR-State Rare, SSC-Species of Special Concern, BGEPA-Bald and Golden Eagle Protection Act, SSSP-State Special Status Species

List of Key Contacts:

Type	Name/Title	Organization	Phone
C	/Coordinator	Native American Heritage Commission	(916) 373-3710
C	/Coordinator	Northwest Information Center	(707) 588-8455
O	/Emergency Service Coordinator	Marin County Office of Emergency Services	(415) 250-0267
O	/Dispatch, 24-hr	Marin County Parks, Open Space District	(415) 479-2311
O	/Dispatch, 24-hr	Sonoma County Sheriffs	(707) 565-2231
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Agency Representative	NOAA National Marine Fisheries Service	(562) 980-3232
T	/Research Wildlife Biologist	US Geological Survey, SF Bay Estuary	(415) 859-1511
T	/Spill Response Coordinator	USFWS, SF Bay-Delta Office	(916) 799-0588

C – Cultural, Historic, Archaeological; E – Entry/Owner/Access; O – Other; S – Safety; T – Trustee; X – Exclusion or Security

Additional Site Summary Comments:

Water depths vary greatly depending on location and tidal cycles. Beware of submerged hazards and overhead powerlines.

Concerns and Advice to Responders:

There are extensive salt-marshes both at the mouth the Petaluma River and extend upstream to the City of Petaluma. These strategies are intended to protect those marshes by excluding oil from moving north from the San Pablo Bay up the river and into the numerous tidal channels affecting the marsh habitat. Avoid trampling vegetation and oil into sediments. Be aware that small endangered plants and animals are present year round.

Hazard and Restrictions:

Air Operations: BEWARE of high power wires running parallel to Bay shoreline. There are shallows at margins and potentially submerged hazards.

Site Strategies:

Site Validation Level: II

Strategy: 2-571.1 Objective: Primary exclusion/collection strategy for Petaluma River and NW San Pablo Bay: divert oil to shore collection and boom tidal channels.

Strategy: a) The collection site is at the public access immediately south of the launch ramp. Direct oil to this site by running boom from the east bank just bayward (south) of the Railroad trellis to the channel (800'), and then continue boom in cascades (1800' in 800-300' cascades), gradually angling oil out of the channel to the collection pocket. The collection pocket should be lined with 6x6+ boom and parallel the cascaded boom for 400'. (Contact Marin County Parks and Open Space about excavating an improved collection pocket as necessary.) Back collection area with sorbent boom. Line the west shoreline with 6x6+ boom (outside the line of private docks) as far as the railroad bridge. In the cascaded boom, leave an overlap opening for vessel traffic.

b) There are about 15 tidal channels (11 on the east bank and 3 on the west bank) between the railroad bridge and the power lines including an opening just northeast of the Hwy bridge which require 6x6+ chevron exclusion booming.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		2600	feet	
Boom	Swamp	6x6 inch		2800	feet	
Boom	Sorbent			300	feet	
Anchor	Danforth	22 lb		15		
Vessel	Boom Boat			2		
Vessel	Skiff or Punt			1		
skimmer	self propelled			1		
Staff	Staff to Deploy			10		

Strategy: 2-571.2 Objective: Collection strategy for controlling oil threats to Petaluma River and NW San Pablo Bay by diverting to onwater skimmer.

Strategy: Deploy a 2500' diagonal of 9x9+ Hboom from the east side of the mouth of Petaluma River under the power lines (about 150' off shore) to the second dock on the west bank. Use cascading (500') to permit vessel passage. From the west bank run 500' of 9x9+ Hboom to the skimmer. These two boom arms result in a V-collection configuration directing oil across the current to a skimmer positioned just off the second dock. If the tidal openings have not been closed using the previous strategy: then there are about 15 tidal channels between the railroad bridge and the power lines plus an opening just northeast of the Hwy bridge which require chevron exclusion booming which will require and additional 800' of 6x6+ Hboom and 15 additional anchors and stakes.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		2500	feet	
Boom	Swamp	6x6 inch		500	feet	
Anchor	Danforth	22 lb		8		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
skimmer	self propelled			1		
Staff	Staff to Deploy			7		

Strategy: 2-571.3 Objective: Deflection/collection for upstream oil threats or oil past exclusion strategies at the mouth, deploy collection at best possible locale.

Strategy: Execute strategy as described in strategy 571.2 at the most favorable locale available. A similar amount of equipment including on-water skimmer will be required.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		2500	feet	
Boom	Swamp	6x6 inch		500	feet	
Anchor	Danforth	22 lb		10		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
skimmer	self propelled			1		
Staff	Staff to Deploy			7		

Logistics:

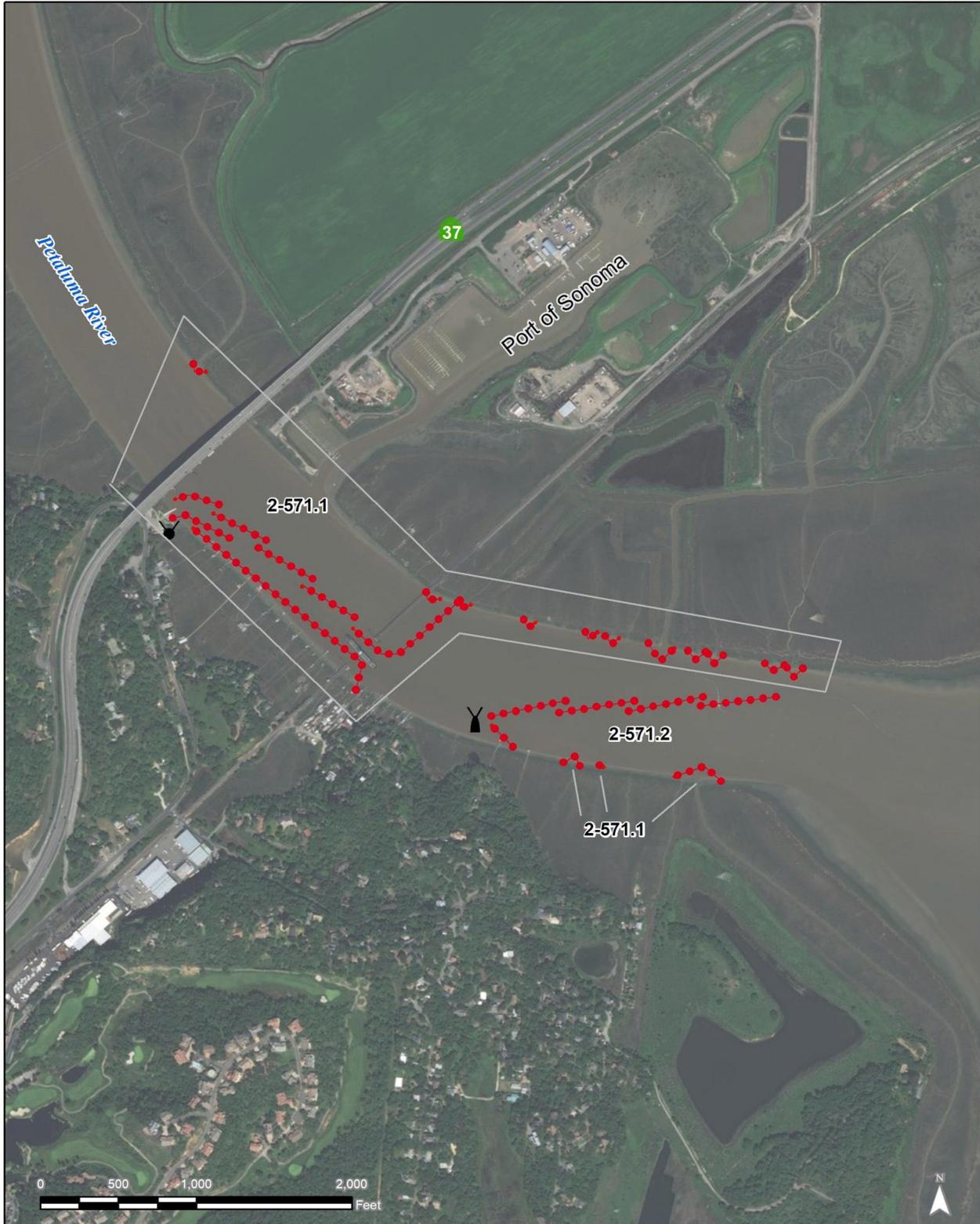
Directions: The Petaluma River mouth vicinity is accessible by Hwy 37 from either Vallejo or Novato. To Petaluma Point, turn off Hwy 37 at Harbor drive. Follow Harbor drive to Grandview Ave and turn onto Grandview Ave. Turn left on Murphy Lane and right onto Deibe road. Turn right on Norton Ave, turn left on Railroad Ave, and follow it out to the end. To reach the inlet by Channel drive, turn off Hwy 37 at Harbor drive and then turn on Channel drive. Follow it until the end.

