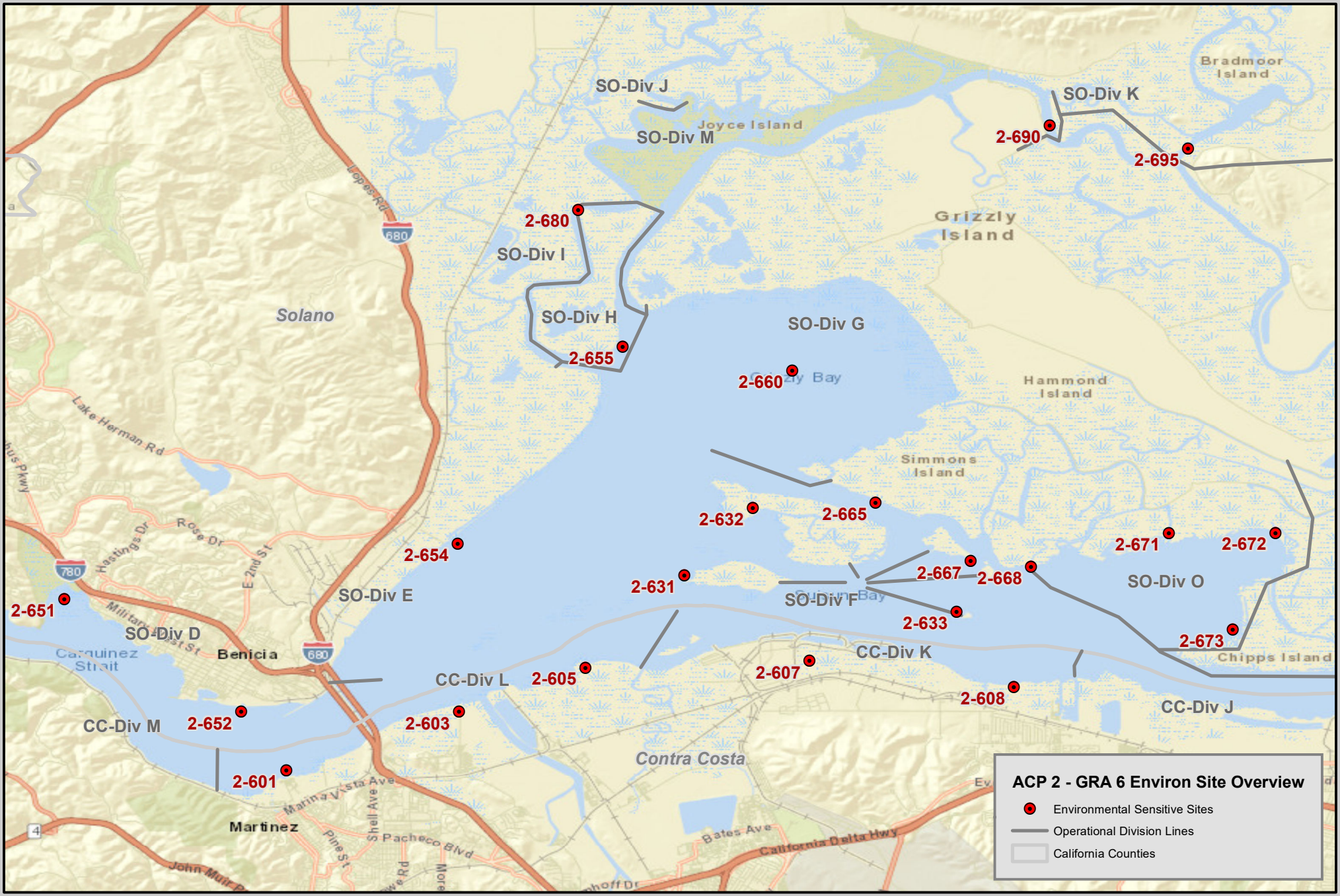

Calif. Dept. of Fish and Wildlife
Office of Spill Prevention and Response

Data Source: OSPR GIS
Requestor: C. Shinn
Author: G. Ewing
Date Created: 5/5/2022

NAD_1983_California_Teale_Albers

ACP 2 - GRA 6 Environmental Site Overview
Contra Costa, Solano Counties

0 0.75 1.5 3 Miles
0 1.25 2.5 5 Kilometers

N

ACP 2 – Suisun Bay

9819 Suisun Bay (GRA 6)

9819.1 Geographic Response Strategies for Environmental Sensitive Sites

9819.1.1 GRA 6 Site Index

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

NOAA Chart: 18656 Suisun Bay ***Map Book:*** ***Decimal Degrees:*** 38.023773 -122.141236

Site Description:

This site includes the salt-marshes and waterfront from the Benicia Bridge to the Ozol Pier. This site has pickleweed salt-marshes on both the east and west side of the Martinez Marina. The salt-marshes are prograding with emergent species along the very shallow margins. The marsh to the east behind the Shell Oil Terminal has some diked impoundments and has a small tidal inlets leading back into the marsh. West of the Marina, Alhambra Creek opens to the marsh and has salt-marsh vegetation along some of its length upstream. The shoreline vegetation from Alhambra Creek to Ozol Terminal grades from marsh to rip-rap shoreline. The salt-marsh around the mouth of Alhambra Creek is East Bay Regional Park District (EBRPD) shoreline. There are flap gates to the duckpond which allow tidal exchange. The flap gates can be closed if the pond is at risk of contamination.

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	yellow rail	FP, SSC	Oct-May	
Fish	longfin smelt	ST	Year-round	Nov-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
Reptiles	giant garter snake	FT, ST	Year-round	Jul-Oct

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	/Dispatch, 24-hr	East Bay Regional Park District	(510) 881-1833
E	/Shoreline Park Surpervisor	East Bay Regional Park District	(510) 881-1832
E	/Manager	Martinez Marina	(925) 313-0942
S	/Dispatch, 24-hr	Contra Costa County Office of the Sheriff	(925) 646-2441
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	/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 plant species reside in the area.

Concerns and Advice to Responders:
Primary concerns are oiling of salt-marsh east and west, intrusion of oil up Alhambra Creek in the west side marsh, and intrusion up the tidal channel in the east side marsh. Exclude oil from both channels and divert oil away from marshes to catchments or to main channel. Avoid trampling marsh vegetation: rare plants and small endangered mammals are present. Avoid trampling oil into sediments. Protect marsh frontage from oil as directed.

Hazard and Restrictions:
Air Operations - Carquinez Bridge power lines; Boats - shallow water & very strong currents; ground traffic - Two lines of railroad tracks parallel shoreline. Amtrak Trains travel at high velocity speeds.

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

Strategy:* 2-601.1** ***Objective: Primary: on the flood tide, exclusion booming mouth Alhambra Creek, other tidal channels, and protect nearby shoreline

Strategy: a) Exclusion booming Alhambra Creek: 200' ft of swamp boom in a chevron configuration backed by sorbent boom at the inlet.
b) Protection booming: Deploy 1100 ft of sorbent boom along the marsh to the west of Martinez Marina (both sides of creek but mostly on the west side.)
c) Exclude oil from entering the small tidal inlet to the marsh east of the marina with boom and sorbent (50' 6X6+). Tidal inlet mouth is located between Shell and Amoco Terminals/Shore Terminal wharf at bridge.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Swamp	6x6	inch	250	feet
Boom	Sorbent			1300	feet
Anchor	Danforth	22	lb	2	
Anchor	Stakes			14	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			2	

Last Page Update

Strategy:* 2-601.2** ***Objective: Deflection for the ebb tide, deflect oil away from and past Alhambra Creek & marsh with boom from old ferry slip

Strategy: Deploy 600 ft of deflection boom extending west from inside the old ferry slip at Ferry Point Pier, Martinez Marina. Set deflection angle into the current as may be possible under prevailing conditions.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	600	feet
Anchor	Danforth	25	lb	3	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			5	

Last Page Update

Strategy:* 2-601.3** ***Objective: Deflection for the Flood Tide: deflect away from Martinez shore

Strategy: Deflect oil away from shoreline with 2000' 9x9+ Hboom. From the shoreline about a half mile west of treatment plant, deploy boom at a diagonal to the 15 ft depth contour.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	2000	feet
Anchor	Danforth	25	lb	5	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			5	

Last Page Update

Strategy:* 2-601.4** ***Objective: Protection Shoreline Booming: If there is threat of heavy oiling and saturation of the marsh front, deploy protective boom coverage, when resource use will not preclude defending other sites against SO 5 and 6 impacts.

Strategy: Deploy exclusion boom along the marsh front from the Benicia Bridge to the marina and from Alhambra Creek to the riprap to the west.
Deploy 5200' of swamp boom (6x6+) be deployed between Suisun Point and the Martinez Marina seawall, and deploy 3300' of protective boom (6X6+) swamp boom depending on presence of wind and chop from Ferry Point at Martinez Marina to 1000 yards west where marsh ends and rip-rap begins. Deploy close to shore where shallows will aid with wind chop spillover problems; if there are wind chop conditions, boom layers will need to be backed with a second layer of 6X6 swamp boom. Because the water is so shallow, very shallow boom boats and skiffs will be required due to grounding and stranding hazards. (A similar strategy for deployment of exclusion boom is illustrated in "Potential Oil Spill Protection Strategies for San Francisco Bay, California" (Hayes and Montello, 1994).)

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Swamp	6x6	inch	8500	feet
Anchor	Danforth	22	lb	18	
Vessel	Boom Boat			3	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			11	

Last Page Update

Logistics:

Directions: Proceed on Hwy 680 toward Martinez and exit on Marina Vista just south of the Benicia-Martinez toll bridge and drive west to city center. Turn right and drive across the railroad tracks to Martinez Marina. Marshes are on both sides of the Marina and park. There are access points at the Marina Vista Park (contact East Bay Regional Parks Dispatch). There is also unimproved shoreline access along the Souther Pacific Rail Road tracks on the west side of Alhambra Creek (contact SP Rail Road).

Land Access: Thorough land access to west. Foot only to east. Beware of the two active rail lines.

On-Water Limitations: Very shallow near shore. Martinez Marina is inaccessable at low tides. Some submerged obstructions on west half. Launching and full boat services available at Martinez Marina on-site. Most boat services are also available across the river at Benicia Marina.

Facilities, Staging Areas, Command Posts, Available Equipment: Best site is Martinez Marina, but Benicia has good staging facilities. Vallero Wharf also has good staging capacity.

Communications Problems: Good cell reception throughout area.


Carquinez Strait
680
2-601.1
2-601.2
2-601.3
2-601.1
Martinez Marina
Marina Vista Ave
Alhambra Creek
0 500 1,000 2,000
Feet
N
CDFW - OSPR & USCG Site: 2-601 Name: Martinez Marsh
G.Ewing (OSPR) & M. Schommer (OSPR) Date: 9/2/2020
Harbor Boom
Swamp Boom

2-603-A Site Summary - Bulls Head Marsh and Pacheco Creek 2-603-A

County: Contra Costa **ACP Division/Segment:** CC - L - S005 CC - L - S006

NOAA Chart: 18656 Suisun Bay ***Map Book:*** ***Decimal Degrees:*** 38.039235 -122.099329

Site Description:

Site extends from Benicia Bridge to the Avon Wharf and includes the tidal salt-marshes tributary to Suisun Bay and Pacheco Creek (aka Walnut Creek or Avon Slough) landward to Hwy 4. There are two extensive salt-marshes south of Waterfront Road (Marina Vista Rd): McNabney Marsh (tributary to Peyton Slough and owned by East Bay Regional Parks) and an unnamed marsh tributary to Pacheco Creek. The marshes north of Waterfront Rd between Hwy I-680 and Pacheco Creek are connected to the south shore of Suisun Bay by several small tidal channels. The marshes south of Waterfront Rd are mostly pickleweed, tule, salt-grass marshes with emergent growths along the edges of waterways and occasional patches of cattail dominant marshes, whereas marshes to the north are dominated by tules and sedges, particularly near the water front and slough margins. Pacheco Creek is very fresh in its more upstream reaches, particularly during high rainfall periods. Salmon and Steelhead are common in Pacheco Creek but do not spawn in the system. There are various dikes and flood control channels throughout the marsh. Pacheco Creek is extremely shallow, has an even shallower bar across its mouth. Regardless, the entire marshfront become mudflats at very low tides. There are three refineries, a chemical plant, a railroad line and several tank farms adjacent to and tributary to this site.

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	common yellowthroat	FP, SSC	Year-round	Jun-Aug
Birds	yellow rail	FP, SSC	Oct-May	
Fish	longfin smelt	ST	Year-round	Nov-May
Fish	delta smelt	FT, SE	Year-round	Mar-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Reptiles	giant garter snake	FT, ST	Year-round	Jul-Oct

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
S	/Dispatch, 24-hr	Contra Costa County Office of the Sheriff	(925) 646-2441
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	/Oil Spill Point of Contact	NOAA National Marine Fisheries Service	(707) 480-3496
T	/Restoration Ecologist	US Department of Agriculture	(530) 304-2304
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:

There are a number of sensitive plants and the Suisun ornate shrew in this area.

Concerns and Advice to Responders:

Primary concern is oil being carried into the interior salt-marsh via tidal channels and oiling of interior marsh. So, the first priority is to exclude oil from tidal channels. Secondarily, there is a plan to collect oil at the Pacheco Creek shoreline to prevent oiling spread and movement. As time and priority allow, the entire marsh shoreline may be protectively boomed. Avoid trampling the salt-marsh vegetation and be aware that small endangered species are present. Avoid trampling oil into the sediments.

Hazard and Restrictions:

This area is very shallow and exposed mudflats at low tide. There may be submerged hazards near shoreline.

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

Strategy: **2-603.1** ***Objective:*** Exclude oil from entering Pacheco Creek, Peyton Slough and four other tidal channels on flood currents

Strategy: Deploy exclusion booms in a chevron configuration in front of each tidal slough, securing boom ends well up and downstream from the openings to avoid entrainment and short-circuiting. Anchors will be necessary to keep chevron formation. Boom ends may be anchored at shore with stakes.

A) 1000' 9x9+ harbor boom at the mouth of Pacheco Slough with 22# anchors

b) At Peyton Slough and the other four tidal inlets west of Pacheco Slough, use 6X6+ in lengths of 50' and 100'. Back with sorbent boom.

C) If boat passage into launch ramp in Pacheco Creek for response activities, it may be necessary to have boom tending or cascades.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	1000	feet
Boom	Swamp	6x6	inch	400	feet
Boom	Sorbent			1000	feet
Anchor	Danforth	25	lb	6	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			5	

Last Page Update

Strategy:* 2-603.2** ***Objective: For flood tides, deflect oil to collection site in Pacheco Creek on Avon refinery shoreline to prevent oil spread to other marsh sites, to collect it, and prevent its free movement.

Strategy: Create a collection site at the northerly most exteme of the levee road on refinery treatment pond east of Pacheco Creek.
A) First, deploy two diagonal barriers of swamp boom (700' 6X6+) to direct the oil from the mouth of the Creek to the collection site. Use stakes to anchor and maintain shape. (If response boat passage into Pacheco Creek is necessary, boom tending may be required.)
b) Then line the marsh along the east bank with swamp boom (1100') and tie the boom into the exclusion boom at the mouth. Use stakes to anchor and maintain shape.
C) After the collection pocket boom is in place (a & b above), deploy a deflection boom (2700' 9x9+ harbor boom total) from the Shore Terminals Wharf to the east side of Pacheco Slough mouth to funnel the oil into collection on the flood tide. Usually exclusion strategy (2-603.1) will have been deployed first, and 1000' of boom will already be at the mouth and must be repositioned as part of the deflection (so the amount of boom needed will be 1000 ft more if that boom is not already onsite.) Use multiple anchors with heavy chain to hold the boom in position in the currents.
D) Improve the shoreside collection site as necessary. Consider excavating a pocket and seek approval from IC. Place plywood or other walking sureface at work site to prevent oil being trampled into muds.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	2700	feet
Boom	Swamp	6x6	inch	1800	feet
Boom	Sorbent			300	feet
Anchor	Danforth	22	lb	17	
Vessel	Boom Boat			2	
Vessel	Skiff or Punt			1	
skimmer	self propelled			1	
Staff	Staff to Deploy			10	

Last Page Update

Strategy:* 2-603.3** ***Objective: Marsh front protective booming: If there is threat of heavy oiling and saturation of the marsh front, and when such use will not preclude defending other sites with Strategic Objectives 5 and 6 action (seek concurrence of the trustee strategist).