Land Access: There is good access at Black Point off Hwy 37, otherwise by foot only.

On-Water Limitations: Channel is very navigable. Very shallow mudflats. Launching is available on site at Black Point Launch at Hwy 37 & Petaluma River Junction.

Facilities, Staging Areas, Command Posts, Available Equipment: Black Point Public Launch area may also be used for staging and parking: no other facilities are present except public restrooms.

Communications Problems: Cell coverage may vary.



CDFW - OSPR & USCG Site: 2-571 Name: Petaluma River Marshes

G. Ewing (OSPR) & M. Schommer (OSPR) Date: 9/1/2020

●●●●● Harbor Boom

Y Mobile Skimmer

● Stationary Skimmer

County: Sonoma**ACP Division/Segment:** SN - S - S001 SN - S - S002**NOAA Chart:** 18654 San Pablo Bay**Map Book:****Decimal Degrees:** 38.11727 -122.458318**Site Description:**

Site includes the San Pablo Bay frontage from mouth of Petaluma River to Tubbs Island (Midshipman's Point) and includes 3 miles of Tolay Creek up to Hwy 37 and adjacent tributary wildlife areas aka San Pablo Bay National Wildlife Refuge (USFWS). The salt-marshes between Petaluma River and Tolay Creek are prograding and shallow very gradually, supporting 100 to 200 meter wide continuum of biota from tidal flat to high marsh: unvegetated to cordgrass to pickleweed dominated. Tolay Creek itself is an incised channel through a wide flood plain (300+ meters) of pickleweed salt-marsh and bounded by aged levees. Another salt-marsh, Sonoma Bay Lands Wetland, has an open tidal exchange channel about 1.5 mile west of Tolay Creek. Midshipman's point is used by harbor seals as an occasional haulout during low tides.

Resources at Risk:*ESI and Habitat:* 10A Salt - and brackish-water marshes

6B Riprap

9B Vegetated low banks

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	California Ridgeway's rail	FE, SE	Year-round	Feb-Aug
Birds	California black rail	FP, ST	Year-round	Mar-Aug
Birds	common yellowthroat	FP, SSC	Year-round	Jun-Aug
Fish	longfin smelt	ST	Year-round	Nov-May
Invertebrates	Dungeness crab nursery		Year-round	
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Mammals	harbor seal	FP	Year-round	
Mammals	Suisun ornate shrew	SSC	Year-round	

FT-Federally Threatened, FE-Federally Endangered, FP-Federally Protected, SE-State Endangered, ST-State Threatened, SP -State Protected, SR-State Rare, SSC-Species of Special Concern, BGEPA-Bald and Golden Eagle Protection Act, SSSP-State Special Status Species

List of Key Contacts:

Type	Name/Title	Organization	Phone
C	/Coordinator	Native American Heritage Commission	(916) 373-3710
C	/Coordinator	Northwest Information Center	(707) 588-8455
O	/Dispatch, 24-hr	Sonoma County Sheriffs	(707) 565-2231
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Agency Representative	NOAA National Marine Fisheries Service	(562) 980-3232
T	/Spill Response Coordinator	USFWS, SF Bay-Delta Office	(916) 799-0588

C – Cultural, Historic, Archaeological; E – Entry/Owner/Access; O – Other; S – Safety; T – Trustee; X – Exclusion or Security

Additional Site Summary Comments:

Migratory shorebirds and waterfowl occur here in increased numbers September-April.

Concerns and Advice to Responders:

This is very sensitive habitat with threatened and endangered species present. Exclude oil from entering Tolay Creek and adjacent wetlands: boom creek mouth and tidal channels and close tide gates. Deflect oil away from this site. Any oil arriving at this site should be deflected to collection locales and prevented from free movement where possible. Protect salt-marsh fronts from oiling and oil penetration into sediments. Avoid trampling marsh and trampling oil into marsh muds during cleanup. Be aware of oil penetrating animal burrows.

Hazard and Restrictions:

This area is very shallow and therefore difficult to access via water except in Tolay Creek Channel during flood tide cycles.

Site Strategies:

Site Validation Level: II

Strategy: 2-572.1 Objective: Exclude oil from Tolay Creek and other openings to marsh. Access by skiff from land or via water route.

Strategy: (a) Deploy 700' of 6X6+ Hboom at the mouth of Tolay Creek in a modified diagonal from Midshipman Point across the channel to a point about 150' west of the mouth, with this anchor point well high in the marsh. Approximately 20' of Hboom should wrap around Midshipman Point. A midpoint anchor must be positioned in the channel (just off the east bank) to keep the boom from sagging into a catenary curve. Back with a sorbent boom layer. Repeat configuration if there is a wind chop or waves.

(b) Exclude oil from tidal cuts and inlets. Deploy 100' 6X6+ Hboom as exclusion boom at entrance of Sonoma Bay Lands Marsh 1 mile west of Tolay Creek. Deploy 50' chevron exclusion booms in front of each of the three tidal culverts to the east of the creek mouth. Close the tidal gate at the levee near the creek mouth.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Swamp	6x6 inch		950	feet	
Boom	Sorbent			400	feet	
Anchor	Danforth	22 lb		6		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Strategy: 2-572.2 Objective: Divert to prevent oil from moving up channel while in San Pablo Bay still away from shoreline.

Strategy: Diversion booming: If oil is posing a threat, it will move up channel which cuts across the shallow flats of San Pablo Bay. A diversion boom across that channel to divert oil out of the tidal current and onto flats, will afford protection to the Creek mouth. Divert to windward. Deployment will require 200 ft of Hboom. Deploy at higher tide with a shallow draft boom boat.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		200	feet	
Anchor	Danforth	22 lb		3		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			2		

Strategy: 2-572.3 Objective: Protection booming to prevent oil from accumulating along the marshy shoreline of San Pablo Bay Consider that this deployment will require intensive resources and time in the short navigable intervals.

Strategy: Deploy a layer of harbor or swamp boom along the marshy frontage from Tolay Creek mouth westerly to Petaluma River mouth. Deploy during periods of higher tides to permit approach near shore using shallow draft boomboats. Set boom as close to vegetation as possible. Anchor at 600' intervals and stake as necessary to secure. Under severe oil threat, two layers and a sorbent backup may be required. Two layers of swamp boom set about 10 feet apart would be equivalent to harbor boom.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		10500	feet	
Anchor	Danforth					
Vessel	Boom Boat			4		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			14		

Logistics:

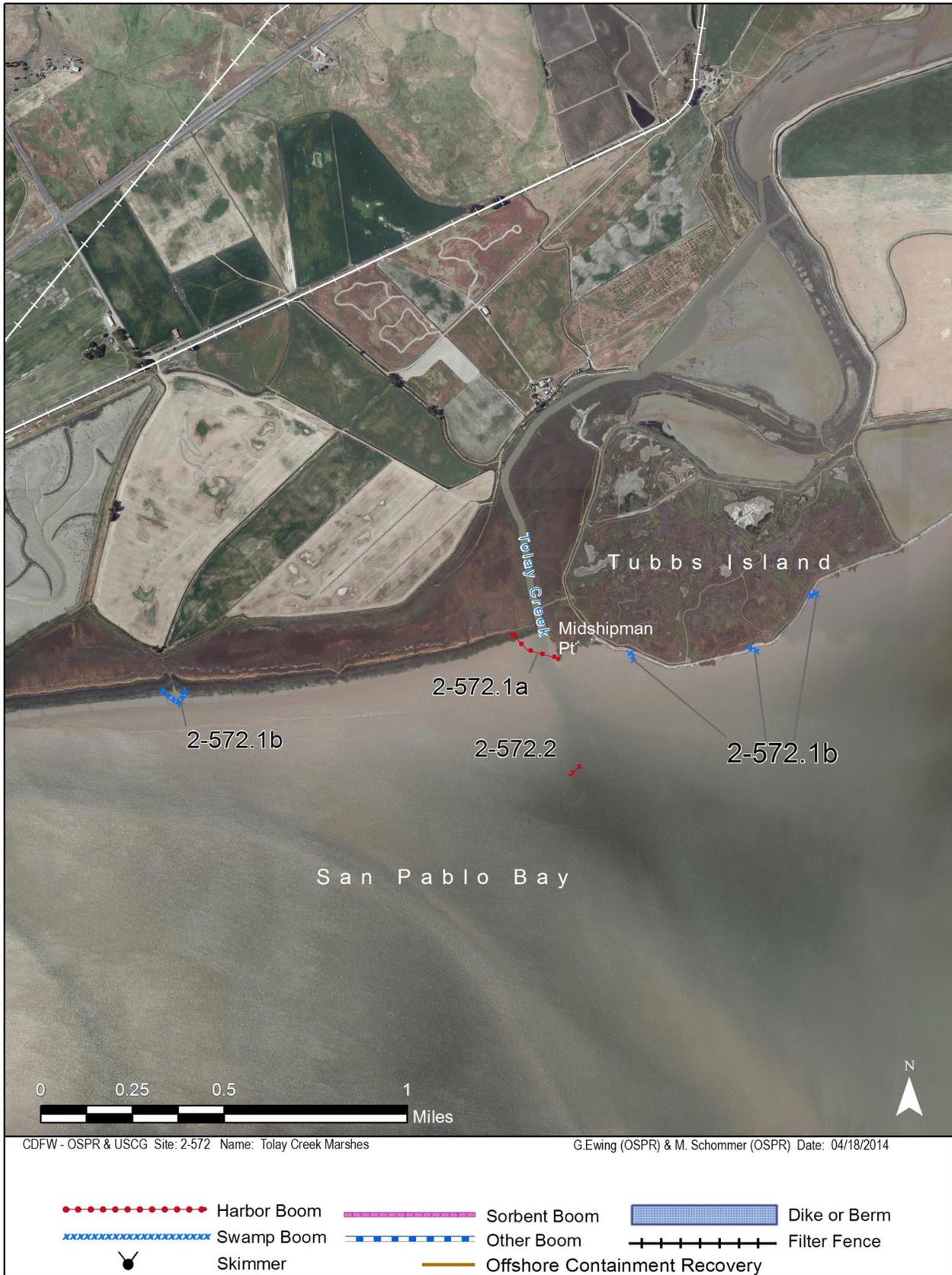
Directions: Vehicle access to the mouth of Tolay Creek is from Hwy 37 though the locked gate (USFWS) at the DFW wildlife area parking lot (1/2 mile east of Tolay Creek on south side of Hwy) on rough levee roads. By boat, proceed East from Petaluma River Channel in San Pablo Bay to creek mouth.

Land Access: Limited access for large trucks. Seasonally impassible on earth levees.

On-Water Limitations: Channel may be navigable at high tide. Very shallow mudflats. Punt launch at Midshipman Pt and Hwy 37.

Facilities, Staging Areas, Command Posts, Available Equipment: Best staging site is Petaluma River Launch. Small skiff deployments can be staged at Black Point.

Communications Problems: Cell reception varies.



County: Sonoma**ACP Division/Segment:** SN - S - S001 SN - S - S002**NOAA Chart:** 18654 SAN PABLO BAY**Map Book:** AAA - Napa & So**Decimal Degrees:** 38.131889 -122.42274**Site Description:**

Tubbs Island lies at the north-westerly apex of San Pablo Bay and extends from San Pablo Bay to Hwy 37. The site is bounded on the west by Tolay Creek (2-572) and to the east by Sonoma Creek/Napa Slough (2-581). The island is under jurisdiction of USFWS (part of San Pablo Bay National Wildlife Refuge) in conjunction with DFW. The two adjacent wetland wildlife areas bordering the east side of Tolay Creek, connect via gated channels and culverts. This salt-marsh habitat supports both listed species and resident species. The DFW marsh abuts up to Hwy 37. The much larger USFWS property abuts San Pablo Bay at Tolay Creek mouth with one mile of rip-rap frontage to the east and has three additional tidal inlets exchanging directly with San Pablo Bay. Underwater obstructions (tide dependent) nearshore as marsh front is eroding from wave action and fetch. Extremely shallow mudflats offshore from Midshipman Point east to Sonoma Creek (approx 3 linear miles).

Resources at Risk:**ESI and Habitat:** 10A Salt - and brackish-water marshes

9B Vegetated low banks

9 Hypersaline tidal flats

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	California black rail	FP, ST	Year-round	Mar-Aug
Birds	California Ridgeway's rail	FE, SE	Year-round	Feb-Aug
Birds	migratory waterfowl	FP	Sep-Apr	
Birds	burrowing owl	SSC	Year-round	Mar-Apr
Birds	common yellowthroat	FP, SSC	Year-round	Jun-Aug
Fish	longfin smelt	ST	Year-round	Nov-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Mammals	Suisun ornate shrew	SSC	Year-round	

FT-Federally Threatened, FE-Federally Endangered, FP-Federally Protected, SE-State Endangered, ST-State Threatened, SP -State Protected, SR-State Rare, SSC-Species of Special Concern, BGEPA-Bald and Golden Eagle Protection Act, SSSP-State Special Status Species

List of Key Contacts:

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C	/Coordinator	Northwest Information Center	(707) 588-8455
O	/Dispatch, 24-hr	Sonoma County Sheriffs	(707) 565-2231
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Agency Representative	NOAA National Marine Fisheries Service	(562) 980-3232
T	/Spill Response Coordinator	USFWS, SF Bay-Delta Office	(916) 799-0588

C – Cultural, Historic, Archaeological; E – Entry/Owner/Access; O – Other; S – Safety; T – Trustee; X – Exclusion or Security

Additional Site Summary Comments:

Concerns and Advice to Responders:

Shoreline is eroding and extremely shallow nearshore. Vessel access at only the highest of flood tides (>5 ft). Vehicle access thru adjacent agriculture land or USFWS gate. Vehicle access does not reach shoreline and falls short by 1/3 of a mile. Transferring boom and anchors will be challenging to deploy from land and unlikely from water.

Hazard and Restrictions:

Underwater obstructions (tide dependent) consisting of pilings, rocks and various debris.