Strategy: Deploy protective boom along the marsh front from the Benicia Bridge to the Pacheco Slough, using 9,000 ft of harbor boom. If there are high energy wave conditions, a second layer of swamp boom may be required. (A strategy for the deployment of exclusion boom at this site is illustrated in Potential Oil-Spill Protection Strategies for San Francisco Bay, CA (Hayes and Montello, 1994).)

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	9000	feet
Anchor	Danforth	22	lb	19	
Vessel	Boom Boat			3	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			10	

Last Page Update

Strategy:* 2-603.4** ***Objective: Collection/ containment of upstream threats: If oil is moving down Pacheco Slough from an inland spill, deploy a containment collection as in strategy 2-603.2

Strategy: Create a collection site at the southerly most convenient site on the windward shore, such as the Waterfront Road Pacheco Creek bridge or launch ramp. Most convenient deployment of boom from shore using skiffs, due to shallows.

a) First, deploy two diagonal barriers of swamp boom (600' 6X6+) to direct the oil in the Creek to the collection site. Use stakes to anchor and maintain shape. (To permit boat passage into Pacheco Creek, it may be necessary to have boom tending.)

b) Line the marsh along the east bank with swamp boom (1000'). Use stakes to anchor and maintain shape.

c) Improve the shore side collection site as necessary. Consider excavating a pocket and seek approval from IC. Place plywood or other walking sureface at work site to prevent oil beng trampled into muds.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Swamp	6x6	inch	1600	feet
Anchor	Danforth	22	lb	8	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			5	

Last Page Update

Strategy:* 2-603.5** ***Objective: Back-up for .1 exclusion in case of over-wash threat

Strategy: Deploy second layer of exclusion booms in a chevron configuration in front of each tidal slough just behind first layer. As with primary exclusion, secure boom ends well up and downstream from the openings to avoid entrainment and short-circuiting.

a) 1000' 6X6+ swamp boom will be needed at the mouth of Pacheco Slough;

b) At Peyton Slough and the other four tidal inlets use 6X6 Swamp Boom in lengths of 50' and 100'.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Swamp	6x6	inch	1400	feet
Anchor	Danforth	22	lb	7	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
Staff				5	

Last Page Update

Logistics:

Directions: Exit Hwy I-680 to Marina Visa / Waterfront Road at Martinez (exit just south of Benicia Martinez Bridge) and proceed east. There is access to the shoreline from Shore Terminal's wharf, from the Tosco Avon Refinery, and at the Bridge over Pacheco Creek. By boat, proceed east from the Martinez Marina about a mile to the area east of the Martinez-Benicia Bridge.

Land Access: Access only at Tosco and Shore Terminal wharf; otherwise access by foot only

On-Water Limitations: Exceedingly shallow - mudflats at low tides. Launch at Tosco to Pacheco Creek during higher tides only, otherwise Martinez Marina and Benicia Marina. Full service at Martinez and Benicia.

Facilities, Staging Areas, Command Posts, Available Equipment: Best staging is at Martinez because of the amount of services available (Martineez inaccessible at low tides due to sediment buildup). Benicia is also a good staging site. Locally, equipment may be staged at Tosco at Pacheco Creek or at Shore Terminal wharf.

Communications Problems: Good cell reception in area.


Carquinez Strait
2-603.1
2-603.2
Point Edith Wildlife Area
2-603.1
2-603.2
Pacheco Slough
2-603.4
Avon Refinery
Marina Vista Rd.
680
0 5001,000 2,000
Feet
N
CDFW - OSPR & USCG Site: 2-603 Name: Bulls Head Marsh and Pacheco Creek
G.Ewing (OSPR) & M. Schommer (OSPR) Date: 9/4/2020
Harbor Boom
Swamp Boom

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

NOAA Chart: 18656 Suisun Bay ***Map Book:*** ***Decimal Degrees:*** 38.050057 -122.067468

Site Description:

Site extends from the Tosco Avon terminal wharf west to Hastings Slough and includes all the salt-marshes tributary to Hastings Slough including those south of Waterfront Road. Salt-marshes from Point Edith to the Avon Wharf are property of Department of Fish and Wildlife (700+ acres), but the marshs around Hastings Slough and much of the tributary marshland (2000+ acres) is located on DOD military property and entry is prohibited without prior clearance. These salt-marshes have a large tidal exchange volume, particularly Hastings Slough marshes. The DFW salt-marshes drain directly to the bay via 10 separate tidal sloughs. Hastings Slough is very sinuous and has many tributary channels including Mt. Diablo Creek. Throughout the salt-marsh there is an extensive network of mosquito abatement channels which connect the freshwater and brackish marshes between. Most of the salt-marsh is pickleweed, but there are large stands of tules and open ponds. Significant portions of the property south of Waterfront Rd and east of the Marathon refinery are on refinery property, contact refinery personnel prior to entry.

Resources at Risk:

ESI and Habitat: 10A Salt - and brackish-water marshes
9B Vegetated low banks
10B Freshwater marshes

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	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
Plants	Mason's lilaeopsis	SR	Year-round	Apr-Nov
Reptiles	giant garter snake	FT, ST	Year-round	Jul-Oct

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
E	/Dispatch, 24-hr	US Army, Concord Military Ocean Terminal	(925) 246-4041
E	/Dispatch, 24-hr	US Army, Concord Military Ocean Terminal	(925) 246-3911
S	/Dispatch, 24-hr	Contra Costa County Office of the Sheriff	(925) 646-2441
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	/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:

A number of sensitive plants and Suisun song sparrow reside in the area. There are submerged obstructions in Hastings Slough for about 50 yds south of bridge overcrossing.

Concerns and Advice to Responders:

The prime concerns are oil penetrating the marsh up tidal sloughs on tidal currents, particularly Hastings Slough, and oil saturating marsh vegetation on exposed marsh fronts and margins. Exclusion is first priority: to Hastings Slough and small channels. Next priority is to deflect oil away from these inaccessible marsh shoreline. During response be aware that there are listed species along the shoreline. Minimize foot traffic. Avoid trampling vegetation and avoid trampling oil into sediments.

Hazard and Restrictions:

Some of the waterfront has very shallow mudflats. There are submerged obstructions in Hastings Slough for about 50 yds south of bridge overcrossing.

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

Strategy:* 2-605.1** ***Objective: Exclude oil from Hastings Slough and tidal channels to prevent oil from being carried into marsh on flood tides.

Strategy: Exclude oil from entering all tidal sloughs using chevron booming configurations, including center anchors, and anchor boom ends well outside channel mouths to avoid entrainment and short circuiting around boom ends.

a) Hastings Slough: 1100' 6X6+ deployed in a modified chevron beginning well to the west (200'+) of the mouth. Back with sorbent boom. 3/22+/danforths.

B) The 2 sloughs just east of and one at Pt Edith: (400' 9X9+ and 1/22+ & 2/12+ danforths total.) Back with sorbent boom.

C) The ten tidal openings west of Pt Edith: 100' 6X6+ for each opening except #7 (from west) requires 200' (1100' total). Back each with sorbent.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	1500	feet
Boom	Swamp	6x6	inch	1100	feet
Boom	Sorbent			2300	feet
Anchor	Danforth	22	lb	9	
Anchor	Stakes			20	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			5	

Last Page Update

Strategy:* 2-605.2** ***Objective: Deflect oil away from shoreline for sites 2-605 and 2-607 on flood tide.

Strategy: Deploy 2400' Hboom from just west of Pt Edith past channel marker R2 and into channel toward chanel marker G3.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	2400	feet
Anchor	Danforth	22	lb	5	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			5	

Last Page Update

Strategy Updated: 11/16/2016
Last Test: 11/16/2016

Strategy:* 2-605.3** ***Objective: Back-up of Exclusion booming of .1 strategy for wave conditions: if waves or chop is likely to wash oil over boom.

Strategy: a) Hastings Slough: deploy a second layer of boom (800' 6X6+) close behind to catch and exclude over wash. 3/12+/danforths.
b) The 2 sloughs just east of and one at Pt Edith: (400 6X6+) and 2/22+ danforths total. Back with sorbent boom.
c) The ten tidal openings west of Pt Edith: 100' 6X6+ for each opening except #7 (from west) requires 200' swamp boom (1100' total). Back each with sorbent.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Swamp	6x6	inch	2300	feet	
Boom	Sorbent			1000	feet	
Anchor	Danforth	22	lb	5		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Strategy:* 2-605.4** ***Objective: Marsh front protective booming: If there is threat of heavy oiling and saturation of the marsh front, and when such deployment will not preclude defending other sites with Strategic Objectives 5 and 6 (seek concurrence of the trustee stratigist).

Strategy: Deploy protective boom along the marsh front from the Tosco Wharf to the US Navy piers and linking with existing boom deployments as convenient: an additional 7,000 ft of harbor boom and ten additional anchors will be required in combination with boom already deployed in strategies .1 and .2. (A similar strategy for the deployment of exclusion boom at this site is illustrated in Potential Oil-Spill Protection Strategies for San Francisco Bay, CA (Hayes and Montello, 1994).)

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9	inch	7000	feet	
Anchor	Danforth	22	lb	15		
Vessel	Boom Boat			3		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			8		

Logistics:

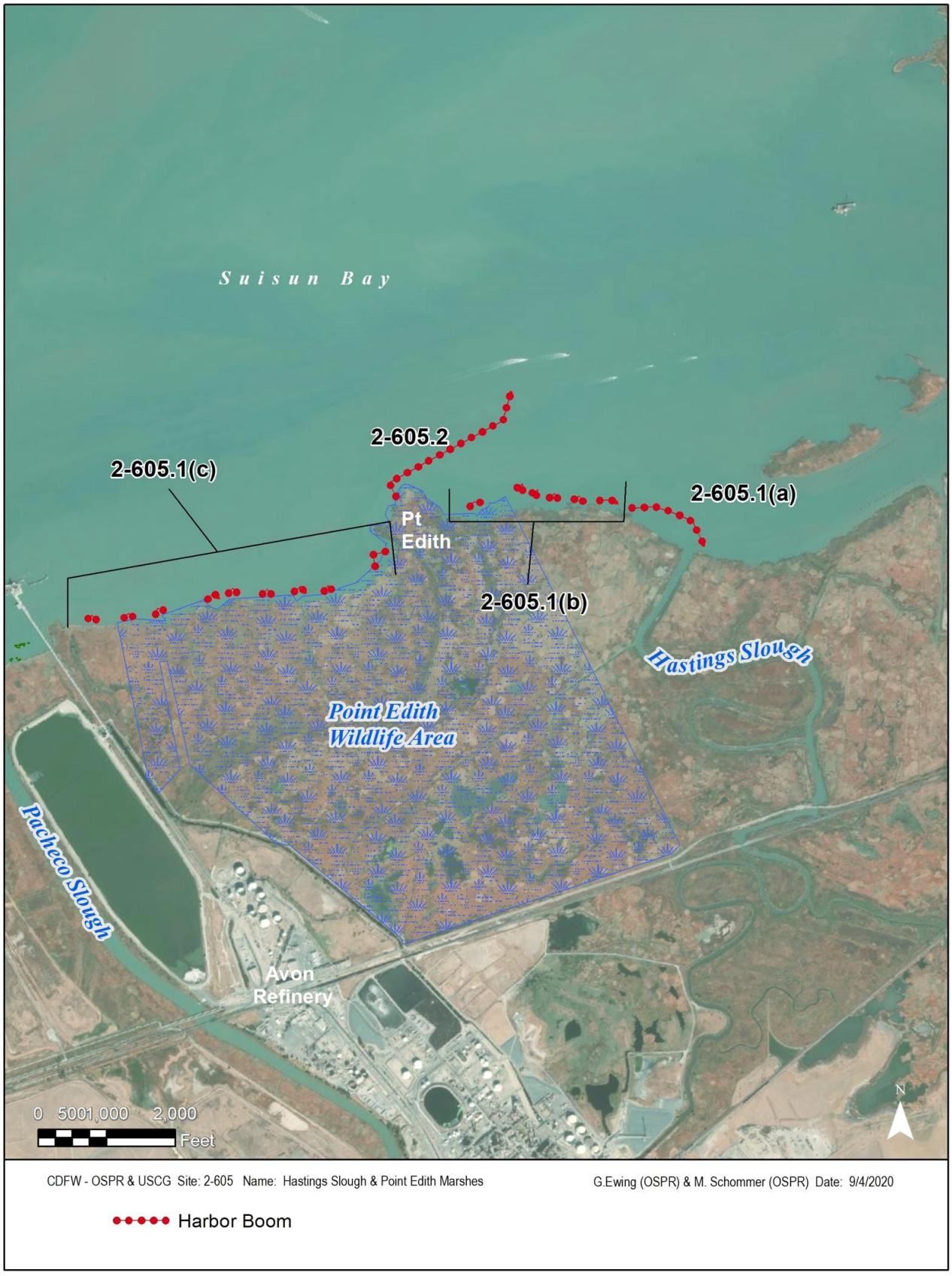
Directions: By boat, the site is east of the Benicia Bridge from the Avon Refinery wharf to the Navey Piers. By vehicle exit Hwy I-680 at Marina Vista (first exit south of Benicia Bridge - Waterfront Rd) and proceed west to Avon Refinery gate; request access and proceed east: Marina Vista (Waterfront) Road is blocked at the Hastings Slough Bridge by a Weapons Station locked gate. Important: Permission to enter eastern portion of the area must be obtained from the U.S. Naval Weapons Station Concord. By arrangement with Weapons Station Security only, access from Highway 4 to CNWS exit north on Port Chicago Highway to Base Gate to request entry: Contact USCG Watch 415-399-3546 or 3547.

Land Access: All types to Waterfront Road. Otherwise by foot only.

On-Water Limitations: Very shallow water. Exposed mud at low tides. Very poor launch at CNWS tug wharf. Commercial Launching at Martinez, Benicia, and McAvoy's in Bay Point, all have complete services. Tosco launch is at Pacheco Slough.

Facilities, Staging Areas, Command Posts, Available Equipment: Martinez and McAvoy's Marinas are two primary staging areas depending on zone of spill impacts. Both have wide variety of services and access, potential for security control.

Communications Problems: Good cell reception.


Suisun Bay
2-605.2
2-605.1(c)
2-605.1(a)
Pt
Edith
2-605.1(b)
Hastings Slough
Point Edith
Wildlife Area
Pacheco Slough
Avon
Refinery
0 5001,000 2,000
Feet
N
CDFW - OSPR & USCG Site: 2-605 Name: Hastings Slough & Point Edith Marshes
G.Ewing (OSPR) & M. Schommer (OSPR) Date: 9/4/2020
Harbor Boom

County: Contra Costa **ACP Division/Segment:** CC - K - S001 CC - K - S008

NOAA Chart: 18656 Suisun Bay ***Map Book:*** ***Decimal Degrees:*** 38.056151 -122.018132

Site Description:

This site includes Seal Islands and the shoreline from Hastings Slough east to the General Chemical Plant at Middle Point bounded on the south by the Southern Pacific Railroad and Waterfront Rd. All of these salt-marshes are located on highly restricted DOD Military property (MOTCO). The site may be divided into three parts: 1) Belloma wetlands is the easterly portion from Middle Point to Seal islands; it has about 700 acre area and three small tidal soughs (all fronted by piers and difficult to access from water). 2)The salt-marshes on the west end of the site are fed by a tidal inlet immediately west of the wharf facilities; this channel goes all the way back to waterfront road and may have cross-curent flow with Hastings Slough via mosquito abatement channels. 3) Seal Islands are at the northwest end of the salt-marsh front opposite the tug docks. Seal islands are high salt-marsh habitat. The inland salt-marshes are brackish-water marsh, characterized with pickleweed, tule and spartina vegetation.

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
Fish	longfin smelt	ST	Year-round	Nov-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
Reptiles	giant garter snake	FT, ST	Year-round	Jul-Oct

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	/Dispatch, 24-hr	US Army, Concord Military Ocean Terminal	(925) 246-4041
E	/Dispatch, 24-hr	US Army, Concord Military Ocean Terminal	(925) 246-3911
S	/Dispatch, 24-hr	Contra Costa County Office of the Sheriff	(925) 646-2441
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	/Restoration Ecologist	US Department of Agriculture	(530) 304-2304
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 plant species reside in the area. High potential for Unexploded Oridinances (UXO) in area. Unauthorized personnel or trespassers are subject to arrest. Beware of shallow submerged hazards and pier traffic.