Site Strategies:

Site Validation Level: I

Strategy: 2-575.1 Objective: Exclude Oil

Strategy: Deploy 3000 ft of Hboom offshore of the eroded section of Tubbs Setback to prevent any floating oils to enter salt-marsh restoration area. Access via water may be challenging based on tidal height. Place Hboom as close to shoreline as possible. Anchor offshore to maintain ability to access anchors as tidal cycles fluctuate.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9		3000	ft	
Vessel	boomboat			1		
Anchor	Danforth	22 lb		7		
Staff	Staff to Deploy			8		
Staff	Staff to Tend			2		

Strategy: 2-575.2 Objective: Collect Oil with Skimmer

Strategy: Create collection pocket w/ 100 ft of harbor boom on and use self propelled skimmer to collect skimmable quantities of oil as necessary. It will be challenging to collect skimmable oil due to shallow depths. Using a vacc-truck is a potential viable option or collection as there is an unmaintained access road through the wildlife area.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9		100	ft	
Anchor	Danforth	22 lb		3		
Staff	Staff to Deploy			3		
Staff	Staff to Tend			2		

Strategy: 2-575.3 Objective: Exclude Oil

Strategy: Contact USFWS Personnel to close gated culverts connecting the two wildlife areas to prevent oil from further contamination deeper into salt-marsh habitat.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Personnel				1		

Logistics:

Directions: Tubbs Island is located in Sonoma County, one mile east of Sears Point and eight miles west of the Napa River along Hwy 37. The parking lot/trailhead only accessible from EB Hwy 37.

Land Access: USFWS has a vehicle gate at the south end of the parking lot. There is an optional route thru the agriculture property just east of the USFWS parking lot. Coordinate with USFWS Personnel to obtain access thru locked gate.

On-Water Limitations: Shoreline access via vessel is difficult if not impossible due to the extreme shallows/mudflats unless there is spring tide or flood tide in excess of five feet. Numerous underwater hazards (tide range dependent) such pilings, jagged rocks and debris.

Facilities, Staging Areas, Command Posts, Available Equipment: Contact USFWS Personnel to coordinate potential staging

areas or field posts.

Communications Problems: Cell reception varies based on users location.



County: Napa**ACP Division/Segment:** SN - S - S002 SO - B - S001**NOAA Chart:** San Pablo Bay 18654**Map Book:** AAA - Napa & So**Decimal Degrees:** 38.147952 -122.400988**Site Description:**

Sonoma Creek/Napa Slough is the demarcation between Solano & Sonoma Counties. It's adjacent to the San Pablo Bay National Wildlife Refuge (USFWS). Sonoma Creek/Napa Slough is tidally influenced and share a common mouth open to the northern end of San Pablo Bay. Levees control the waters of Sonoma Creek and Napa Slough. There are narrow salt-marshes between the levees and the main channels, and between the levees and the waters of San Pablo Bay. There are extensive mudflats along the north shore of the bay. Small vessel access in/out Sonoma Creek from San Pablo Bay only at 2.0+ ft tides.

Resources at Risk:*ESI and Habitat:* 10A Salt - and brackish-water marshes

9B Vegetated low banks

10C Swamps

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	Western snowy plover	FT, SSC	Year-round	Mar-Oct
Birds	California least tern	FE, SE	Mar-Sep	Apr-Jun
Birds	California black rail	FP, ST	Year-round	Mar-Aug
Birds	California Ridgeway's rail	FE, SE	Year-round	Feb-Aug
Birds	migratory waterfowl	FP	Sep-Apr	
Birds	common yellowthroat	FP, SSC	Year-round	Jun-Aug
Fish	longfin smelt	ST	Year-round	Nov-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	

FT-Federally Threatened, FE-Federally Endangered, FP-Federally Protected, SE-State Endangered, ST-State Threatened, SP -State Protected, SR-State Rare, SSC-Species of Special Concern, BGEPA-Bald and Golden Eagle Protection Act, SSSP-State Special Status Species

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C	/Coordinator	Northwest Information Center	(707) 588-8455
O	/Dispatch, 24-hr	Sonoma County Sheriffs	(707) 565-2231
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Oil Spill Point of Contact	NOAA National Marine Fisheries Service	(707) 480-3496
T	/Research Wildlife Biologist	US Geological Survey, SF Bay Estuary	(415) 859-1511
T	/Spill Response Coordinator	USFWS, SF Bay-Delta Office	(916) 799-0588

C – Cultural, Historic, Archaeological; E – Entry/Owner/Access; O – Other; S – Safety; T – Trustee; X – Exclusion or Security

Additional Site Summary Comments:

Several sensitive plants and shrews occur in the area. Migratory waterfowl visit the area from September to April.

Concerns and Advice to Responders:

Sonoma Creek and Napa Slough have a common mouth open to the northern end of San Pablo Bay. There are extensive sheltered mud flats along the north shore of the bay.

Hazard and Restrictions:

Shallow water, submerged obstructions likely, eelgrass may foul propellers. Wind chop to three feet possible.

Site Strategies:**Site Validation Level: II**

Strategy: 2-581.1 Objective: Diversion/Collection: Prevent oil from entering the Napa-Sonoma marshes through Sonoma Creek.

Strategy: Deploy 1500' of 9x9+ Hboom to create a diversion boom/collection pocket within Sonoma Creek downstream of Hwy 37 bridge. Create collection pocket on the east bank within 200' of Hwy 37 bridge. Access for oil recovery from parking lot.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		1500	feet	
Boom	Pom-pom			400	feet	
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
skimmer	self propelled			1		
Staff	Staff to Deploy			7		

Strategy: 2-581.2 Objective: If significant recoverable oil is approaching Sonoma Creek from San Pablo Bay, create diversion/collection at mouth using skimmer.

Strategy: At the mouth of Sonoma Creek, deploy 2 diversion legs (500' each) from each shore of 9x9+ Hboom with self propelled skimmer in center. Currents can be swift.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		1000	feet	
Anchor	Danforth	25 lb		4		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
skimmer	self propelled			1		
Staff	Staff to Deploy			7		

Logistics:

Directions: Hwy 37 crosses Sonoma Creek/Napa Slough between Novato and Vallejo. There are turnouts on both sides of the bridge to reach the collection points. To reach the collection point on Sonoma Creek, turn north on the road approximately 3/4 mile west of the Hwy 37 bridge over the Creek and Slough. Follow the road to the end, where it will split and follow the curve of the bend. To reach the collection point on the Napa Slough, turn north on the road at the east end of Hwy 37 bridge over the Creek and Slough. Follow the road along the south bank of the slough until the end at the Wes End Land Club.

Land Access: Limited access from parking lot due to salt-marsh low level and saltwater intrusion.

On-Water Limitations: Limitations: depth, obstructions.

Facilities, Staging Areas, Command Posts, Available Equipment: None locally.

Communications Problems: Cell reception varies upon location.



County: Solano**ACP Division/Segment:** SO - B - S001 SO - B - S002**NOAA Chart:** San Pablo Bay 18654**Map Book:** AAA - Napa & So**Decimal Degrees:** 38.108235 -122.306855**Site Description:**

Most of this site lies within or adjacent to the San Pablo Bay National Wildlife Refuge under management of the US Fish & Wildlife Service (USFWS). The eastern salt-marsh fringe lies adjacent to Mare Island Naval Complex. The northeast shore of San Pablo Bay is bounded by a 200 to 1200 meter wide salt-marsh continuum of approximately 1600 acres between the levees and the sheltered mudflats. The intertidal mudflat is approximately 1000 meters wide. Before construction of levees, the salt-marsh extended another 10 km to the north and east. A formerly more extensive marsh was diked and filled long ago.

Resources at Risk:*ESI and Habitat:* 10A Salt - and brackish-water marshes

9B Vegetated low banks

9A Sheltered tidal flats

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	California Ridgeway's rail	FE, SE	Year-round	Feb-Aug
Birds	California black rail	FP, ST	Year-round	Mar-Aug
Birds	song sparrow	FP, SSC	Year-round	Mar-Jul
Fish	longfin smelt	ST	Year-round	Mar-May
Fish	delta smelt	FT, SE	Year-round	Mar-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Plants	soft bird's beak	FE, SR	Year-round	Jul-Nov

FT-Federally Threatened, FE-Federally Endangered, FP-Federally Protected, SE-State Endangered, ST-State Threatened, SP -State Protected, SR-State Rare, SSC-Species of Special Concern, BGEPA-Bald and Golden Eagle Protection Act, SSSP-State Special Status Species

List of Key Contacts:

Type	Name/Title	Organization	Phone
C	/Coordinator	Native American Heritage Commission	(916) 373-3710
C	/Coordinator	Northwest Information Center	(707) 588-8455
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Agency Representative	NOAA National Marine Fisheries Service	(562) 980-3232
T	/Spill Response Coordinator	USFWS, SF Bay-Delta Office	(916) 799-0588

C – Cultural, Historic, Archaeological; E – Entry/Owner/Access; O – Other; S – Safety; T – Trustee; X – Exclusion or Security

Additional Site Summary Comments:

Several sensitive plants and shrews occur in the area. Lots of shore birds and waterfowl frequent this site year round.

Concerns and Advice to Responders:

The large expansive salt-marsh and wetland in the northeast corner of San Pablo Bay would be very difficult to protect because of it's limited access. Impacts may occur because of the exchange of water and overlapping waves over and under the jetty.

Hazard and Restrictions:

Shallow water, submerged obstructions likely. Wind chop up to three feet possible.

Site Strategies:

Site Validation Level: II

Strategy: 2-582.1 Objective: Deflection booming to prevent oil from coming in contact with the salt-marsh vegetation.

Strategy: Deploy deflection booms (3-100 ft sections) on jetty to keep oil from entering through the jetty. Deploy seven, 1,000 ft deflection Hbooms at the end of the jetty. Position skimmer at leading tail of jetty boom. Block marsh channel and holes in breakwater using combinations of sorbents or hay bales.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		7300	feet	
Boom	Sorbent			200	feet	
Anchor	Danforth	25 lb		25		
Vessel	Boom Boat			3		
Vessel	Skiff or Punt			1		
skimmer	self propelled			1		
Staff	Staff to Deploy			12		

Logistics:

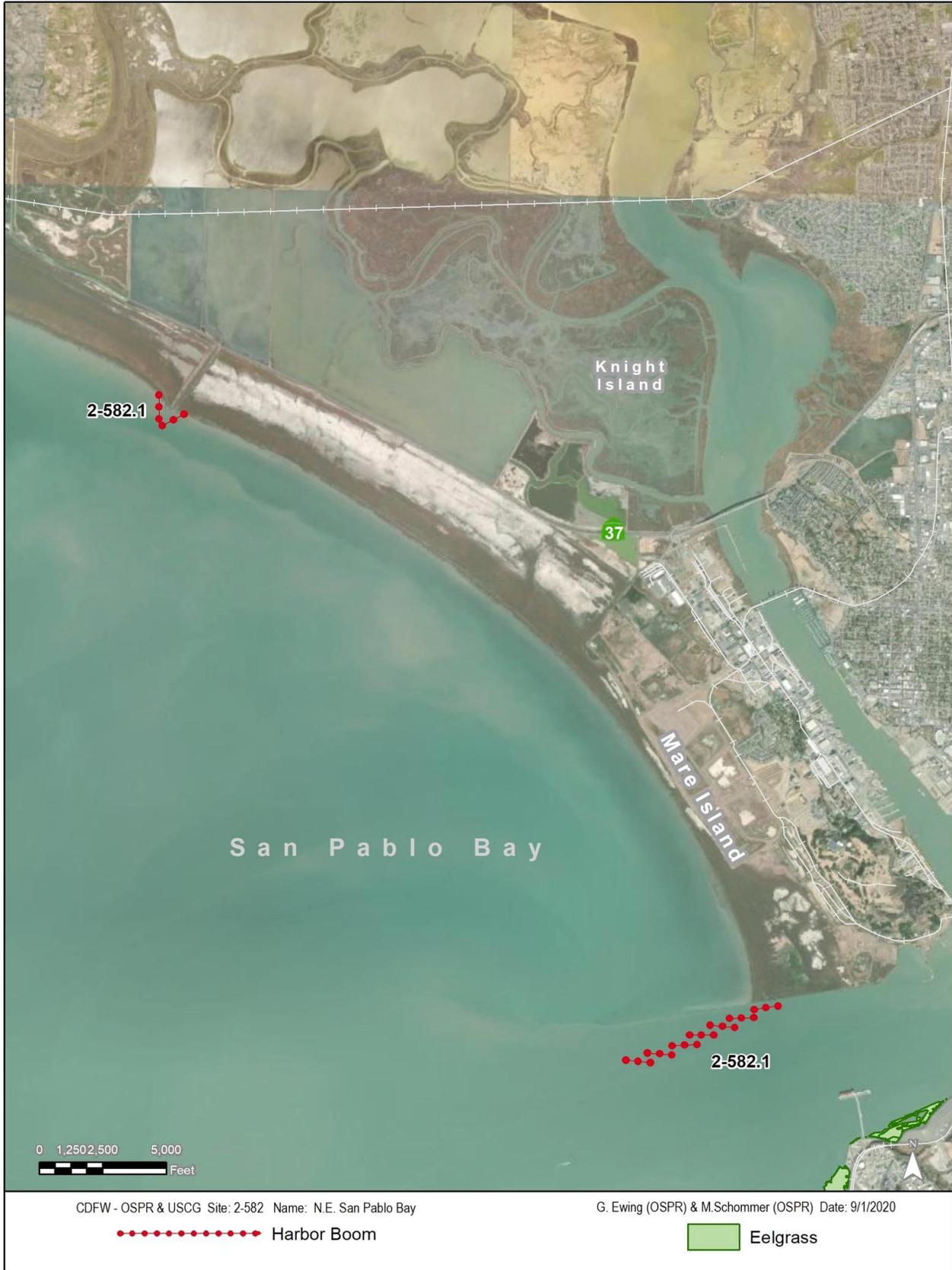
Directions: Take I-80 to Hwy 37 East White Slough lies on either side of Hwy 37 between Sonoma Blvd and the Napa River Bridge. To get to Vallejo Launch Ramp take Wilson Ave South from Hwy 37. From the Launch Ramp Follow the E. Bank of Mare Island SE N. Hwy 37. Most of this site lies within or adjacent to the San Pablo Bay National Wildlife Refuge under management of the US Fish & Wildlife Service. The eastern marsh fringe lies adjacent to Mare Island Naval Complex.

Land Access: Access by foot only.

On-Water Limitations: Limitations: extremely shallow depths (tide dependent),beware of submerged obstructions.

Facilities, Staging Areas, Command Posts, Available Equipment: Staging Areas may be possible thru USFWS.

Communications Problems: Cell reception varies based upon your location.



County: Napa

ACP Division/Segment: SO - C - S002 SO - C - S020

NOAA Chart: San Pablo Bay 18654

Map Book: AAA - Napa & So

Decimal Degrees: 38.123209 -122.281138

Site Description:

Extensive salt-marsh shorelines in convoluted area adjacent to Napa River north of Hwy 37. Shorelines varies with tide height and seasonal outflow. These salt-marshes are included in the USFWS wildlife areas (San Pablo Bay National Wildlife Refuge). Although the banks of the Napa river and adjacent sloughs are diked in many areas, in others there are extensive undiked salt-marshes with tidal mudflats. These undiked salt-marshes are connected to the river by numerous inlet channels. Elsewhere there are narrow marshes and tidal flats between the levees and the main channels. Several listed species nest and forage within these extensives salt-marshes. Several tideally influenced restoration projects are currently underway adjacent to Napa River waterway.