Concerns and Advice to Responders:

This extensive salt-marsh is very sensitive and has endangered species. If oil gets into the salt-marsh the problems will be complicated due to the military security issues here. The plan is to exclude oil from the salt-marsh by booming or diking the inlets. Response concerns are : 1) get permission from USN (MOTCO) before attempting any access; 2) avoid trampling vegetation: endangered plants are present; avoid trampling oil into the sediments.

Hazard and Restrictions:

High potential for Unexploded Oridinances (UXO) in area. Unauthorized personnel or trespassers are subject to arrest. Beware of shallow submerged hazards and pier traffic. Contact MOTCO for access info.

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

Strategy:* 2-607.1** ***Objective: Exclusion booming of four Sloughs.

Strategy: Military response resources may be available at the Weapons Station to boom off the slough.
a) at slough west of facilities, deploy 500 ft. of 6X6+ exclusion boom across the mouth in a chevron formation attached to shore well outside the mouth and back with sorbent boom.
b) at first slough east of facilities, deploy 100 ft. of 6X6+ exclusion boom across the mouth in a chevron formation attached to shore well outside the mouth and back with sorbent boom.
c) at 2nd slough east of facilities, deploy 50 ft. of 6X6+ exclusion boom across the mouth in a chevron formation attached to shore well outside the mouth and back with sorbent boom.
d) at east-most slough, deploy 400 ft. of 6X6+ exclusion boom across the mouth in a chevron formation attached to shore well outside the mouth and back with sorbent boom.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Swamp	6x6	inch	1050	feet
Boom	Sorbent			1050	feet
Anchor	Danforth	22	lb	5	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			5	

Last Page Update

Strategy:* 2-607.2** ***Objective: Diversion booming on Flood tide: Execute 2-605.2 divert out of channel and away from sites 2-605 & 2-607

Strategy: Strategy can only be implemented after military has given UXO clearance to area. Military response resources may be available at the Weapons Station to boom off the slough. A) at slough west of facilities, deploy 500 ft. of 6X6+ exclusion boom across the mouth in a chevron formation attached to shore well outside the mouth and back with sorbent boom; B) at first slough east of facilities, deploy 100 ft. of 6X6+ exclusion boom across the mouth in a chevron formation attached to shore well outside the mouth and back with sorbent boom; C) at 2nd slough east of facilities, deploy 50 ft. of 6X6+ exclusion boom across the mouth in a chevron formation attached to shore well outside the mouth and back with sorbent boom; D) at east-most slough, deploy 400 ft. of 6X6+ exclusion boom across the mouth in a chevron formation attached to shore well outside the mouth and back with sorbent boom.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Swamp	6x6		1050	feet
Boom	Sorbent			950	feet
Anchor	Danforth	22	lb	14	
Anchor	Stakes			12	
Personnel	Staff to Deploy			3	

Last Page Update

Strategy:* 2-607.3** ***Objective: Exclusion of Sloughs by sediment dike.

Strategy: Construct a temporary sediment dike across all four sloughs. Naval response resources at the Concord Weapons Station (MOTCO) may be available to dike off the slough. (Requires BCDC and USCE contacts)

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Skiploader				1	
Vehicle	dump truck			1	
Staff				4	

Last Page Update

Logistics:

Directions: IMPORTANT: Permission to enter the area, by land or water, must be obtained from the U.S. Naval Weapons Station, Concord. Exit Hwy 4 at Port Chicago Hwy to Main St and proceed to main gate for entry permission and directions. By water proceed along the shoreline from Martinez (east) or from McAvoy's (west) until you reach the MOTCO (Marine Ocean Terminal Concord) Navy piers.

Land Access: Belloma slough has road access; the remaining area is accessable by foot only.

On-Water Limitations: Very shallow. Launch at USN CNWS tug dock, Martinez, McAvoy

Facilities, Staging Areas, Command Posts, Available Equipment: Naval response resources at the Concord Naval Weapons Station may be available to dike or boom off the slough. Stage equipment at Martinez Marina, McAvoy's Marina or MOTCO Weapons Station.

Communications Problems: Cell reception may vary.


Ryer Island
Roe Island
Suisun Bay
Seal Island
2-607.2(b)
2-607.2(c)
2-607.2(d)
2-607.2(a)
Concord Naval Weapons Station
Hastings Slough
Military Ocean Terminal Concord (MOTC)
Mallard Reservoir
0 1,250 2,500 5,000
Feet
4
N
CDFW - OSPR & USCG Site: 2-607 Name: Weapon Station Marshes & Seal Island
G.Ewing (OSPR) & M. Schommer (OSPR) Date: 9/16/2020
Swamp Boom

County: Contra Costa **ACP Division/Segment:** CC - K - S009 CC - K - S010

NOAA Chart: SUISUN BAY 18658/18556/18656 ***Map Book:*** ***Decimal Degrees:*** 38.046557 -121.970912

Site Description:

This site extends from McAvoys Marina (Bay Point) west to the Chemical Plant (east of Middle Point) and bounded on the south by the Southern Pacific Railroad (SPRR). There are three ownerships: California Department of Fish and Wildlife owns the parcel next to the Marina, the US Navy Concord Weapons Station (MOTCO) owns the parcel next to the chemical plant, and the East Bay Regional Park District (EBRPD) owns the "J" channel that feeds the salt-marsh directly north of the Bay Point Regional Shoreline. This site is a combination of tidal and high salt-marsh characterized with tules, cattails and pickleweed vegetation. It has an abrupt margin typical of eroding marsh front. Several finger sloughs carry tidal exchange to the back salt-marsh. There are several dead-end sloughs connecting to Seal Island Channel parallel to the shoreline.

Resources at Risk:

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

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	California least tern	FE, SE	Year-round	Apr-Jun
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
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Plants	Mason's lilaeopsis	SR	Year-round	Apr-Nov
Plants	soft bird's beak	FE, SR	Year-round	Jul-Nov
Reptiles	giant garter snake	FT, ST	Year-round	Jul-Oct

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	/Dispatch, 24-hr	East Bay Regional Park District	(510) 881-1833
E	/Shoreline Parks Manager	East Bay Regional Park District	(510) 881-1832
E	/Dispatch, 24-hr	US Army, Concord Military Ocean Terminal	(925) 246-4041
E	/Dispatch, 24-hr	US Army, Concord Military Ocean Terminal	(925) 246-3911
O	/Dispatch, 24-hr	California Department of Water Resources	(916) 574-2714
S	/Dispatch, 24-hr	Contra Costa County Office of the Sheriff	(925) 646-2441
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	/Restoration Ecologist	US Department of Agriculture	(530) 304-2304

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

Additional Site Summary Comments:

Several species of sensitive plants occur in the area.

Concerns and Advice to Responders:

This is a sensitive salt-marsh with endangered plants and animals. Primary concern is to prevent oil from being carried into the marsh though tidal openings by using exclusion booming. Also of concern is oiling of the marsh front when tides flood the marsh front. Responders should make an effort to minimize trampling of vegetation and be aware there are several listed species present.

Hazard and Restrictions:

There is a channel immediately along shore, and there is a sandbar farther out (tide dependent).

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

Strategy:* 2-608.1** ***Objective: Exclude oil from tidal channels which admit oil to back marshes. Close dead-end sloughs to reduce oil margin impacts.

Strategy: There are two inlets at the McAvoy Marina, use 200' of 6X6+ swamp boom each. There are also several small tidal channels. They are located about 100', 200', and 300' west from the west McAvoy entry. Each will require 25'of 6X6+ swpboom. Boom anchoring may be necessary (as opposed to staking) because bridging may admit oil at low flood. At the deadend slough near chemical plant, use 400' 6X6+ swpboom with stakes or anchors. Repeat deployment if currents or waves are likely to overtop boom. Leave trailing boom ends to insure a seal and prevent shortciruiting. Back each with sorbent boom.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Swamp	6x6	inch	1050	feet
Boom	Sorbent			1050	feet
Anchor	Danforth	22	lb	16	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			5	

Last Page Update

Strategy:* 2-608.2** ***Objective: Deflect oil away from shoreline and into main channel. Deflect any by-passing oil to shore capture/collection.

Strategy: a) From Middle Point deploy 9X9+ harbor boom at the best angle fend oil past marsh front and back into main channel.

B) Setup a deflection to shore and a shore skimming collection system at General Chemical shoreline to intercept any oil which escapes above deflection.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	3000	feet
Anchor	Danforth	25	lb	18	
Vessel	Boom Boat			2	
Vessel	Skiff or Punt			1	
skimmer	shoreside			1	
Staff	Staff to Deploy			8	

Last Page Update

Strategy Updated: 9/22/2015
Last Test: 9/22/2015

Strategy:* 2-608.3** ***Objective: Marsh front protective booming: If there is threat of heavy oiling and saturation of the marsh front, and when such use will not preclude defending other sites with Strategic Objectives 5 and 6 action (seek concurrence of the trustee strategist).

Strategy: When foregoing strategies are inadequate to keep oil off marshes, 8000 ft of harbor boom will be deployed along the entire marsh front to keep heavy oiling off the marsh. Multiple layers may be required if oil is washing over the first layer (second layer may then be swamp boom.) (This strategy can be found in Potential Oil-Spill Protection Strategies for San Francisco Bay, California. (Hayes and Montelo, 1994).)

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	8000	feet
Anchor	Danforth	22	lb	20	
Vessel	Boom Boat			3	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			11	

Last Page Update

Logistics:

Directions: This site can be reached taking the Bay Point (Willow Pass) exit from Hwy 4 and then to Port Chicago Highway: marsh access though a locked gate (This is Concord Naval Weapons Station property). Also, via the General Chemical Plant. By water, the site is immediately west of McAvoy's Marina (access to marina based upon tidal height).

Land Access: Good access, some security limitations. Check with MOTCO for secured access.

On-Water Limitations: none have been identified. McAvoy/Harris Marina at Bay Point is immediately to the east. Martinez Marina (9 mi. W). Pittsburg Marina (6 mi. E). Marina access varies upon tide height.

Facilities, Staging Areas, Command Posts, Available Equipment: Deploy from Pittsburg, Martinez or McAvoy's Marinas. McAvoy's is possible field post and staging/support site: all manner of facilities, except housing, are available.

Communications Problems: Cell receptipn varies.


Suisun Bay
2-608.2
2-608.1
2-608.1
2-608.1
Shore Acres Marsh
McAvoy Marina
4
0 1,250 2,500 5,000
Feet
N
CDFW - OSPR & USCG Site: 2-608 Name: Shore Acres Marsh
G.Ewing (OSPR) & M. Schommer (OSPR) Date: 9/22/2020
Harbor Boom
Swamp Boom

County: Solano **ACP Division/Segment:** SO - F - S001 SO - F - S002

NOAA Chart: 18656 Suisun Bay ***Map Book:*** ***Decimal Degrees:*** 38.072624 -122.034415

Site Description:

This site includes all of Roe Island owned by US Navy. Roe Island is a salt-marsh island in Suisun Bay which is predominantly a high tidal salt-marsh with high seasonal ponds, supporting a rich diversity of salt-marsh plants. The island has never been diked. There are two tidal channels which enable circulation from Suisun Bay to the interior of the island with multiple branches and associated wetlands. There are shallow shoals on east and west ends. Protected margins and channels have emergent vegetation. Most of the shoreline is wave washed and eroding. Contact Concord Naval Weapons Station (MOTCO) regarding shoreline access.

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 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
Fish	delta smelt	FT, SE	Year-round	Mar-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Plants	Mason's lilaeopsis	SR	Year-round	Apr-Nov
Plants	Delta tule pea	SSSP	Year-round	May-Jul
Reptiles	giant garter snake	FT, ST	Year-round	Jul-Oct

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	/Dispatch, 24-hr	US Army, Concord Military Ocean Terminal	(925) 246-4041
E	/Dispatch, 24-hr	US Army, Concord Military Ocean Terminal	(925) 246-3911
S	/Dispatch, 24-hr	Contra Costa County Office of the Sheriff	(925) 646-2441
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Wildlife Area Manager	CA Dept. of Fish & Wildlife, Grizzly Island WR	(707) 738-3485
T	/Oil Spill Point of Contact	NOAA National Marine Fisheries Service	(707) 480-3496
T	/Restoration Ecologist	US Department of Agriculture	(530) 304-2304

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:
The prime concern is to exclude oil from entering the tidal channels which lead to the interior salt-marsh. Secondarily, deflect oil away from exposed shoreline where oil will be diverted to a collction point. Minimize trampling of shoreline and marsh vegetation: several endangered species are all along the shoreline. This island supports rich and varied plants species, but its high elevation reduces risk of oil reaching the interior of the island except on very high tides.

Hazard and Restrictions:
Very shallow water around the entire island limits access. Submerged pilings near shoreline.

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

Strategy:* 2-631.1 *Objective: Exclude oil from entering tidal channels and penetrating interior of island.

Strategy: There are two tidal channels which circulate to the interior of the island with multiple branches and associated wetlands. Exclude oil from tidal channel at Northwest margin by chevron exclusion boom; A) At the most westerly at northwest side, use 500' swamp boom in a chevron "V" backed with sorbent boom. Water in this area is very shallow: airboat, hovercraft or booming on very high tides will be necessary.
B) On the north side of the island at about the middle of the island, deploy 100 of 9X9+ harbor boom in an exclusion chevron "V" with ends well upstream and down stream from opening. There are pilings around the mouth, and water is fairly deep at and along this opening. Heavier anchors may be required here.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9	inch	100	feet	
Boom	Swamp	6x6	inch	500	feet	
Boom	Sorbent			300	feet	
Anchor	Danforth	22	lb	5		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Strategy:* 2-631.2 *Objective: Deflect booming at west end of island.

Strategy: Deflection Booming: Deploy 3000 of harbor boom in a chevron near the west end to protect vulnerable and sensitive sites at the western end of the island by deflecting oil past the island to north and south. Use heavy anchors (75 lbs.) Deploy boom as close to island as possible: there is a relatively deep channel close to the western tip (Preston Point).

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9	inch	3000	feet	
Anchor	Danforth	75	lb	7		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Logistics:

Directions: Access site only by water. Roe Island is located in Suisun Bay north of the USN Concord Naval Weapons Station and is US Navy property.

Land Access: Access only by boat & foot traffic.

On-Water Limitations: Very shallow water. Launching at Martinez, Benicia and McAvoy-Harris' Marinas in Bay Point , with boat services. Launch only at Tosco - Pacheco Creek and Concord Navel Weapons Station (tug wharf) by consent only.

Facilities, Staging Areas, Command Posts, Available Equipment: Deploy from Martinez Marina, Benicia Marina or from McAvoy's Marina at Bay Point (West Pittsburg) depending on the zone of inpacts and response activity.

Communications Problems: Good cell reception.


Ryer Island
2-631.1
2-631.1
Roe Island
(U.S. Navy
Property)
2-631.2
Seal
Island
Concord Naval
Weapons Station
N
0
1,250
2,500
5,000
Feet
CDFW - OSPR & USCG Site: 2-631 Name: Roe Island
G.Ewing (OSPR) & M. Schommer (OSPR) Date: 9/23/2020
Harbor Boom
Swamp Boom

County: Solano **ACP Division/Segment:** SO - F - S003 SO - F - S005

NOAA Chart: 18656 Suisun Bay ***Map Book:*** ***Decimal Degrees:*** 38.08136 -122.012615

Site Description:

This site includes all of Ryer Island and is a property of the US Navy Military OceanTerminal Concord (MOTCO). This salt-marsh island in Suisun Bay is divided in two parts by a channel. The western end of the island is a high tidal salt-marsh and supports a rich diversity of native marsh plants. It has never been diked or channelized. The western-most point is wave eroded and is used as a haulout by harbor seals. The eastern three-fourths of the island was once diked, and the interior of the island has subsequently subsided. The dikes are now broken in several places, and because of the subsidence, strong tidal currents fill and empty the interior with every tide cycle. This eastern portion is a flooded maze of tule-pockets and channels with a large deep channel running east-west. The outer perimeter of the island has complicated shoreline of small salt-marsh islands and barrow channels. There are mature trees on the levees particularly at the east end.

Resources at Risk:

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

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
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Mammals	harbor seal	FP		
Plants	Mason's lilaeopsis	SR	Year-round	Apr-Nov
Plants	Delta tule pea	SSSP	Year-round	May-Jul

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	Mandeville Island Reclamation District	(209) 946-0268
E	/Office	Ryer Island Reclamation District	(209) 946-0268
E	/Dispatch, 24-hr	US Army, Concord Military Ocean Terminal	(925) 246-4041
E	/Dispatch, 24-hr	US Army, Concord Military Ocean Terminal	(925) 246-3911
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	/Restoration Ecologist	US Department of Agriculture	(530) 304-2304

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

Additional Site Summary Comments:

Harbor seals are known to haul out on the westerly side at lower tides. There are extreme shallows and submerged obstructions around these islands.