Resources at Risk:

- ESI and Habitat: 10A Salt - and brackish-water marshes
- 9B Vegetated low banks
- 8B Sheltered solid man-made structures

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	California Ridgeway's rail	FE, SE	Year-round	Feb-Aug
Birds	California black rail	FP, ST	Year-round	Mar-Aug
Birds	common yellowthroat	FP, SSC	Year-round	Jjun-Aug
Fish	longfin smelt	ST	Year-round	Nov-May
Fish	chinook salmon - Winter-run	FE, SE	Year-round	Oct-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Plants	soft bird's beak	FE, SR	Year-round	Jul-Nov
Plants	Mason's lilaeopsis	SR	Year-round	Apr-Nov

FT-Federally Threatened, FE-Federally Endangered, FP-Federally Protected, SE-State Endangered, ST-State Threatened, SP -State Protected, SR-State Rare, SSC-Species of Special Concern, BGEPA-Bald and Golden Eagle Protection Act, SSSP-State Special Status Species

List of Key Contacts:

Type	Name/Title	Organization	Phone
C	/Coordinator	Native American Heritage Commission	(916) 373-3710
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T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Agency Representative	NOAA National Marine Fisheries Service	(562) 980-3232
T	/Research Wildlife Biologist	US Geological Survey, SF Bay Estuary	(415) 859-1511
T	/Spill Response Coordinator	USFWS, SF Bay-Delta Office	(916) 799-0588

C – Cultural, Historic, Archaeological; E – Entry/Owner/Access; O – Other; S – Safety; T – Trustee; X – Exclusion or Security

Additional Site Summary Comments:

Green and white sturgeon spawn in this river system during winter months. Shallow water, submerged obstructions likely.

Concerns and Advice to Responders:

Large extensive salt-marsh both north and south of the Napa River. Access can be difficult so emphasis should be put on stopping oil from entering into the marsh area.

Hazard and Restrictions:

Shallow water, submerged obstructions likely. Wind chop to three feet possible.

Site Strategies:**Site Validation Level: II**

Strategy: 2-583.1 Objective: Deflection/Collection: Deflect oil before it enters into the marsh area. There is little or no access once within the marsh. Use of diversion boom should be used to prevent oil from reaching the Strait.

Strategy: Deflect oil to a collection area near the entrance of Mare Strait at the Coast Guard dock using the jetties located on Mare Island and Vallejo (6,000 ft.). Two skimmers are required.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		6000	feet	
Anchor	Danforth		25 lb	20		
Vessel	Boom Boat			2		
Vehicle	Skiff or Punt			1		
Staff	Staff to Deploy			8		

Strategy: 2-583.2 Objective: Protection/Exclusion from shoreline marshes and wharf when exclusion strategy 2-583.1 is not successful

Strategy: 5,000 ft of 9X9+ Hboom may be necessary to protect the marsh, mudflat, and docks located approximately one mile upstream from entrance.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9 inch		5000	feet	
Anchor	Danforth		25 lb	17		
Vessel	Boom Boat			2		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			8		

Logistics:

Directions: Take I-80 to Hwy 37 East, White Slough lies on either side of Hwy 37 between Sonoma Blvd and the Napa River Bridge. To get to Vallejo Launch Ramp take Wilson Ave South from Hwy 37. From the Launch Ramp Follow the E. Bank of Mare Island SE N. Hwy 37. Extensive marsh shoreline in convoluted area adjacent to Napa River north of Hwy 37. Shorelines varies with tide height and seasonal outflow. The marshes are included in the USFWS wildlife areas (San Pablo Bay National Wildlife Refuge).

Land Access: Land access is difficult based on tidal stage.

On-Water Limitations: Limitations: tidal depth, obstructions.

Facilities, Staging Areas, Command Posts, Available Equipment: Vallejo Marina, Mare Island Naval Station, Cal Maritime Academy & Solano County OES.

Communications Problems: Cell reception varies.



9818.2 Response Summary Tables

A summary of the response resources is listed by site and sub-strategy next.

Summary of ACP 2 GRA 5 Response Resources by Site and Sub-Strategy

Site **Site Name**

Sub-Strategy **PREVENTION OBJECTIVE OR CONDITION FOR DEPLOYMENT**

Equipment	Sub-Type	Size/Unit	QTY/Unit
2-501 Castro Creek and Marshes			
.1 - Exclusion booming of mouth of Castro Cove, adjacent partially diked pond, and mouth of Castro Creek			
Boom	Harbor	9x9 inch	4000 feet
Vessel	Boom Boat		2
Anchor	Danforth	22 lb	10
Vessel	Skiff or Punt		1
Staff	Staff to Deploy		8
.2 - Back up exclusion at mouth of Castro Cove			
Boom	Swamp	6x6 inch	3800 feet
Staff	Staff to Deploy		8
Vessel	Skiff or Punt		1
Anchor	Danforth	22 lb	10
Boom	Harbor	9x9 inch	200 feet
Vessel	Boom Boat		2
.3 - Exclusion at Creek mouth for inland spill or backup backup			
Staff	Staff to Deploy		5
Boom	Swamp	6x6 inch	2000 feet
Anchor	Danforth	22 lb	5
Vessel	Boom Boat		1
Vessel	Skiff or Punt		1
.4 - Exclusion booming of entries to nearby harbors and channels			
Anchor	Danforth	22 lb	5
Vessel	Boom Boat		1
Staff	Staff to Deploy		5
Vessel	Skiff or Punt		1
Boom	Swamp	6x6 inch	1800 feet
2-502 San Pablo Creek Marshes			
.1 - Exclusion booming of marsh shoreline and mouths of tidal inlets to prevent oil from entering salt-marsh habitat.			
Staff	Staff to Tend		2
Boom	Harbor	9x9 inch	2300 feet
Anchor	Danforth	22 lb	7
Vessel	Boom Boat		1
Vessel	Skiff or Punt		1
Staff	Staff to Deploy		6
.2 - Exclusion booming of creek to prevent oil from entering San Pablo Creek and affecting salt-marshes.			
Boom	Swamp	9x9 inch	300 feet
Staff	Staff to Deploy		3
Vessel	Skiff or Punt		1
Anchor	Danforth	22 lb	3
Staff	Staff to Tend		2
Vessel	Boom Boat		1
2-503 Pinole Point Marshes-South			
.1 - Exclusion booming to prevent oil from entering the salt-marsh.			
Staff	Staff to Deploy		4
Boom	Swamp	6x6 inch	1400 feet
Boom	Sorbent		1400 feet
Anchor	Danforth	22 lb	12
Vessel	Boom Boat		1
Vessel	Skiff or Punt		1
.2 - Exclusion/Protection booming of entire emergent marshfront			
Vessel	Boom Boat		2
Staff	Staff to Deploy		8
Vessel	Skiff or Punt		1
Anchor	Danforth	22 lb	16
Boom	Harbor	9x9 inch	5400 feet
Boom	Sorbent		6000 feet

Site Site Name

Sub-Strategy PREVENTION OBJECTIVE OR CONDITION FOR DEPLOYMENT

Equipment	Sub-Type	Size/Unit	QTY/Unit
2-504 Pinole Point Marshes - North			
.1 - Exclude oil from the inner marshes of Whittell and Garrity Creek.			
Boom	Swamp	6x6 inch	1400 feet
Anchor	Danforth	22 lb	5
Vessel	Boom Boat		1
Vessel	Skiff or Punt		1
Staff	Staff to Deploy		5
.2 - If high tide expected, exclude oil from marsh front.			
Anchor	Danforth	22 lb	50
Staff	Staff to Deploy		9
Vessel	Boom Boat		1
Boom	Oil Snare (pom-pom)		25000 feet
Vessel	Skiff or Punt		3
2-505 Pinole Creek and Wetlands			
.1 - Exclude oil from entering the creek.			
Boom	Swamp	6x6 inch	200 feet
Anchor	Danforth	22 lb	2
Vessel	Skiff or Punt		1
Staff	Staff to Deploy		2
.2 - Protective booming to prevent oil from coming in contact with the bayfront marsh vegetation.			
Boom	Sorbent		3500 feet
Staff	Staff to Deploy		8
Vessel	Skiff or Punt		2
Boom	Swamp	6x6 inch	3500 feet
Vessel	Backhoe		2
Anchor	Danforth	22 lb	8
2-506 San Pablo Bay Eelgrass Beds			
.1 - Assess need for protective booming: Eelgrass is only vulnerable at very low tides when eelgrass tops are exposed to floating oil.			
Staff	OSPR Staff ES		1
.2 - Deflect oil from coming into contact with the eelgrass during low tides.			
Staff	Staff to Deploy		5
Boom	Harbor	9x9 inch	2000 feet
Anchor	Danforth	22 lb	8
Vessel	Boom Boat		1
Vessel	Skiff or Punt		1
2-552 China Camp Marsh			
.1 - On-water recovery of oil to prevent oil from entering marshes, tidal channels and mudflats.			
skimmer	self propelled		2
Staff	Staff to Deploy		4
.2 - Deflect oil away from shoreline into main channel. Prevent oil from entering marshes and tidal channels.			
Boom	Harbor	9x9 inch	1000 feet
Anchor	Danforth	22 lb	4
Vessel	Boom Boat		1
Vessel	Skiff or Punt		1
Staff	Staff to Deploy		5
.3 - Exclude oil from entering marshes and tidal channels from Gallinas Creek to Rat Rock.			
Vessel	Boom Boat		1
Anchor	Danforth	22 lb	8
Vessel	Skiff or Punt		1
Staff	Staff to Deploy		5
Boom	Swamp	6x6 inch	350 feet
.4 - Protective booming of marsh fronts from Gallinas Creek to Rat Rock			
Boom	Swamp	6x6 inch	9000 feet
Boom	Harbor Boom	9x9 inch	3200 feet
Anchor	Danforth	22 lb	28
Vessel	Boom Boat		4
Vessel	Skiff or Punt		2
Staff	Staff to Deploy		12

Sub-Strategy **PREVENTION OBJECTIVE OR CONDITION FOR DEPLOYMENT**

Equipment	Sub-Type	Size/Unit	QTY/Unit
2-553 Gallinas Creek Marshes			
.1 - Deflect/collect oil to prevent from entering Gallinas Creek and interior marsh channels along bayfront.			
Vessel skimmer	Skiff or Punt shoreside		1
Vessel	Boom Boat		1
Anchor	Danforth	22 lb	12
Boom	Harbor	9x9 inch	2500 feet
Staff	Staff to Deploy		7
.2 - Exclude oil from entering marsh channels and/or marshfront north of Gallinas Creek.			
Boom	Swamp	6x6 inch	350 feet
Boom	Sorbent		350 feet
Anchor	Danforth	22 lb	4
Anchor	Stakes		8
Vessel	Skiff or Punt		1
Staff	Staff to Deploy		2
.3 - Prevent oil from entering Gallinas Creek.			
Vessel	Boom Boat		1
Vessel	Skiff or Punt		1
Staff	Staff to Deploy		8
Anchor	Danforth	22 lb	4
skimmer	self propelled		1
Boom	Harbor	9x9 inch	600 feet
Boom	Sorbent		200 feet
2-555 Hamilton Field Marsh			
.1 - Exclude Oil			
Boom	Harbor	9x9	1500 ft
Staff	Staff to Deploy		5
Vessel	boomboat		1
Anchor	Danforth	22 lb	15
Staff	Staff to Tend		2
Boom	Swamp	6x6	100 ft
Vessel	Skiff		1
.2 - Collect Oil with Skimmer			
skimmer	self propelled		1
Staff	Staff to Deploy		3

Sub-Strategy **PREVENTION OBJECTIVE OR CONDITION FOR DEPLOYMENT**

Equipment	Sub-Type	Size/Unit	QTY/Unit
2-557 Novato Creek Marshes			
.1 - Exclusion booming of Novato Creek and the three major and any minor tidal channels south of Novato Creek to prevent oil from penetrating to interior marshes (and upstream tidal channels)			
Boom	Swamp	6x6 inch	200 feet
Staff	Staff to Deploy		5
Vessel	Skiff or Punt		1
Vessel	Boom Boat		1
Boom	Sorbent		400 feet
Boom	Harbor	9x9 inch	600 feet
Anchor	Danforth	22 lb	6
.2 - Deflection when oil is approaching from South or East of Novato Creek, deflect past Novato Creek mouth toward Petaluma River.			
Staff	Staff to Deploy		5
Boom	Harbor	9x9 inch	3000 feet
Anchor	Danforth	22 lb	5
Vessel	Boom Boat		1
Vessel	Skiff or Punt		1
.3 - Skimming in channel if heavy oil is threatening to overwhelm the exclusion strategy (.1) for Novato Creek mouth, deploy a vessel skimmer as a backup to the deflection strategy to capture oil.			
Boom	Swamp	6x6 inch	300 feet
Anchor	Danforth	22 lb	2
Staff	Staff to Deploy		3
skimmer	self propelled		1
.4 - Protective booming of the marshy shoreline north of Novato Creek to Petaluma River. Consider that this deployment will require intensive resources and time in the short navigable intervals.			
Vessel	Skiff or Punt		1
Vessel	Boom Boat		1
Boom	Harbor	9x9 inch	2500 feet
Staff	Staff to Deploy		5
Anchor	Danforth	22 lb	7
.5 - Protective booming of the marshy shoreline south of Novato Creek			
Anchor	Danforth	22 lb	27
Staff	Staff to Deploy		16
Vessel	Skiff or Punt		1
Vessel	Boom Boat		5
Boom	Harbor	9x9 inch	13000 feet