Concerns and Advice to Responders:

The main concern is the potential for oil to be carried into the interior of the islands particularly eastern Ryer Island: on east Ryer there is a strong flood flow into the island though openings on the north, the south, the east and the west. The north opening and west opening are most likely to have oil entries. Also of concern is the oiling of the emergent vegetation on the margins and surrounding small islands: closing sloughs and openings will reduce the amount of marsh exposed. There are listed species here; so avoid trampling vegetation and trampling oil into sediments.

Hazard and Restrictions:

There are extreme shallows and obstructions around these islands.

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

Strategy:* 2-632.1** ***Objective: Exclude oil from entering east section of Island though levee breaks and penetrating the west section interior via tidal inlets.

Strategy: Primary concern is excluding oil from East Ryer Island. West Ryer Island should come after. Most actions require very shallow operations, and at least one very shallow draft boom boat is necessary. Target time is 2 hours for deployment:

On East Ryer Island are four major openings and plus some smaller inlets.

A) - North shoreline on Suisun Cut: Use chevron configuration (600' 9X9+ Hboom with 3 22#+ anchors and stakes) to exclude oil from a large gap in the levee. There are four narrow openings to the east of the break, each requiring 100' of 6X6+ and 1/5#+ anchors and stakes each. Back with sorbent (1000')

- Cross Island channel may need booming at north end: 200' of 9X9 at the north end. 200' sorbent.

B) west shore: All require very shallow operations. Back with sorbent 500.

- Exclude oil from two small opening just east of cross island channel 50' and 100' of 6X6+ each with 1- 5#+ anchor and stakes in a chevron "V" exclusion. Set "V" apex and stakes as far from current opening as possible.
- Exclusion chevron "V" in the larger channel immediately to south, with 350' 9X9+ Hboom with 22#+ anchors & stakes.
- Exclusion boom in three inlets starting at 100 yds south of above channel, boom with 100' ,100' and 50' of 6X6+ swamp boom staked in place. (no sorbent necessary.)

c) South shore: two openings - a wide funnel opening fronted with pilings and submerged pilings: deploy Chevron "V" exclusion with 400' 9X9+ Hboom with anchors to keep boom off the pilings. Back with 200' sorbent. Exclude oil from second opening about 200 yds east: 100' 6X6+ boom. Back with 50' sorbent.

D) East shore: Chevron "V" exclusions of four openings though outer fringe islands: two most easterly opening 350' and 150' 9x9+ (both with 22# danforths), two south easterly side 150' and 150' of 6X6+ boom (both with 5#+ mid channel anchors). Back with 600' sorbent.

On West Ryer Island are four tidal inlets. These require extremely shallow operations.

E) Near the northwest tip just east of Garnett Point is a funnel mouth slough: 200' 6X6+ swamp boom staked in place and 100' sorbent.

F) on the south side, Chevron "V" exclusions using 6X6+ boom - 150' at the cross island cut and slough immediately to the west and further west 100' at each of two other sloughs. Back with sorbent boom.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	1850	feet
Boom	Swamp	6x6	inch	1580	feet
Boom	Sorbent			2800	feet
Anchor	Danforth	25	lb	15	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			5	

Last Page Update

Strategy:* 2-632.2** ***Objective: Deflect oil away from seal haulout at northwest tip.

Strategy: Deflect oil past north west tip (Garnett Point) using 400' of 9X9+ Hboom. At least four heavy anchors will be necessary to hold the boom in position in this high wind area.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9	inch	400	feet	
Anchor	Danforth	44	lb	4		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Strategy:* 2-632.3** ***Objective: Reducing south shore impacts by closing barrow channel inlets.

Strategy: Closing barrow channel inlets can reduce oil exposure to the south margin by about 1/2. If oil is likely to impact south side of Ryer Island, close openings to barrow channels. 3000' 6X6+ Swamp boom with stakes and occasional anchors as needed.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Swamp	6x6	inch	3000	feet	
Anchor	Danforth	25	lb	7		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Logistics:

Directions: There is no land access. By water, Ryer Island is located about a mile north of the Concord Naval Weapons Stations (MOTCO) piers in Suisun Bay. The Island is about six miles northeast from Martinez and about four miles northwest from McAvoy's. North and south margins are deep. Wherever channels cross old levee, there are obstructions. Interior channels are all very shallow but may be traversed with outboards with high tides.

Land Access: Foot traffic only and extremely difficult.

On-Water Limitations: North and south margins deep;channels shallow & obstructions. Nearest launch is McAvoys (4 miles) or Martinez -Benicia (7 miles). All have good services.

Facilities, Staging Areas, Command Posts, Available Equipment: Either Martinez, Benicia, or McAvoys (Bay Point) have good facilities for field outposts. All have good support and security potential. Martinez has widest variety of support services.

Communications Problems: None known.


2-632.2
2-632.1(e)
Garnett Pt
Pt Buckler
Simmons Island
2-632.1(a)
2-632.1(a)
2-632.1(f)
2-632.1(b)
2-632.3
Ryer Island
2-632.1(b)
Roe Island
(U.S. Navy
Property)
2-632.1(c)
2-632.3
Seal
Island
0 1,250 2,500 5,000
Feet
N
CDFW - OSPR & USCG Site: 2-632 Name: Ryer Island
G.Ewing (OSPR) & M. Schommer (OSPR) Date: 9/23/2020
Harbor Boom
Swamp Boom

County: Solano **ACP Division/Segment:** SO - F - S009

NOAA Chart: SUISUN BAY 18656/18657/18658 ***Map Book:*** ***Decimal Degrees:*** 38.063134 -121.982586

Site Description:

This site is an island in the middle of Suisun Bay between Roe Island and Chipps Island. It is US Navy Weapons Station Property. This low elevation island is surrounded by salt-marsh margins. It is the east tip of a long mud shoal named Middle Ground. The west and north side have extremely shallow waters. The south side along the main channel has numerous old pier pilings. The eastern tip is wave-washed beach. Large numbers of migratory birds utilize beach areas.

Resources at Risk:

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

9B Vegetated low banks

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	Suisun song sparrow	FP, SSC	Year-round	Mar-Jul
Fish	longfin smelt	ST	Year-round	Nov-May
Fish	delta smelt	FT, SE	Year-round	Mar-May
Plants	Mason's lilaeopsis	SR	Year-round	Apr-Nov
Plants	Suisun marsh aster	SSSP	Year-round	May-Nov
Reptiles	giant garter snake	FT, ST	Year-round	Jul-Oct

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	/Dispatch, 24-hr	US Army, Concord Military Ocean Terminal	(925) 246-4041
E	/Dispatch, 24-hr	US Army, Concord Military Ocean Terminal	(925) 246-3911
O	/Dispatch, 24-hr	California Department of Water Resources	(916) 574-2714
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	/Restoration Ecologist	US Department of Agriculture	(530) 304-2304

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

Additional Site Summary Comments:

Middle Ground Island has numerous submerged obstructions from old pier pilings, use caution on approach. DO NOT ACCESS w/o MOTCO APPROVAL.

Concerns and Advice to Responders:

The strategy is intended to protect this marshy island by deflecting oil away. Responders should avoid trampling vegetation because rare plant species are present. Avoid trampling oil into sediments.

Hazard and Restrictions:

The south side has old pier pilings and submerged pilings. The north and west side are extremely shallow: the island is the emergent tip of a shallow mud bar. Coordinate with MOTCO for booming strategies and/or shoreline access.

Site Strategies:

Site Validation Level: II

Strategy:* 2-633.1** ***Objective: Flood tide deflection if oil threatens from SW: only when other larger sites are assured protection

Strategy: Deploy 1500' 9x9+ Harbor boom SW from the island with a slight deflection to move oil past island and back into main channel.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	1500	feet
Anchor	Danforth	22	lb	6	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			5	

Last Page Update

Strategy:* 2-633.2** ***Objective: Flood tide deflection if oil threatens from NW: only when other larger sites are assured protection

Strategy: Deploy 1500' 6X6+ north and northeast to deflect oil past island and back into north channel. Stake and/or anchor in place. This area is extremely shallow and only very shallow draft vessels can deploy here and deployment should be scheduled for higher tide windows.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Swamp	6x6	inch	1500	feet
Anchor	Danforth	22	lb	6	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			5	

Last Page Update

Logistics:

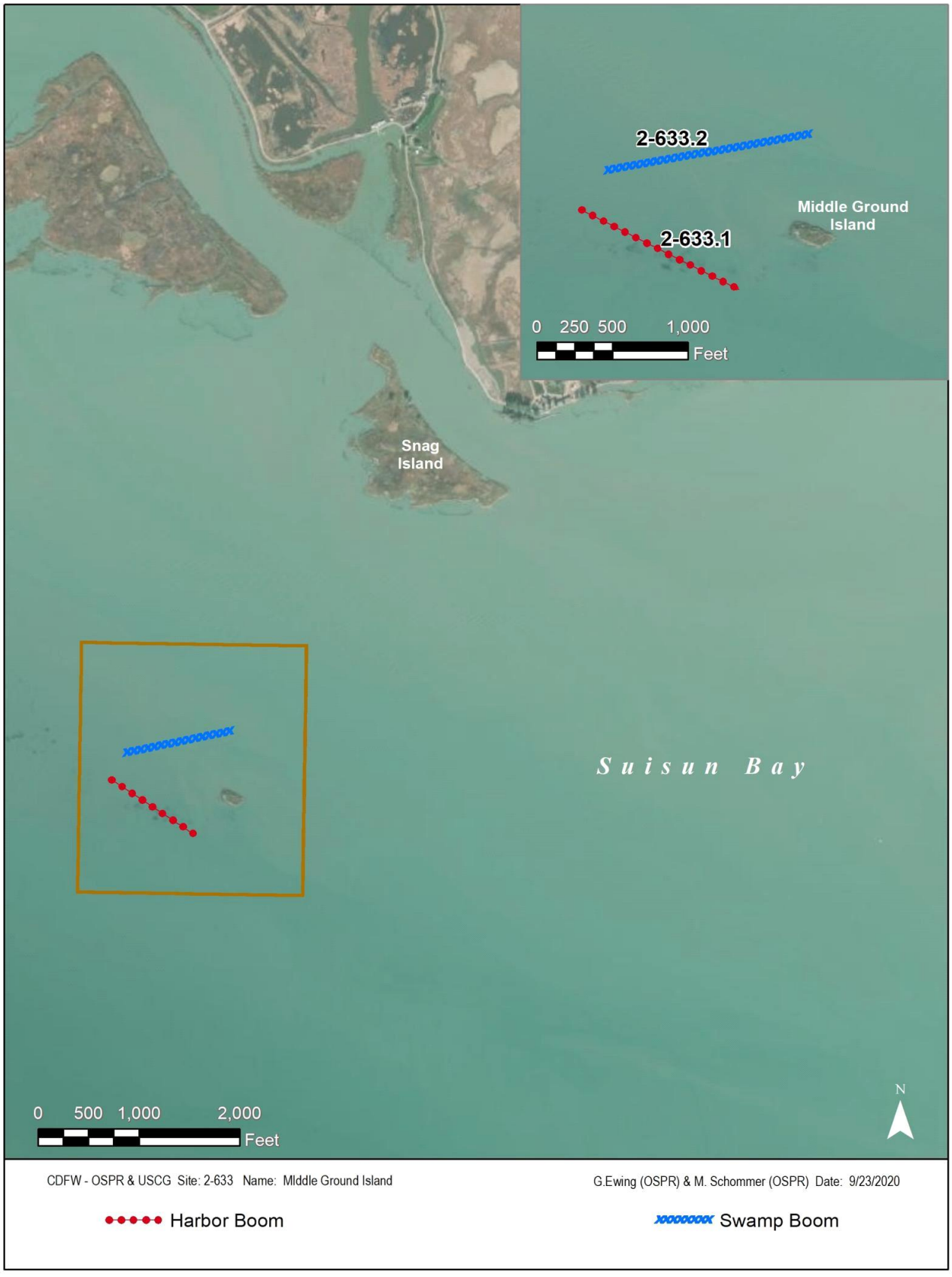
Directions: There is no land access. Water access only: the site is one mile northwest from McAvoy's Marina at channel marker G 21.

Land Access: No land access. Foot traffic at site only.Coordinate with MOTCO before landing.

On-Water Limitations: Extreme shallows. Beware of pilings. McAvoy/Harris Marina at Bay Point is immediately to the east. Martinez Marina (9 mi. W). Pittsburg Marina (6 mi. E).

Facilities, Staging Areas, Command Posts, Available Equipment: Deploy from Pittsburg, Martinez or McAvoy's marinas. McAvoy's is possible field post, as well as a resupply point. All manner of facilities, except housing, are available. Area can be secured.

Communications Problems: Unknown


2-633.2
2-633.1
Middle Ground Island
0 250 500 1,000
Feet
Snag Island
Suisun Bay
0 500 1,000 2,000
Feet
N
CDFW - OSPR & USCG Site: 2-633 Name: MIddle Ground Island
G.Ewing (OSPR) & M. Schommer (OSPR) Date: 9/23/2020
Harbor Boom
Swamp Boom

County: Solano **ACP Division/Segment:** SO - D - S006 SO - D - S008

NOAA Chart: 18656 Suisun Bay ***Map Book:*** ***Decimal Degrees:*** 38.066742 -122.188421

Site Description:

The site extends from Dillon Point to the unnamed point (with dwellings) just west of Commodore Jones Point (W. 9th St). Most of the site lies within Benicia State Park though some is in private or roadside right-of-way in the most easterly portion. Benicia State Recreation Area includes Southampton Bay Wetland Natural Preserve. Southampton Bay is a shallow bay exposed to Carquinez Straits with a large prograding wetland. The bay is very shallow and is an extensive mudflat during low tides. The margin of the bay is tule-sedge. The back marsh is salt-grass and pickleweed grading to freshwater marsh in those portions receiving freshwater flow from the surrounding drainage and creek. Remnants dikes in the easterly mudflats are covered with water except at lower tides.

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	common yellowthroat	FP, SSC	Year-round	Jun-Aug
Fish	longfin smelt	ST	Year-round	Nov-May
Fish	delta smelt	FT, SE	Year-round	Mar-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Plants	Mason's lilaeopsis	SR	Year-round	Apr-Nov
Plants	soft bird's beak	FE, SR	Year-round	Jul-Nov
Reptiles	giant garter snake	FT, ST	Year-round	Jul-Oct

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	Benicia State Recreation Area	(707) 648-1911
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Dispatch, 24-hr	California State Parks (Dispatch)	(916) 358-1300
T	/Public Safety Superintendent	California State Parks, Diablo Range District	(925) 890-4403
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:

Several sensitive plant species and the Suisun ornate shrew (SSC) occur in the area.

Concerns and Advice to Responders:

This very shallow bay has sensitive salt-marsh shoreline, which if oiled, would be nearly impossible to clean or rehabilitate. The intent is to keep oil out of the bay by deflection or, failing that, by exclusion/protection booming along the marsh front. Respond in shallows only at high tide with very shallow boats or airboat/hovercraft. Avoid trampling vegetation and beware of trampling oil into muds. Site managed by CA State Parks, coordinate with them for access to salt-marsh.

Hazard and Restrictions:

The bay is extremely shallow at its margins and recesses. There is a remnant of an old dike extending from the land to the east side of the bay (near the dwellings). Aircraft beware of high power wires in the area.

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

Strategy:* 2-651.1** ***Objective: On Flood tide, deflect boom past the site on the current contour line.

Strategy: Deflection Booming: To keep oil in the main channel where it is accessible to the skimmers, deploy 1200 ft of deflection boom extending easterly along the 20 foot isobar from Dillon Point to deflect oil away from Southampton Bay and back into Carquinez Strait on the flood tide. Deflection boom should also be deployed to the east of Southhampton Bay to deflect oil away from the Bay and into Carquinez Strait during the ebb tide. Benicia Point appears to be a logical location from this boom. Recommended 600 ft of boom be deployed along the southeast side of the islands off this point and extend 600 ft northwesterly (285-T) from Daymark #23 along the 20 foot depth line.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	1200	feet
Anchor	Danforth	25	lb	5	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			5	

Last Page Update

Strategy:* 2-651.2** ***Objective: Protective booming of salt-marsh exposure. The main focus of protection should be the inner marsh.

Strategy: Deploying swamp boom (6X6+) across Southhampton Bay preventing oiling of the salt-marsh shoreline habitat.

West anchor: N38.064999 W122.193074, East anchor: N38.066185, W122.182742

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Swamp Boom	6x6	inch	3200	feet
Anchor	Danforth	22	lb	6	
Vessel	Boom Boat			2	
Vessel	Skiff or Punt			2	
Staff	Staff to Deploy			8	

Last Page Update

Strategy Updated: 11/10/2016
Last Test: 11/10/2016

Strategy:* 2-651.3** ***Objective: Shoreline containment and recovery with shoreside skimming

Strategy: The small cove immediately west of Dillon Pt. appears to be a potential containment and recovery site. Oil and debris on the gravel beach indicate it is a natural collection point, and there is vehicle access to the beach. To assist natural collection at this point, 300 ft of deflection boom extending westerly from Dillon Pt. (Daymark #21) during the flood tide or easterly from the small unnamed point approximately 1000 ft west on the ebb may be beneficial. These short lengths of boom should be set so as to direct oil into the cove. Oil may be recovered from the water with a Shoreside Skimming System (SSS) such as an oil-mop skimmer and pumped to a fast tank on beach or other methods.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	300	feet
Anchor	Danforth	22	lb	3	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
skimmer	shoreside			1	
Staff	Staff to Deploy			4	

Last Page Update

Logistics:

Directions: By boat, proceed 3.0 miles west from Martinez Marina. By land, take the Columbus Parkway Exit off Hwy 780 and drive into Southampton Bay State Park on the south side of the freeway. There is a park roadway that goes to Dillon Point.

Land Access: Paved road around perimeter. Gate is locked sunset to sunrise. Coordinate with State Parks for access.

On-Water Limitations: Extremely shallow and obstructions. Nearest launch is at Benicia Public Launch. Launch, fuel, boat services, moorage at nearby marinas at Martinez, Benicia & Crockett.

Facilities, Staging Areas, Command Posts, Available Equipment: Staging locales: on-site at Dillon Pt, or Benicia Public Launch. Staging areas at Benicia, Martinez, Exxon Wharf. Support services: lodging, fuel and food available at either Martinez or Benicia.

Communications Problems: Good cell reception.

County: Solano **ACP Division/Segment:** SO - D - S016 SO - D - S017

NOAA Chart: SUISUN BAY 18657/18652 ***Map Book:*** ***Decimal Degrees:*** 38.04358 -122.154032

Site Description:

This site extends from the foot of First Street, Benicia, and continues to the east to the Benicia Warf. The site is on both sides of the Benicia Marina. This is an elongated pickleweed, salt-grass marsh. The front of the salt marsh has a beach berm which separates the marsh behind from all but highest tides. Tidal exchange volume is relatively minor. There are several small tidal inlets which are mostly obstructed with vegetation. There is also a tide gate on the marina breakwall which admits tidal exchange to the salt-marsh from the marina to the tug pier at 5th Street. The salt-marsh front is sedge, pickleweed mix; the upper marsh is salt-grass and pickleweed. Ownerships include City of Benicia and private holdings.

Resources at Risk:

ESI and Habitat: 10A Salt - and brackish-water marshes
8C Sheltered riprap
8B Sheltered solid man-made structures

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	Suisun song sparrow	FP, SSC	Year-round	Mar-Jul
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
Fish	delta smelt	FT, SE	Year-round	Mar-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Reptiles	giant garter snake	FT, ST	Year-round	Jul-Oct

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	Benicia Marina	(707) 745-2628
E	/Office	Benicia State Recreation Area	(707) 648-1911
O	/Dispatch, 24-hr	California Department of Water Resources	(916) 574-2714
O	/Dispatch, 24-hr	California State Parks	(916) 358-1300
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	/Restoration Ecologist	US Department of Agriculture	(530) 304-2304
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 plant species occur in the area.

Concerns and Advice to Responders:

Primary concern is transport of oil to inner marsh and oiling of emergent marsh front. The strategy is to close the few small tidal inlets. If oil is crowded along shore, the marsh front may need protective booming or be used to collect at the designated locales. Avoid trampling marsh vegetation or tracking oil into marsh front or sediments.

Hazard and Restrictions:

This shoreline is shallow and has submerged obstructions.

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

Strategy:* 2-652.1** ***Objective: Exclusion boom tidal inlets.

Strategy: There are a half-dozen small, low current tidal inlets. Each can be closed by staking 10' or 20' boom segments with sorbent backing depolyed by a team on foot from land or water. There is also a tide gate on the east Benicia Marina channel bulkhead which must be closed to exclude oil from the marsh to the east. An alternaitve measure is to close tidal inlets with fill (which requires notification of BCDC and US Corps Engineers).

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Sorbent			150	feet
Anchor	Stakes			15	
Staff	Staff to Deploy			2	

Last Page Update

Strategy:* 2-652.2** ***Objective: Protective booming of entire marsh front: When heavy or continuous re-oiling is emminant and deployment will not preempt other urgent need.

Strategy: Set 6X6+ swamp boom and sorbent boom as close to shoreline as possible with available shallow draft vessels. Stake and/or anchor in place. This strategy can be found in Potential Oil-Spill Protection Strategies for San Francisco Bay, California. (Hayes and Montelo, 1994).

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Swamp	6x6	inch	5000	feet
Boom	Sorbent			1000	feet
Anchor	Danforth	25	lb	11	
Anchor	Stakes			20	
Vessel	Boom Boat			2	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			8	

Last Page Update

Logistics:

Directions: There is land access from I-780: exit at either East 5th Street and proceed to Bay or exit at East 2nd Street and proceed via First Street to bay front. Water access: the site is on both sides of the Benicia Marina breakwater across from Martinez Marina.

Land Access: Easy access to most shoreline.

On-Water Limitations: Shalllow draft near shoreline, proceed with caution. Benicia Marina on site. Martinez Marina (1 mi. S).

Facilities, Staging Areas, Command Posts, Available Equipment: Stage at Martinez Marina, Benicia Marina or Benicia Wharf. Full services are available in both communities.

Communications Problems: Great Cell coverage.


780
1st Street
Benicia Marina
Tide Gate
2-652.1
2-652.2
2-652.2
Carquinez Strait
0 500 1,000 2,000
Feet
N
CDFW - OSPR & USCG Site: 2-652 Name: Benicia Marsh
G.Ewing (OSPR) & M. Schommer (OSPR) Date: 9/29/2020
Swamp Boom

County: Solano **ACP Division/Segment:** SO - E - S001 SO - E - S002

NOAA Chart: SUISUN BAY 18657/18652 ***Map Book:*** ***Decimal Degrees:*** 38.084302 -122.096912

Site Description:

This site begins near the Benicia Bridge and continues for about 5.5 miles to Suisun Slough. This site is a partially diked salt-marsh with an encroaching emergent tule salt-marsh on its bayward margin. Half of salt-marsh lies behind the levee is a California State Wildlife Refuge (part of Grizzly Island Wildlife Refuge-DFW) and other the half north of Lake Herman Rd is owned by private duck clubs. The leveed portion is a combination of pickleweed and tule-sedge. The accreting marshfront on Suisun Bay is extremely shallow and is a successional cline from mudflats to tule marsh to tule thicket. In some places the accreting tule marshfront is over a hundred yards wide. The historic levee is open at several locations, Sulphur Springs Creek flows through it from the industrial park inland.

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	migratory waterfowl	FP		
Birds	California black rail	FP, ST	Year-round	Mar-Aug
Birds	California Ridgeway's rail	FE, SE	Year-round	Feb-Aug
Birds	Suisun song sparrow	FP, SSC	Year-round	Mar-Jul
Birds	common yellowthroat	FP, SSC	Year-round	Jun-Aug
Fish	longfin smelt	ST	Year-round	Nov-May
Fish	delta smelt	FT, SE	Year-round	Mar-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
E	/Environmental Protection Specialist	Suisun Bay Reserve Fleet	(707) 747-7844
O	/Dispatch, 24-hr	California Department of Water Resources	(916) 574-2714
O	/Dispatch, 24-hr	California State Parks	(916) 358-1300
O	/Office	Suisun Resource Conservation District	(707) 425-9302
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Wildlife Area Manager	CA Dept. of Fish & Wildlife, Grizzly Island WR	(707) 738-3485
T	/Oil Spill Point of Contact	NOAA National Marine Fisheries Service	(707) 480-3496
T	/Restoration Ecologist	US Department of Agriculture	(530) 304-2304

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

Additional Site Summary Comments:

Several sensitive plant species occur in the area.

Concerns and Advice to Responders:

This is a very sensitive site with endangered species. Because of the shallows and great sensitivity it will be extremely difficult to cleanup or rehabilitate. The two main concerns are oiling of the inner marsh via Sulfur Springs Creek and four other openings to inner sloughs. The more difficult problem is oiling and cleanup disturbance of the salt-marsh margin. Avoid trampling marsh vegetation or tracking oil into sediments. Large portions of this site are California Department of Fish and Wildlife Refuge Property.

Hazard and Restrictions:

The wide salt-marsh is fronted by very shallow mudflats.

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

Strategy:* 2-654.1** ***Objective: Exclude oil from all tidal sloughs, inlets, and Sulfur Springs Creek to keep oil out of back marsh.

Strategy: Stake and anchor 200' 6X6 swamp boom in chevron at the four mouth entry points: Sulfur Springs Creek, 2 channels each opposite the two southerly rows of ships, one opening just north of MARAD pier, and opening at north end. Back with sorbent boom. This is extremely shallow water and will require action at higher tide or with airboat or hovercraft.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Swamp	6x6	inch	1000	feet	
Boom	Sorbent			1000	feet	
Anchor	Danforth	22	lb	5		
Anchor	Stakes			20		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Strategy:* 2-654.2** ***Objective: Deflect to collection: When heavy oiling/reoiling is a threat on incoming tide with a southerly wind, intercept along shore oil and direct to collection.

Strategy: Divert moving oil to collection skimming. Deploy 1000' 9x9+ in deep water and 1000' 6X6+ swamp boom in shallows to drive oil to shore. Set up Shoreside Skimmer near or at shore to collect near foot of Benicia Bridge. If oil is travelling off shoreline, set boom to deflect oil away from shore to main channel to floating skimmer. Repeat at MARAD pier as necessary. Waters near shore area very shallow which may necessitate assistance from shore.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9	inch	1000	feet	
Boom	Swamp	6x6	inch	1000	feet	
Boom	Sorbent			100	feet	
Anchor	Danforth	22	lb	8		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
skimmer	shoreside			1		
Staff	Staff to Deploy			7		

Strategy:* 2-654.3** ***Objective: Protection booming if oil continues to threaten marshfront, deploy protective booming as recommended in SF Inlet Study by RPI/MSRC

Strategy: If it appears that foregoing strategies will not keep oil out of wetlands, deploy exclusion booming along marsh front: this strategy for deployment can be found in Potential Oil-Spill Protection Strategies for San Francisco Bay, California. (Hayes and Montelo, 1994). This requires 27,000' of Hboom or tidal barrier boom or swamp boom.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Swamp	6x6	inch	27000	feet
Anchor	Danforth	22	lb	55	
Vessel	Boom Boat			9	
Vessel	Skiff or Punt			3	
Staff	Staff to Deploy			33	

Last Page Update

Logistics:

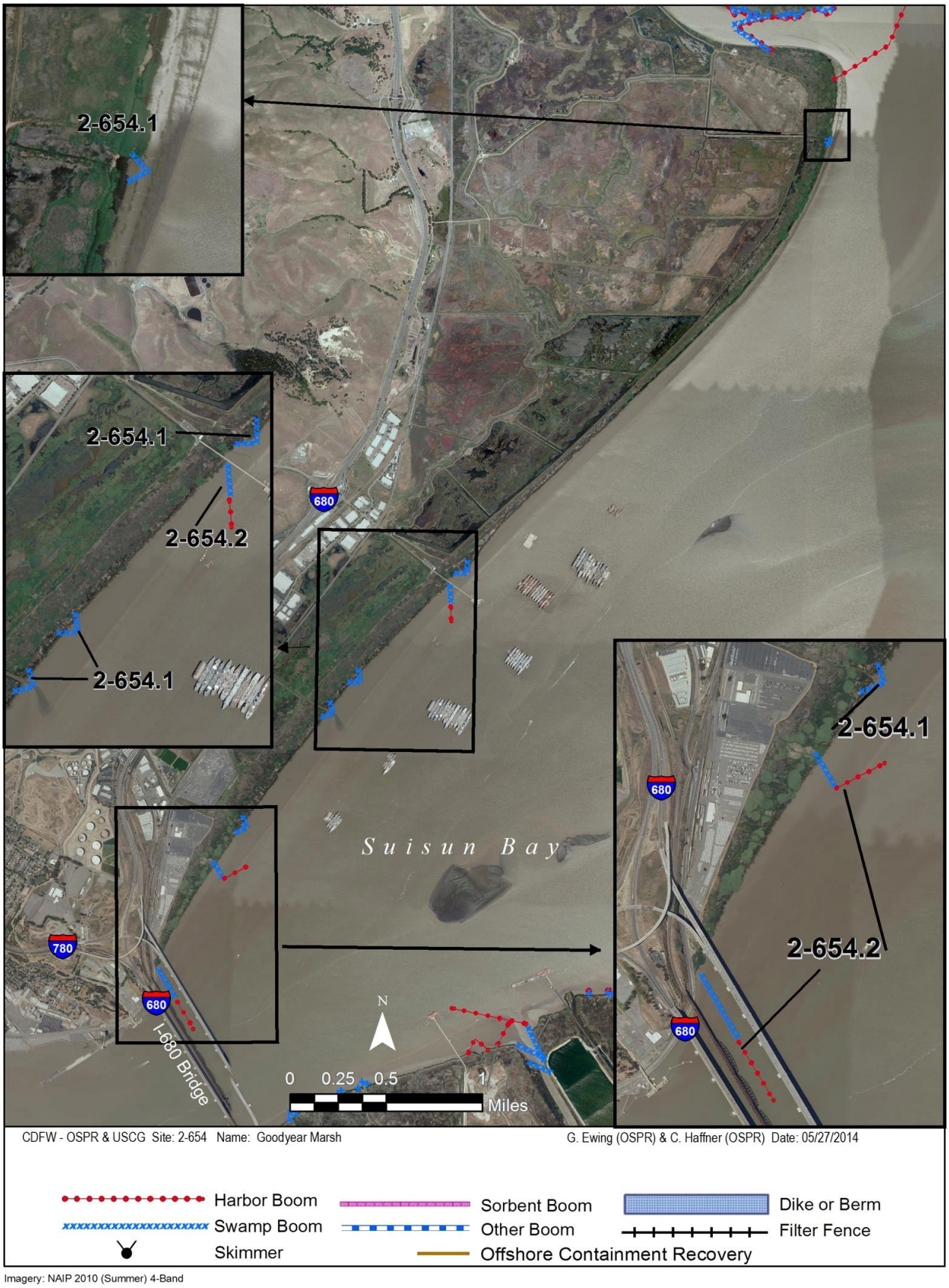
Directions: There is land access from I-680 by exiting at Industrial Park or a Lake Herman Rd and proceeding toward the water. The land access is to a limited exposure of the marsh front. Water access is one mile north east from Benicia or Martinez marinas.

Land Access: Access to salt-marsh via Bayshore Rd.

On-Water Limitations: Very shallow draft nearshore. Benicia and Martinez Marinas (1 mi. to W from site).

Facilities, Staging Areas, Command Posts, Available Equipment: Deploy from Martinez Marina, Benicia Marina or Benicia Wharf. The Mothball Fleet Wharf is also an all-service pier with crane. Stage at Martinez Marina, Benicia Marina or Benicia Wharf. Full services are available in both communities.

Communications Problems: Good cell reception.