Sub-Strategy **PREVENTION OBJECTIVE OR CONDITION FOR DEPLOYMENT**

Equipment	Sub-Type	Size/Unit	QTY/Unit
2-571 Petaluma River Marshes			
.1 - Primary exclusion/collection strategy for Petaluma River and NW San Pablo Bay: divert oil to shore collection and boom tidal channels.			
Anchor	Danforth	22 lb	15
Vessel	Boom Boat		2
Vessel	Skiff or Punt		1
skimmer	self propelled		1
Staff	Staff to Deploy		10
Boom	Harbor	9x9 inch	2600 feet
Boom	Sorbent		300 feet
Boom	Swamp	6x6 inch	2800 feet
.2 - Collection strategy for controlling oil threats to Petaluma River and NW San Pablo Bay by diverting to onwater skimmer.			
Vessel	Boom Boat		1
Staff	Staff to Deploy		7
Vessel	Skiff or Punt		1
Anchor	Danforth	22 lb	8
Boom	Swamp	6x6 inch	500 feet
Boom	Harbor	9x9 inch	2500 feet
skimmer	self propelled		1
.3 - Deflection/collection for upstream oil threats or oil past exclusion strategies at the mouth, deploy collection at best possible locale.			
Vessel	Boom Boat		1
Staff	Staff to Deploy		7
Vessel	Skiff or Punt		1
Anchor	Danforth	22 lb	10
Boom	Swamp	6x6 inch	500 feet
Boom	Harbor	9x9 inch	2500 feet
skimmer	self propelled		1
2-572 Tolay Creek Marshes			
.1 - Exclude oil from Tolay Creek and other openings to marsh. Access by skiff from land or via water route.			
Boom	Sorbent		400 feet
Anchor	Danforth	22 lb	6
Vessel	Boom Boat		1
Vessel	Skiff or Punt		1
Staff	Staff to Deploy		5
Boom	Swamp	6x6 inch	950 feet
.2 - Divert to prevent oil from moving up channel while in San Pablo Bay still away from shoreline.			
Boom	Harbor	9x9 inch	200 feet
Vessel	Skiff or Punt		1
Anchor	Danforth	22 lb	3
Staff	Staff to Deploy		2
.3 - Protection booming to prevent oil from accumulating along the marshy shoreline of San Pablo Bay Consider that this deployment will require intensive resources and time in the short navigable intervals.			
Boom	Harbor	9x9 inch	10500 feet
Anchor	Danforth		
Vessel	Boom Boat		4
Vessel	Skiff or Punt		1
Staff	Staff to Deploy		14
2-575 Tubbs Island			
.1 - Exclude Oil			
Staff	Staff to Tend		2
Boom	Harbor	9x9	3000 ft
Vessel	boomboat		1
Staff	Staff to Deploy		8
Anchor	Danforth	22 lb	7
.2 - Collect Oil with Skimmer			
Boom	Harbor	9x9	100 ft
Staff	Staff to Tend		2
Anchor	Danforth	22 lb	3
Staff	Staff to Deploy		3
.3 - Exclude Oil			
Personnel			1

Sub-Strategy **PREVENTION OBJECTIVE OR CONDITION FOR DEPLOYMENT**

Equipment	Sub-Type	Size/Unit	QTY/Unit
2-581 Sonoma Creek / Napa Slough			
.1 - Diversion/Collection: Prevent oil from entering the Napa-Sonoma marshes through Sonoma Creek.			
skimmer	self propelled		1
Staff	Staff to Deploy		7
Vessel	Skiff or Punt		1
Vessel	Boom Boat		1
Boom	Pom-pom		400 feet
Boom	Harbor	9x9 inch	1500 feet
.2 - If significant recoverable oil is approaching Sonoma Creek from San Pablo Bay, create diversion/collection at mouth using skimmer.			
Anchor	Danforth	25 lb	4
Vessel	Boom Boat		1
Boom	Harbor	9x9 inch	1000 feet
Staff	Staff to Deploy		7
Vessel	Skiff or Punt		1
skimmer	self propelled		1
2-582 N.E. San Pablo Bay			
.1 - Deflection booming to prevent oil from coming in contact with the salt-marsh vegetation.			
Vessel	Skiff or Punt		1
Boom	Harbor	9x9 inch	7300 feet
skimmer	self propelled		1
Vessel	Boom Boat		3
Anchor	Danforth	25 lb	25
Boom	Sorbent		200 feet
Staff	Staff to Deploy		12
2-583 Napa River Marshes			
.1 - Deflection/Collection: Deflect oil before it enters into the marsh area. There is little or no access once within the marsh. Use of diversion boom should be used to prevent oil from reaching the Strait.			
Anchor	Danforth	25 lb	20
Staff	Staff to Deploy		8
Vessel	Boom Boat		2
Boom	Harbor	9x9 inch	6000 feet
Vehicle	Skiff or Punt		1
.2 - Protection/Exclusion from shoreline marshes and wharf when exclusion strategy 2-583.1 is not successful			
Staff	Staff to Deploy		8
Boom	Harbor	9x9 inch	5000 feet
Anchor	Danforth	25 lb	17
Vessel	Boom Boat		2
Vessel	Skiff or Punt		1

9818.3 Lists of Economic Resources Susceptible to Oiling

A summary of Human Health and Safety Sites and Economic Resources is listed by GRA next. Refer to Section 9804 for more information.

Economic Sites - GRA 5

Site Information	Site Number & Location	Lat/Long & Priority
<p>San Pablo Marina Pt San Pablo Marina Rd North Richmond CA 94801 Phone: 510-233-3224 Site Description:</p>	<p>Site Number: 2-5-CC-100-D Operational Division:</p>	<p>Public Marinas and Harbors D Lat/Long: 37.96 -122.42</p>
<p>Rodeo Marina 13 Pacific Ave Rodeo CA 94572 Phone: 510-978-7530 Site Description:</p>	<p>Site Number: 2-5-CC-105-D Operational Division:</p>	<p>Public Marinas and Harbors D Lat/Long: 38.04 -122.27</p>
<p>Point Pinole Regional Shoreline 5551 Giant Hwy Richmond CA 94806 Phone: 888-327-2757 Site Description:</p>	<p>Site Number: 2-5-CC-115-D Operational Division:</p>	<p>Parks, Beaches, Recreational Areas D Lat/Long: 37.99 -122.36</p>
<p>Pinole Shores Park Pinole Shores Dr Pinole CA 94564 Phone: 888-327-2757 Site Description:</p>	<p>Site Number: 2-5-CC-120-D Operational Division:</p>	<p>Parks, Beaches, Recreational Areas D Lat/Long: 38.01 -122.32</p>
<p>Napa Valley Yacht Club 100 Riverside Dr Napa CA 94559 Phone: 707-252-3342 Site Description:</p>	<p>Site Number: 2-5-NP-100-D Operational Division:</p>	<p>Public Marinas and Harbors D Lat/Long: 38.29 -122.28</p>
<p>Kennedy Park 2295 Streblov Dr Napa CA 94558 Phone: 707-257-9529 Site Description:</p>	<p>Site Number: 2-5-NP-105-D Operational Division:</p>	<p>Parks, Beaches, Recreational Areas D Lat/Long: 38.27 -122.28</p>
<p>Napa Sanitation District 1515 Soscol Ferry Rd Napa CA 94558 Phone: 707-258-6000 Site Description:</p>	<p>Site Number: 2-5-NP-110-HHS Operational Division:</p>	<p>Human Health and Safety or Critical Infrastructure Lat/Long: 38.24 -122.28</p>
<p>Napa Valley Marina 1200 Milton Rd Napa CA 94559 Phone: 707-252-8011 Site Description:</p>	<p>Site Number: 2-5-NP-115-D Operational Division:</p>	<p>Public Marinas and Harbors D Lat/Long: 38.22 -122.31</p>
<p>San Pablo Bay National Wildlife Refuge Sonoma CA 95476 Phone: 707-769-4200 Site Description:</p>	<p>Site Number: 2-5-SO-100-D Operational Division:</p>	<p>Parks, Beaches, Recreational Areas D Lat/Long: 38.14 -122.4</p>
<p>River Park Vallejo CA 94590 Phone: Site Description:</p>	<p>Site Number: 2-5-SO-105-D Operational Division:</p>	<p>Parks, Beaches, Recreational Areas D Lat/Long: 38.12 -122.27</p>

Economic Sites - GRA 5

Site Information	Site Number & Location	Lat/Long & Priority
Vallejo Municipal Marina 42 Harbor Way Vallejo CA 94590 Phone: 707-648-4370 Site Description:	Site Number: 2-5-SO-110-D Operational Division:	Public Marinas and Harbors D Lat/Long: 38.11 -122.27
Vallejo Flood and Wastewater District 450 Ryder St Vallejo CA 94590 Phone: 707-644-8949 Site Description:	Site Number: 2-5-SO-115-HHS Operational Division:	Human Health and Safety or Critical Infrastructure Lat/Long: 38.09 -122.24
Matthew Turner Park W K St Benicia CA 94510 Phone: 707-746-4285 Site Description:	Site Number: 2-5-SO-120-D Operational Division:	Parks, Beaches, Recreational Areas D Lat/Long: 38.06 -122.18