2-654.1
2-654.1
2-654.2
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680
2-654.1
2-654.2
680
680
780
680
I-680 Bridge
Suisun Bay
N
0 0.25 0.5 1
Miles
CDFW - OSPR & USCG Site: 2-654 Name: Goodyear Marsh
G. Ewing (OSPR) & C. Haffner (OSPR) Date: 05/27/2014
Harbor Boom
Swamp Boom
Skimmer
Sorbent Boom
Other Boom
Offshore Containment Recovery
Dike or Berm
Filter Fence
Imagery: NAIP 2010 (Summer) 4-Band

County: Solano **ACP Division/Segment:** SO - H - S004

NOAA Chart: 18656 Suisun Bay ***Map Book:*** ***Decimal Degrees:*** 38.131542 -122.071101

Site Description:

This site includes the mouth of Suisun Slough and Montezuma Slough and the salt-marsh tip of Joice Island at the northeast corner of Grizzly Bay. Joice Island lies between the mouths of the Montezuma Slough and Suisun Slough. The southern tip of Joice Island is undiked marshland with two tidal channels connect it with Grizzly Bay. While the salt-marsh tip is a large natural wetland, the greater concern is the strategic importance of these two great tidal sloughs. These two sloughs are the main tidal avenue for all of Suisun Marsh, the largest wetland in California. These two waterways could become conduits for oil conveyance to the extreme interior of Suisun Marsh. There are miles of branching channels between the diked salt-marshes and at times when tide gates are open (particularly in the fall and winter) to the vast acres of duck club and wildflife refuge marshes behind the island levees. Most of Suisun Marshland is owned by duck clubs or is part of the Californian Deptment of Fish and Wildlife Grizzly Island Wildlife Refuge system. Joice Island has become public property and is being operated for salt-marsh research.

Resources at Risk:

ESI and Habitat: 10A Salt - and brackish-water marshes
9B Vegetated low banks
8D Sheltered rocky rubble shores

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	migratory waterfowl	FP		
Birds	California least tern	FE, SE	Year-round	Apr-Jun
Fish	longfin smelt	ST	Year-round	Nov-May
Fish	delta smelt	FT, SE	Year-round	Mar-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Plants	Mason's lilaeopsis	SR	Year-round	Apr-Nov
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
O	/Dispatch, 24-hr	California State Parks	(916) 358-1300
O	/Office	Suisun Resource Conservation District	(707) 425-9302
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Wildlife Area Manager	CA Dept. of Fish & Wildlife, Grizzly Island WR	(707) 738-3485
T	/Oil Spill Point of Contact	NOAA National Marine Fisheries Service	(707) 480-3496
T	/Restoration Ecologist	US Department of Agriculture	(530) 304-2304

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 a waterfowl refuge. There are several sensitive plant species in the area. Assign a DFW Botanist to mark off sensitive plant areas.

Concerns and Advice to Responders:

This site is the two mouths of Suisun Slough and Montezuma Slough where oil entry would result in exposure to miles of salt-marsh. Between these two slough mouths is sensitive marsh with small tidal channels leading into the unleveed marsh. The objectives in order of importance are: 1) are to exclude oil from entering the major sloughs, 2) to close the small tidal sloughs near the mouths of the big channels, and 3) to protect exposed margins from oiling. Responders should avoid trampling marsh vegetation and tracking oil into marsh sediments.

Hazard and Restrictions:

Shallow near shoreline. Submerged obstacles throughout area.

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

Strategy: **2-655.1** ***Objective:*** Prevent oil from entering Montezuma and Suisun Sloughs, and from entering tidal inlets of Joice Island: Exclusion booming offshore of Sloughs and Joice Island / Prevent oil from entering vast interior wetlands as well as Joice Island.

Strategy: Outside of Suisun and Montezuma Sloughs: use exclusion booming. Deploy 7,500 ft Hb (9x9+) or Swmpbm (6x6+) (depending on wave chop) from shoreline 400' south of Suisun Slough to 200' west of Montezuma Slough.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	7500	feet
Anchor	Danforth	22	lb	25	
Vessel	Boom Boat			3	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			11	

Last Page Update

Strategy: **2-655.2** ***Objective:*** Exclude from minor and major sloughs: deflect to collection Suisun and Montezuma Slough mouths and chevron exclusion at tidal inlets.

Strategy: a) At Suisun and Montezuma Slough mouths: exclude oil by deflection to collection. From the shoreline, deploy collection boom arms to collection by stationary floating skimmer (SFS) or self propelled skimmer (SPS) positioned in the channels. About 2000 ft of 9X9+ harbor boom will be needed for Suisun Slough and about 1700' for Montezuma Slough

b) At the tip of Joice Island, there are nine or more tidal inlets to the marsh at the tip of Joice Island between Montezuma and Suisun Sloughs. To exclude oil, deploy swamp boom (6X6+) in a chevron "V" outside the mouth of each opening: using skiffs, anchor the midpoint and stake or anchor the ends at the shoreline outside the channel mouths. 50' lengths will be needed for most openings. About 800 ft of boom will be needed for this deployment.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	3700	feet
Boom	Swamp	6x6	inch	800	feet
Anchor	Danforth	22	lb	15	
Vessel	Boom Boat			2	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			10	

Last Page Update

Strategy:* 2-655.3 *Objective: Protective booming of undiked tip of Joice Island

Strategy: Protective Booming: If it appears that othe strategies will not keep oil out of the wetlands recommend that exclusion boom be deployed along the face of the marsh where feasible. The portion of Joice Island lying between the entrances to Suisun and Montezuma Sloughs is a high priority for such protection. It is estimated that 8,000 to 9,000 ft of exclusion boom will be required to exclude oil from the undiked wetlands at the south end of Joice Island. A strategy for deployment of exclusion boom is illustrated in Potential Oil-spill Protection Strategies for San Francisco Bay, California (Hayes and Montello, 1994)

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	9000	feet
Anchor	Danforth	22	lb	19	
Vessel	Boom Boat			3	
Vessel	Skiff or Punt			1	
Staff				10	

Last Page Update

Logistics:

Directions: Access by water only. Iif launching from Benicia/Martinez, proceed northeast past the Reserve Fleet and into northwest corner of Grizzly Bay. From Pittsburg,, go northwest via Suisun Cut to Grizzly Bay and on the Montezuma. From Suisun/Fairfield, travel down Montezuma or Suisun Slough to their mouth on Grizzley Bay.

Land Access: No land access except by foot.

On-Water Limitations: No limitations except shallow margins. Launch, fuel, moorage at Benicia & Martinez Marinas and City of Suisun. Also, launch Ramp at nearby Pearce's harbor.

Facilities, Staging Areas, Command Posts, Available Equipment: Best staging at Martinez or Benicia sites.

Communications Problems:


Montezuma Slough
Suisun Slough
Joice Island
2-655.2
2-655.2
2-655.2
2-655.2
2-655.1
0 5001,000 2,000
Feet
N
CDFW - OSPR & USCG Site: 2-655 Name: Joice Island
G.Ewing (OSPR) & M. Schommer (OSPR) Date: 9/29/2020
Harbor Boom
Swamp Boom

County: Solano **ACP Division/Segment:** SO - G - S001 SO - G - S003

NOAA Chart: 18656 Suisun Bay ***Map Book:*** ***Decimal Degrees:*** 38.115923 -122.026048

Site Description:

This site includes all of Grizzly Bay and the shoreline perimeter from the mouth of Montezuma Slough to Point Buckner. This bay is very shallow and averages less than six feet deep. It is heavily used by waterbirds, especially in the winter months. There are appprox 20 open water duck blinds scattered on the bay. The entire shoreline is salt-marsh. The margins have three kinds of marsh habitat: prograding marsh which is difficult to clean or rehabilitate, eroding shores, and tidal inlets/barrow channels which have extensive exposure. Levees are relatively near the north shore (Grizzly Island) and south shore (Simmons Island). However, the northeast margin is a prograding shoreline; the tidal flats are >1000 yds wide, and the salt-marsh between the levee and mudflat is 500 yds wide. Most of the shorelines are owned by adjacent private duck clubs.

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	migratory waterfowl	FP		
Birds	California Ridgeway's rail	FE, SE	Year-round	Feb-Aug
Birds	California black rail	FP, ST	Year-round	Mar-Aug
Birds	Suisun 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	Suisun ornate shrew	SSC	Year-round	
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
C	/Coordinator	Northwest Information Center	(707) 588-8455
O	/Office	Suisun Resource Conservation District	(707) 425-9302
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Wildlife Area Manager	CA Dept. of Fish & Wildlife, Grizzly Island WR	(707) 738-3485
T	/Oil Spill Point of Contact	NOAA National Marine Fisheries Service	(707) 480-3496
T	/Restoration Ecologist	US Department of Agriculture	(530) 304-2304
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:

There are two great concerns here. First, vast numbers of waterfowl reside here; typically about 100,000 during the winter: waterfowl are very vulnerable to oil. Second, there are large sensitive salt-marshes particularly at the northeast but also along all the margins and little side channels. The shallow water and large waves commonly encountered will make this area difficult to protect with current technology. Minimize trampling of salt-marsh because there are very small endangered plants and animals present year round.

Hazard and Restrictions:

This shallow bay can have dangerously aggressive waves under windy conditions. There are shallows along margins.

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

Strategy:* 2-660.1** ***Objective: Protective booming of northeast prograding marsh

Strategy: Exclusion Booming: If it appears that other strategies will not keep oil out of the wetlands recommend exclusion booming be deployed across the northeastern shore of Grizzly Bay from Pelican Pt. To the nothern shore of the bay. It is estimated that 13,000 ft. of harbor or tidal barrier boom will be required to exclude oil from the wetlands at the head of Grizzly Bay. This strategy for deployment of exclusion boom can be found in Potential Oil-Spill Protection Strategies for San Francisco Bay, CA (Hayes and Montelo, 1994).

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	8500	
Anchor	Danforth	22	lb	27	
Vessel	Boom Boat			5	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			17	

Last Page Update

Strategy:* 2-660.2** ***Objective: Deflection at Pt. Buckler. Keep oil in the Suisun Cut channel and imped it from moving across Grizzly Bay.

Strategy: Deploy 300' 9x9+ harbor boom off Pt Buckler at about the 15' depth contour. Shallows near shore are a grounding threat to boom boats.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	300	feet
Anchor	Danforth	22	lb	4	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			5	

Last Page Update

Logistics:

Directions: Land access is from the private levee roads along the bay. They may be reached from Hwy 12 in Suisun City, then south on Grizzly Island road (contact Grizzly Island Wildlife Refuge for assistance with access). Nearest boat access is 3 miles southeast at McAvoys Marina, Bay Point (8 mi to Martinez, 8 mi to Pittsburg). Extreme shallows near shore limit traffic to very shallow draft vessels and airboats/hovercraft at lower tides.

Land Access: Seasonal limitations on levees.

On-Water Limitations: Very shallow at shorelines: margins are mudflats at low low. Nearest launch is Martinez, Benicia, and McAvoy's; each has fuel, moorage, and repair.

Facilities, Staging Areas, Command Posts, Available Equipment: Best facilities, staging, field posts are at above marinas.

Communications Problems:


2-660.1
Grizzly Bay
Pt
Buckler
2-660.2
Simmons Island
Ryer Island
0 0.25 0.5 1
Miles
N
CDFW - OSPR & USCG Site: 2-660 Name: Grizzly Bay
G.Ewing (OSPR) & M. Schommer (OSPR) Date: 9/29/2020
Harbor Boom

County: Solano **ACP Division/Segment:** SO - F - S010

NOAA Chart: SUISUN BAY 18658/18652/18656 ***Map Book:*** TG Solano ***Decimal Degrees:*** 38.090659 -122.004155

Site Description:

This site includes the 4 miles of bay shoreline on Suisun Cutoff and berm islands of Simmons Island from Noyce Slough on the east to Point Buckler. There are several land private ownerships - all are duck clubs. This location is also strategic as a pathway for oil to move from west Suisun Bay to the extensive salt-marshes of Honker Bay and nearby locales via Suisun Cutoff. Suisun Cutoff is very deep. USGS drifter studies have demonstrated how surface currents of western Suisun Bay funnel though this deep channel on flood tides. Simmons Island itself is a large diked island which is heavily rip-rapped. Some of the margin has a barrow channel separating the historic salt-marsh front from the current island levee, resulting in extensive fringe marsh. Although there is some emergent salt-marsh along the rip-rapped island levee, the outer perimeter is a premium strip of native marsh. The barrow channel is open to the bay at multiple points. Wave action here tends to be tangential to the shoreline. There is a tide gate to the inner island sloughs at Noyce Slough.

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 black rail	FP, ST	Year-round	Mar-Aug
Birds	California Ridgeway's rail	FE, SE	Year-round	Feb-Aug
Fish	longfin smelt	ST	Year-round	Nov-May
Fish	chinook salmon - Winter-run	FE, SE	Year-round	Oct-May
Fish	steelhead - Central/Northern California	FT	Year-round	Nov-Apr
Fish	delta smelt	FT, SE	Year-round	Mar-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
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
C	/Coordinator	Northwest Information Center	(707) 588-8455
O	/Dispatch, 24-hr	California Department of Water Resources	(916) 574-2714
O	/Office	Suisun Resource Conservation District	(707) 425-9302
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Wildlife Area Manager	CA Dept. of Fish & Wildlife, Grizzly Island WR	(707) 738-3485
T	/Oil Spill Point of Contact	NOAA National Marine Fisheries Service	(707) 480-3496
T	/Restoration Ecologist	US Department of Agriculture	(530) 304-2304

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:

This channel, Suisun Cut, is the major avenue for oil to move into Honker Bay, Spoonbill Creek and island salt-marshes. This is a key location because strategy 665.1 is key to excluding oil from vast shorelines at this and other sites. There are salt-marshes along the margins which are also vulnerable but of lesser strategic importance. Responders should always minimize trampling of salt-marsh vegetation and tracking oil into marshes and sediments. Several listed species are year round residents.

Hazard and Restrictions:

There are shallows and obstructions along shore and inside the barrow channels.

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

Strategy:* 2-665.1** ***Objective: Collection/Exclusion of heavy oil flow though Suisun Cutoff, divert the oil to shore collection areas.

Strategy: Cascade boom across Suisun Cutoff to direct oil toward quitewaters near shore for collection. Set up shore collection/skimming system either at duck club or dock west of duck club or both. Set additional boom at shore to protect shore and trap oil once it is diverted. Currents are strong and channel is deep: heavy chain and long scope will be necessary. Anchoring skill is a must for this deployment to succeed.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9	inch	4000	feet	
Anchor	Danforth	22	lb	15		
Vessel	Boom Boat			2		
Vessel	Skiff or Punt			1		
skimmer	shoreside			1		
Staff	Staff to Deploy			10		

Strategy:* 2-665.2** ***Objective: Exclude oil from entering barrow channels and slough entrances.

Strategy: There are multiple breaks in the north shore. On Suisun Cutoff side, exclude oil from entering side channels by deploying boom across openings (a) Andy Mason Slough - 600' 9x9+Hboom, (b) 400'+ 6X6+Sboom/3seg., (c) 700' 6X6+ Sboom/6seg. On the Grizzly Bay side (d), close the through channel (Andy Mason Slough) (800' 6X6+Sboom) and the barrow channel (50' 6X6+ Sboom). (Back with sorbant as necessary). If current is carrying oil out of Suisun Cutoff at Pt Buckler, deploy Hboom (500' 9x9+) off Pt to deflect oil back into Suisun Cutoff. Leave trailing ends to shore to insure against shoreline gaps.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9	inch	1100	feet	
Boom	Swamp	6x6	inch	1950	feet	
Anchor	Danforth	22	lb	16		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Strategy:* 2-665.3** ***Objective: Protective Booming: If there is threat of heavy oiling and saturation of the marsh front, deploy protective boom coverage, when resource use will not preclude defending other sites against SO 5 and 6 impacts.

Strategy: If foregoing strategies are inadequate to keep oil off marsh shorelines, deploy exclusion booming around threatened marshfronts: this strategy can be found in Potential Oil-Spill Protection Strategies for San Francisco Bay, California. (Hayes and Montello, 1994). This would require 6 miles of a combination of intertidal, 9x9+ Hboom, and 6X6+Sboom

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	10000	feet
Boom	Swamp	6x6	inch	15000	feet
Anchor	Danforth	22	lb	51	
Vessel	Boom Boat			8	
Vessel	Skiff or Punt			2	
Staff	Staff to Deploy			25	

Last Page Update

Logistics:

Directions: Land access is from the private levee roads along the bay. They may be reached from Hwy 12 in Suisun City, then south on Grizzly Island road to Grizzly Island Wildlife Refuge. For further access and entry, contact Grizzly Island Wildlife Refuge (707-425-3828) or Suisun Resource Conservation District staff (707-525-9602). Nearest boat access is 3 miles southeast at McAvoys Marina, Bay Point (9 miles to Martinez, 7 miles to Pittsburg).

Land Access: ALL TYPES WHEN LEVEES ARE DRY.

On-Water Limitations: VERY SHALLOW DRAFT < 2' NEAR SHORE. McAvoy/Harris Marina at Bay Point. Pittsburg Marina. Martinez Marina.

Facilities, Staging Areas, Command Posts, Available Equipment: The duck clubs have power and good small boat docking facilities. Nearest major deployment site/field post is McAvoy's/Harris', full service marinas, or Concord Naval Weapons Station.

Communications Problems: Good cell reception.


Grizzly Bay
2-665.2(d)
2-665.2
Pt Buckler Marsh
Andy Mason Slough
Simmons Island
2-665.2(a)
Suisun Cutoff
2-665.1
2-665.2(b)
2-665.1
2-665.2(c)
Ryer Island
Freeman Island
N
0 0.25 0.5 1
Miles
CDFW - OSPR & USCG Site: 2-665 Name: Simmons Island / Suisun Cut
G.Ewing (OSPR) & M. Schommer (OSPR) Date: 9/29/2020
Harbor Boom
Swamp Boom

County: Solano **ACP Division/Segment:** SO - F - S006 SO - F - S008

NOAA Chart: 18656 Suisun Bay/Roe Island & vicinty ***Map Book:*** ***Decimal Degrees:*** 38.075571 -121.979859

Site Description:

This site includes Snag and Freeman Islands which are located just south of Dutton Island and east of Ryer Island in northern central Suisun Bay. Both are properties of Concord Naval Weapons Station (MOTCO). These two islands have emergent salt-marsh margins. Snag Island is a upper marsh with cattails and shrubs. Freeman Island is low salt-marsh. It has an inside channel which goes all the way around the inside of the island and supplies water to the inner salt-marsh with small channels. Tide water is admitted to this inner channel via breaks in its margin: there are four distinct breaks in the southwest shore and two breaks on the north shore of Freeman Island. Both islands have very convoluted salt-marsh shorelines.

Resources at Risk:

ESI and Habitat: 10A Salt - and brackish-water marshes
9B Vegetated low banks
6B Riprap

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
Fish	longfin smelt	ST	Year-round	Nov-May
Fish	steelhead - Central/Northern California	FT	Year-round	Nov-Apr
Fish	delta smelt	FT, SE	Year-round	Mar-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Plants	Mason's lilaeopsis	SR	Year-round	Apr-Nov
Reptiles	giant garter snake	FT, ST	Year-round	Jul-Oct

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	/Dispatch, 24-hr	US Army, Concord Military Ocean Terminal	(925) 246-4041
E	/Dispatch, 24-hr	US Army, Concord Military Ocean Terminal	(925) 246-3911
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Agency Representative	NOAA National Marine Fisheries Service	(707) 575-6050
T	/Spill Response Coordinator	US Fish and Wildlife Service, Bay-Delta Office	(479) 233-9241

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:
These island salt-marshes and the endangered plants and animals living there, are very vulnerable to oil damages. Primary concern is penetration of oil into the salt-marsh via tidal channels and secondarily into emergent marsh fringe. Responders should minimize trampling of marsh vegetation and avoid tracking oil into marshes and sediments. Small endangered plants and animals are present year-round.

Hazard and Restrictions:
There are shallows and obstructions around and inside the island. Suisun bay can have aggressive waves.

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

Strategy:* 2-667.1** ***Objective: Exclude oil from entering openings to perimeter barrow channel and interior channels of Freeman Island.

Strategy: There four breaks in the southwest shore and two on the north shore of Freeman Island, all of them open to an inside barrow channel which goes all the way around the inside of the island and supplies water to the inner marsh. On the south side, exclude oil entry by deploying chevron "V" exclusions with about 300' each of 9x9+ boom with mid-point anchors and staking at shoreline in front of the openings. To be sure to stop movement of any oil passing these wave exposed openings, then deploying shore segments of 6X6+ across barrow channel to the left and right of the openings large openings. On the northerly shore, exclude oil from the two openings with short segements of 6X6+ in small chevrons.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	1200	feet
Boom	Swamp	6x6	inch	250	feet
Anchor	Danforth	22	lb	8	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			5	

Last Page Update
Strategy Updated:
Last Test:

Strategy:* 2-667.2** ***Objective: Divert oil threat from west (Suisun Cut) past windward pockets to minimize shore oiling for Freeman

Strategy: On westerly end of Freeman Island, deploy deflection boom at the best angle to protect windward shore from approaching oil using 1300' of 9x9+. (See diagram 2-668.2A.)

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	1300	feet
Anchor	Danforth	22	ls	7	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			5	

Last Page Update

Strategy:* 2-667.3 *Objective: Deflection for S & SW winds, divert oil past windward pockets to minimize shore oiling for Freeman and Snag Island.

Strategy: Deployment should be set to the southerly side of the island and a similar deployment will be needed on Snag Isle (2900' of 9x9+ total needed) 1300 Harbor Boom for Freeman & 1600 for Snag chevron (decrease chevron angle as necessary to prevent overtopping boom).

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	2900	feet
Anchor	Danforth	22	lb	9	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			5	

Last Page Update

Strategy Updated:
Last Test: 6/8/2022

Strategy:* 2-667.4 *Objective: Protective Booming: If there is threat of heavy oiling and saturation of the marsh front, deploy protective boom coverage, when resource use will not preclude defending other sites against SO 5 and 6 impacts.

Strategy: If foregoing strategies are inadequate to keep oil off marshes, deploy exclusion booming around threatened marshfronts: this strategy can be found in Potential Oil-Spill Protection Strategies for San Francisco Bay, California. (Hayes and Montelo, 1994).

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	4000	feet
Boom	Swamp	6x6	inch	13000	feet
Anchor	Danforth	22	lb	35	
Vessel	Boom Boat			6	
Vessel	Skiff or Punt			1	
Staff				20	

Last Page Update

Logistics:

Directions: There is no land access. Nearest land access is across channel to Dutton Island. Nearest boat access is 3 miles southeast at McAvoys Marina, Bay Point (8 miles to Martinez, 7 miles to Pittsburg).

Land Access: Access by vessel only. Must coordinate with MOTCO before landing.

On-Water Limitations: VERY SHALLOW DRAFT < 2' NEAR ISLAND. McAvoy/Harris Marina at Bay Point. Pittsburg Marina. Martinez Marina.

Facilities, Staging Areas, Command Posts, Available Equipment: The only alternative to marina facilities are duck clubs at nearby Dutton and Simmons Islands including good docking facilities.

Communications Problems: Cell reception may be spotty.


2-667.2
2-667.1
Freeman Island
Dutton Island
2-667.3
2-667.1
2-667.3
Snag Island
Point Palo Alto
Suisun Bay
0
0.25
0.5
1
Miles
N
CDFW - OSPR & USCG Site: 2-667 Name: Freeman and Snag Islands
G.Ewing (OSPR) & M. Schommer (OSPR) Date: 9/30/2020
Harbor Boom

County: Solano **ACP Division/Segment:**

NOAA Chart: SUISUN BAY 18658/18556/18656 ***Map Book:*** ***Decimal Degrees:*** 38.067913 -121.932189

Site Description:

This site includes all the open water of Honker Bay and its salt-marsh perimeter. The bay is shallow (averaging less than six feet deep but is without obstruction except near shorelines where it can be very shallow). On most margins, there are barrow channels separating the historic marsh front from the current island levee. This results in a band of aslt-marsh islands with occasional passages though to the barrow channels and other historic marsh channels behind. Although there is some emergent salt-marsh along the rip-rapped island levee, the outer perimeter is a premium strip of native salt-marsh. As a result, there are several hundred acres of undiked salt-marsh. The outer bay margin is exposed to wave action resulting is a mildly eroding shore with some accreting margins particularly in the northeast corner of the bay (North Honker Bay site 2-672). The land around Honker Bay is mostly held by private duck clubs. The response strategy here has been broken up into three separate divisions, because of the shoreline complexity and length, the logistics of response, and the likelihood that oil would impact at different timeframes on the different shores. The shoreline is subdivided into West Honker Bay (2-671) from Champion Slough to Rock Creek; North Honker Bay (2-672) in the northeast corner from Rock Creek to Spoonbill Creek; and East Honker Bay (2-673) the shore of Chipps Island from Spoonbill Creek west. Most of these shores are mildly eroding, but in the northeast section is accreting.

Resources at Risk:

ESI and Habitat: 10A Salt - and brackish-water marshes
9B Vegetated low banks

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	migratory waterfowl	FP		
Birds	Suisun song sparrow	FP, SSC	Year-round	Mar-Jul
Birds	California black rail	FP, ST	Year-round	Mar-Aug
Fish	longfin smelt	ST	Year-round	Nov-May
Fish	delta smelt	FT, SE	Year-round	Mar-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Plants	Mason's lilaeopsis	SR	Year-round	Apr-Nov
Plants	Suisun marsh aster	SSSP	Year-round	May-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
O	/Dispatch, 24-hr	California Department of Water Resources	(916) 574-2714
O	/Office	Suisun Resource Conservation District	(707) 425-9302
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Wildlife Area Manager	CA Dept. of Fish & Wildlife, Grizzly Island WR	(707) 738-3485
T	/Oil Spill Point of Contact	NOAA National Marine Fisheries Service	(707) 480-3496
T	/Restoration Ecologist	US Department of Agriculture	(530) 304-2304

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:

The marshes at the shoreline are home to many kinds of birds and animals, including endangered plants, birds, and animals. The major concerns are two. First, there are many tidal channels through which the oil can pass and harm even greater areas behind the bay front. Second, oil can get on the front edge of the salt-marsh. Harm from response actions is always a concern.

Hazard and Restrictions:

There are shallows and obstructions along shore and inside the barrow channels. The open waters of Honker Bay can have formidable waves when there are strong westerly winds.

Site Strategies:

Site Validation Level: II

Strategy:* 2-670.1** ***Objective: Skimming to intercept oil approaching the bay with towed skimming arrays.

Strategy: The first line of protection is to remove as much oil as possible before the oil can impact shorelines. As for all of northern Suisum Bay this can be accomplished through the deployment of several self contained skimming vessels, or mini skimmers. Each skimming vessel should be supported by two boom boats in V booming configuration off the bow of the skimmer to maximize encounter rate. Each of these supporting vessels should deploy 200 ft of boom between itself and the skimmer. This skimming strategy will probably be most effective between Snagg Island and Simmon's Point. Aerial support is needed to direct skimmers to the leading edge or densest oil, and report entrainment under the boom and skimmer.

Table of Response Resources

Last Page Update

Strategy:* 2-670.2** ***Objective: Diversion to collection if heavy oil is approaching the shore, divert the oil to collection areas.

Strategy: Deploy exclusion/deflection boom at the best angle fend oil past marshfront to designated collection area.

Table of Response Resources

Last Page Update

Strategy:* 2-670.3** ***Objective: Protection/exclusion boom: Protect the 2-mile stretch of marshfront from approaching heavy oil slick.

Strategy: Deploy exclusion/deflection boom at the best angle fend oil past marshfront to designated collection area. Protect windward shore from approaching oil. If there is a wind chop, this may best be accomplished using two layers of 6x6 Sboom, else a single layer of 9x9+: this strategy for deployment can be found in Potential Oil-Spill Protection Strategies for San Francisco Bay, California. (Hayes and Montelo, 1994). Requires 11,000' of Hboom or tidal barrier boom.

Table of Response Resources

Last Page Update

Logistics:

Directions: Except for Chipps Island, there land access is from the private levee roads along the bay. They may be reached from Hwy 12 in Suisun City, then south on Grizzly Island road to Grizzly Island Wildlife Refuge. For further access and entry, contact Grizzly Island Wildlife Refuge (707-425-3828) or Suisun Resource Conservation District staff (707-525-9602). Nearest boat access is 3 miles southeast at McAvoys Marina, Bay Point (9 miles to Martinez, 7 miles to Pittsburg).

Land Access: ALL TYPES WHEN LEVEES ARE DRY.

On-Water Limitations: VERY SHALLOW DRAFT < 2' NEAR SHORE. McAvoy/Harris Marina at Bay Point. Pittsburg Marina. Martinez Marina. All services and fuels available.

Facilities, Staging Areas, Command Posts, Available Equipment: The duck clubs have power and good small boat docking facilities. Otherwise best staging is McAvoys at Bay Point. Much further away are Pittsburg and Martinez. All have vessel services.

Communications Problems:

County: Solano **ACP Division/Segment:** SO - O - S002 SO - O - S003

NOAA Chart: SUISUN BAY 18658/18556/18656 ***Map Book:*** ***Decimal Degrees:*** 38.081231 -121.933504

Site Description:

This site includes the 2 miles of bay shoreline and berm islands of Wheeler Island from Champion Slough to Rock Creek. The land is owned by nine individual, private duck clubs. There is a barrow channel separating the historic salt-marsh front from the current island levee resulting in extensive fringe salt-marsh for Honker Bay. Although there is some emergent salt-marsh along the rip-rapped levee, the outer perimeter bayward of the barrow channel is a premium strip of native salt-marsh. These fronting islands have occasional breaks connecting the barrow channel and other inside channels to the bay. The outer bay margin is exposed to tangential wave action resulting is a mildly eroding shore with some accreting margins. The frontage Islands occasionally flood during very high tides and runoff periods. The adjacent bay is very shallow with occasional obstructions nearshore.

Resources at Risk:

ESI and Habitat: 10A Salt - and brackish-water marshes
9B Vegetated low banks
6B Riprap

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	Suisun song sparrow	FP, SSC	Year-round	Mar-Jul
Fish	longfin smelt	ST	Year-round	Nov-May
Fish	delta smelt	FT, SE	Year-round	Mar-May
Plants	Mason's lilaeopsis	SR	Year-round	Apr-Nov
Reptiles	giant garter snake	FT, ST	Year-round	Jul-Oct

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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O	/Dispatch, 24-hr	California Department of Water Resources	(916) 574-2714
O	/Office	Suisun Resource Conservation District	(707) 425-9302
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Wildlife Area Manager	CA Dept. of Fish & Wildlife, Grizzly Island WR	(707) 738-3485
T	/Oil Spill Point of Contact	NOAA National Marine Fisheries Service	(707) 480-3496
T	/Restoration Ecologist	US Department of Agriculture	(530) 304-2304
T	/Deputy Field Supervisor	US Fish and Wildlife Service	(916) 414-6702
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:

The salt-marshes along the shoreline are home to many kinds of birds and animals, including some endangered species. The major concerns are two. First, there are opening and channels through which the oil can pass and harm even greater areas behind the bay front. Second, oil can get on the front edge of the salt-marsh. Harm from response actions is always a concern. Keep in mind there are small endangered plants and animals underfoot.

Hazard and Restrictions:

There are shallows and obstructions along shore and inside the barrow channels. Honker Bay waves can be a navigation hazard when there are strong west winds.

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

Strategy:* 2-671.1** ***Objective: Exclude oil from entering barrow channels and slough entrances.

Strategy: There are multiple breaks in the north shore which will allow oil to move into marshes behind. It will take at least 8 separate deployments of 9x9+ Hboom (depending on severity of wave action) to close barrow channels and slough openings. Deploy in a chevron "V" formation with center anchors at each opening. Leaving enough trailing ends to insure a seal at the shore connection in order to prevent gaps at low tides.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9	inch	1600	feet	
Boom	Swamp	6x6	inch	700	feet	
Anchor	Danforth	22	lb	12		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Strategy:* 2-671.2** ***Objective: Exclusion/deflection boom at the best angle fend oil past marshfront when heavy oil is approaching the shore - divert the oil to on-water skimming.

Strategy: To deflect oil away from the shoreline, deploy 1700' of 9x9+ harbor boom from a point near Champion Slough mouth, at a diagonal to the current. Cascade legs as necessary. Advise IC and Ops for possible coordination of deflection with on-water skimming operations.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9	inch	1700	feet	
Anchor	Danforth	22	lb	4		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Strategy:* 2-671.3** ***Objective: Protective Booming: If there is threat of heavy oiling and saturation of the marsh front, deploy protective boom coverage, when resource use will not preclude defending other sites against SO 5 and 6 impacts.

Strategy: Protect windward shore from approaching oil. If there is a wind chop, this may best be accomplished using two layers of 6X6 swamp boom, else a single layer of 9x9+ Hboom: this strategy for deployment can be found in Potential Oil-Spill Protection Strategies for San Francisco Bay, California. (Hayes and Montelo, 1994). Requires 11,000' of Hboom or tidal barrier boom.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Swamp	9x9	inch	11000	feet
Anchor	Danforth	22	lb	25	
Vessel	Boom Boat			4	
Vessel	Skiff or Punt			1	

Last Page Update

Logistics:

Directions: They may be reached from Hwy 12 in Suisun City, then south on Grizzly Island road to Grizzly Island Wildlife Refuge. For further access and entry, contact Grizzly Island Wildlife Refuge (707-425-3828) or Suisun Resource Conservation District staff (707-525-9602). Nearest boat access is 3 miles southeast at McAvoys Marina, Bay Point (9 miles to Martinez, 7 miles to Pittsburg).

Land Access: Access via levees when they are dry. Avoid levees in wet months to prevent damage and getting stuck.

On-Water Limitations: Very shallow water nearshore. McAvoy's/Harris Marina at Bay Point. Pittsburg Marina. Martinez Marina.

Facilities, Staging Areas, Command Posts, Available Equipment: The duck clubs have power and good small boat docking facilities.

Communications Problems: Cell reception varies in this area.


Wheeler Island
Champion Slough
2-671.1
2-671.1
2-671.1
2-671.1
2-671.1
2-671.2
Spoonbill Slough
Honker Bay
Chipps Island
0 0.25 0.5 1
Miles
N
CDFW - OSPR & USCG Site: 2-671 Name: Honker Bay West / Wheeler Island Shore
G.Ewing (OSPR) & M. Schommer (OSPR) Date: 10/7/2020
Harbor Boom

2-672-A Site Summary - Honker Bay North - Van Sickle Island Shore 2-672-A

County: Solano **ACP Division/Segment:** SO - O - S004

NOAA Chart: SUISUN BAY 18658/18556/18656 ***Map Book:*** ***Decimal Degrees:*** 38.073611 -121.9068

Site Description:

This site includes the approx 2 miles of Honker Bay shoreline and the salt-marsh islands of Wheeler Island Rock Creek to Spoonbill Creek. There is a barrow channel separating the historic salt-marsh front from the current island levee resulting in extensive fringe salt-marsh. Although there's some emergent salt-marsh along the rip-rapped island levee, the outer perimeter is a premium strip of native salt-marsh. It has occasional breaks connecting the barrow channel and inside channels to the bay. The outer bay margin is exposed to high wave energy from across the bay resulting in an accreting margin.

Resources at Risk:

ESI and Habitat: 10A Salt - and brackish-water marshes
9B Vegetated low banks
6B Riprap

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	migratory waterfowl	FP		
Fish	longfin smelt	ST	Year-round	Nov-May
Fish	delta smelt	FT, SE	Year-round	Mar-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Plants	Mason's lilaeopsis	SR	Year-round	Apr-Nov
Plants	Suisun marsh aster	SSSP	Year-round	May-Nov
Reptiles	giant garter snake	FT, ST	Year-round	Jul-Oct

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	California Department of Water Resources	(916) 574-2714
O	/Office	Suisun Resource Conservation District	(707) 425-9302
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Wildlife Area Manager	CA Dept. of Fish & Wildlife, Grizzly Island WR	(707) 738-3485
T	/Oil Spill Point of Contact	NOAA National Marine Fisheries Service	(707) 480-3496
T	/Restoration Ecologist	US Department of Agriculture	(530) 304-2304
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:

The marshes at the shoreline are home to many kinds of birds and animals, including some endangered species. The major concerns are two; First, there are many tidal channels through which the oil can pass and affect even larger areas behind the bay front. Second, oil can get into the front edge of the salt-marsh. Clean up here would be extremely difficult. Further damage from response actions is always a concern.

Hazard and Restrictions:

There are shallows and obstructions along shore and inside the barrow channels.

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

Strategy:* 2-672.1** ***Objective: Exclude/collect oil: exclude from entering Spoonbill Creek and barrow channels and divert to collection on Van Sickle Isl shore.

Strategy: (site a) Deploy 800' 9x9+ Hboom from Chipps Island across the mouth of Spoonbill Creek at best angle to collect oil at the Van Sickle Shore. Establish Shore Side Skimming (SSS). Repeat deployment if currents or waves are likely to overtop or underflow collection boom.
(sites b, c, & d) Close the openings to barrow channels using two layers of swamp boom, backed by sorbent boom. Anchor close to shore leaving trailing ends to insure a boom seal at shoreline (to prevent shoreline gaps under boom.)

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	800	feet
Boom	Swamp	6x6	inch	300	feet
Boom	Sorbent			300	feet
Anchor	Danforth	22	lb	8	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
skimmer	shoreside			2	
Staff	Staff to Deploy				

Last Page Update

Strategy:* 2-672.2** ***Objective: Deflect to collection site: use prevailing winds

Strategy: Establish a second shore side skimming point on Van Sickle Island. Deploy deflection booms at best angle to direct oil past marshfronts to collection. Use about 1500' of 9x9+ harbor boom to direct oil to shore and about 500' to deflect oil into the pocket from the north. Line the shore with sorbents. This site has extreme shallows and obstructions - particularly at lower tides. Deployment will need to be made during higher tides. Boom boats capable of withstanding grounding must be used here.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	2000	feet
Boom	Sorbent			500	feet
Anchor	Danforth	22	lb	5	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
skimmer	shoreside			1	
Staff	Staff to Deploy			7	

Last Page Update

Strategy:* 2-672.3** ***Objective: Protective Booming: If there is threat of heavy oiling and saturation of the marsh front, deploy protective boom coverage, when resource use will not preclude defending other sites against SO 5 and 6 impacts.

Strategy: Deploy exclusion/deflection boom at the best angle fend oil past marshfront to designated collection area. Protect windward shore from approaching oil. If there is a wind chop, this may best be accomplished using two layers of 6X6 Hboom, else a single layer of 9x9+: this strategy for deployment can be found in Potential Oil-Spill Protection Strategies for San Francisco Bay, California. (Hayes and Montelo, 1994). Requires 12,000' of Hboom or tidal barrier boom.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	12000	feet
Anchor	Danforth	22	lb	25	
Vessel	Boom Boat			4	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			14	

Last Page Update

Logistics:

Directions: They may be reached from Hwy 12 in Suisun City, then south on Grizzly Island road to Grizzly Island Wildlife Refuge. For further access and entry, contact Grizzly Island Wildlife Refuge (707-425-3828) or Suisun Resource Conservation District staff (707-525-9602). Nearest boat access is 3 miles southeast at McAvoys Marina, Bay Point (9 miles to Martinez, 7 miles to Pittsburg).

Land Access: Stay off of levees unless they are dry. Wet levees are susceptable to damage and getting stuck.

On-Water Limitations: Very shallow near shoreline, beware of submerged obstacles. McAvoy's Marina at Bay Point. Pittsburg Marina. Martinez Marina. All boat services and fuel are available.

Facilities, Staging Areas, Command Posts, Available Equipment: The duck clubs have power and good small boat docking facilities. Best staging is probably McAvoy's Marina at Bay Point. Martinez and Pittsburg would be secondary alternatives. All have full vessel services.

Communications Problems: Cell reception varies in this area.


Wheeler Island
2-672.1(d)
2-672.3
2-672.1(c)
Honker Bay
2-672.2
2-672.2
2-672.3
2-672.1(b)
2-672.1(a)
Van Sickle Island
Spoonbill Slough
Chipps Island
0
0.25
0.5
1
Miles
N
CDFW - OSPR & USCG Site: 2-672 Name: Honker Bay North / Van Sickle Island Shore
G.Ewing (OSPR) & M. Schommer (OSPR) Date: 10/7/2020
Harbor Boom
Swamp Boom

County: Solano **ACP Division/Segment:** SO - O - S005

NOAA Chart: SUISUN BAY 18658/18556/18656 ***Map Book:*** ***Decimal Degrees:*** 38.056684 -121.914241

Site Description:

This site includes the 2 miles of Honker Bay shoreline on the western side of Chipps Island including the barrow channel behind the bay frontage. The barrow channel separates the historic salt-marsh front from the current island levee resulting in extensive fringe salt-marsh. Although there is some emergent salt-marsh along the rip-rapped island levee, the outer perimeter is a premium strip of native salt-marsh. It has occasional breaks connecting the barrow channel and inside channels to Honker Bay. The outer bay margin is exposed to tangential wave action resulting is a mildly eroding shore with some accreting margins.

Resources at Risk:

ESI and Habitat: 10A Salt - and brackish-water marshes
9B Vegetated low banks
6B Riprap

List of Resources at Risk:

	Resource Name	Status	Presence	Sensitivity
Birds	migratory waterfowl	FP		
Birds	Suisun song sparrow	FP, SSC	Year-round	Mar-Jul
Fish	longfin smelt	ST	Year-round	Nov-May
Fish	delta smelt	FT, SE	Year-round	Mar-May
Plants	Mason's lilaeopsis	SR	Year-round	Apr-Nov
Plants	Suisun marsh aster	SSSP	Year-round	May-Nov
Reptiles	giant garter snake	FT, ST	Year-round	Jul-Oct

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 – 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:

The salt-marshes at the shoreline are home to many kinds of birds and animals, including some endangered plants, birds, and animals. The major concerns are two. First, there are many tidal channels through which the oil can pass and harm even larger areas behind the bay front. Second, oil can get on the front edge of the salt-marsh and into the sediments. Harm from response actions is always a concern.

Hazard and Restrictions:

There are shallows and submerged obstructions along shoreline and inside the barrow channels.

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

Strategy:* 2-673.1** ***Objective: Exclude oil from entering barrow channels and slough entrances.

Strategy: Close the three openings to the barrow channel.
(a) at the west tip (north corner) deploy chevron of 400 ft Hboom with inner second chevron of 200 ft of Sboom
(b) Use two layers of swamp boom (1000' of 6X6+), backed with sorbent boom (1000'), to exclusion boom the south opening. Anchor boom across channel entries and leave a trailing end to ensure a tidal seal. Observe and repeat if wind chop is overwhelming the boom. There are submerged pilings in this area.
(c) The north opening must be boomed both at the mouth (500' 6X6+) and inside where the two barrow channels branch off (100' swamp boom each with light anchors).

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9	inch	400	feet	
Boom	Swamp	6x6	inch	2900	feet	
Boom	Sorbent			1000	feet	
Anchor	Danforth	22	lb	15		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Strategy:* 2-673.2** ***Objective: For EBB flow, Deflection at Pt Simmons, to divert oil past site to keep oil in channel and to avert carry-back into Honker Bay on eddy.

Strategy: Deploy harbor boom (600') at Simmons Pt on a shallow contour to keep oil in the channel best and stop it from angle fend oil past marsh front to designated collection area. BEWARE: This area west of Simmons Point is an underground pipe corridor - use anchors with extreme caution!

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit	Last Page Update
Boom	Harbor	9x9	inch	600	feet	
Anchor	Danforth	22	lb	4		
Vessel	Boom Boat			1		
Vessel	Skiff or Punt			1		
Staff	Staff to Deploy			5		

Strategy:* 2-673.3 *Objective: Protective Booming: If there is threat of heavy oiling and saturation of the marsh front, deploy protective boom coverage, when resource use will not preclude defending other sites against SO 5 and 6 impacts.

Strategy: Deploy exclusion/deflection boom at the best angle fend oil past marshnfront to designated collection area. Protect windward shore from approaching oil. If there is a wind chop, this may best be accomplished using two layers of 6X6 Swamp boom, else a single layer of 9x9+ Hboom: this strategy for deployment can be found in Potential Oil-Spill Protection Strategies for San Francisco Bay, California. (Hayes and Montelo, 1994). Requires 13,000' of Harbor boom or tidal barrier boom.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	13000	feet
Anchor	Danforth	22	lb	27	
Vessel	Boom Boat			5	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			17	

Last Page Update

Logistics:

Directions: There is only water access to Chipps Island. Nearest boat access is 2 miles southwest at McAvoys Marina, Bay Point (8 miles to Martinez, 5 miles to Pittsburg).

Land Access: Avoid levees when they are wet, it will damage them and you may get stuck.

On-Water Limitations: Very shallow near shoreline. McAvoy's Marina at Bay Point. Pittsburg Marina. Martinez Marina.

Facilities, Staging Areas, Command Posts, Available Equipment: Best staging sites are nearby McAvoy's/Harris Marina at Bay Point. PG&E, Pittsburg Marina, and Martinez Marina are alternates. The duck clubs on Chipps Island have power and good small boat docking facilities.

Communications Problems: Cell reception is spotty in this area.


2-673.1(c)
Spoonbill Slough
Honker Bay
2-673.2
2-673.1(a)
2-673.1(a)
Chipps Island
2-673.1(b)
0 500 1,000 2,000
Feet
N
CDFW - OSPR & USCG Site: 2-673 Name: Honkers Bay East / Chipps Island Shore
G.Ewing (OSPR) & M. Schommer (OSPR) Date: 10/7/2020
Harbor Boom
Swamp Boom

2-680-A Site Summary - Suisun Marsh West: Suisun Slough Drainage 2-680-A

County: Solano **ACP Division/Segment:** SO - I - S001 SO - J - S019 SO - H - S01 SO - H - S03

NOAA Chart: SUISUN BAY 18657/18652 ***Map Book:*** ***Decimal Degrees:*** 38.125431 -122.058545

Site Description:

This site extends upstream from the mouth at Grizzly Bay and includes all the salt-marsh and sloughs which are tributary including Goodyear Slough, Cordelia Slough, Wells Slough, Pelfier Slough, Sheldrake Slough, Boynton Slough, Peytonia Slough, Hill Slough & Cutoff Slough. This site includes about one third of Suisun Marsh which is about 50% of SF Bay salt-marsh. It is diked and partially diked salt-marsh with emergent tule salt-marsh on slough margins. Some locales are in natural historic condition. Many Special Status Species are present. Most of the land is private duck clubs but large tracts are in public ownership including DFW State Wildlife Refuges.

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-May
Birds	common yellowthroat	FP, SSC	Year-round	Jun-Aug
Fish	longfin smelt	ST	Year-round	Nov-May
Fish	delta smelt	FT, SE	Year-round	Mar-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Mammals	Suisun ornate shrew	SSC	Year-round	
Plants	Mason's lilaeopsis	SR	Year-round	Apr-Nov
Reptiles	giant garter snake	FT, ST	Year-round	Jul-Oct

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 Department of Water Resources	(916) 574-2714
O	/Office	Suisun Resource Conservation District	(707) 425-9302
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Wildlife Area Manager	CA Dept. of Fish & Wildlife, Grizzly Island WR	(707) 738-3485
T	/Oil Spill Point of Contact	NOAA National Marine Fisheries Service	(707) 480-3496
T	/Restoration Ecologist	US Department of Agriculture	(530) 304-2304
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:

Primary is limiting the extent of oiling of salt-marsh channels and oiling of vegetation and wildlife. The strategies are intended to "box" oil into a minimal exposure of channel and salt-marsh habitat.

Hazard and Restrictions:

There are extreme shallows throughout the sloughs near shorelines.

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

Strategy:* 2-680.1** ***Objective: Contain/exclude - minimize spread of oil through tidal channels: use multiple diversion booms to collection sites, and close side channels.

Strategy: This is a generic strategy since exact origin of a spill is unknown but multiple threat locals exist including the entire Santa Fe Pacific pipeline corridor. Locate oil threat and set booms across sloughs above and below oil slick at a sufficient diagonal to avoid entrainment. Include extra length and midpoint anchoring to account severe tidal fluctuations. Repeat to insure capture. Set up collection with shoreside skimming at best available locale with land access if possible. Otherwise use waterbased skimmers with booms anchored to shoreline.

Also, close any and all nearby slough mouths and branches, particularly Honker Cut and Connection Slough which would permit oil spreading to Montezuma Slough.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Harbor	9x9	inch	3000	feet
Anchor	Danforth	22	lb	11	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			5	

Last Page Update

Logistics:

Directions: This area is mostly accessible by water from Suisun City or Pierce Harbor. There is limited land access from I-680 by exiting at Lake Herman Rd, Marshview Rd and other exits which lead to access mostly private duck club roads along the margin.

Land Access: Variable based on location. Stay off of saturated levees.

On-Water Limitations: Very shallow during lower tides. Suisun City Marinas and/or Pierce Harbor.

Facilities, Staging Areas, Command Posts, Available Equipment: Deploy from Suisun City Public Launch, Martinez Marina, Benicia Marina or Pierce Harbor. All the above may provide adequate support for field post.

Communications Problems: Cell reception is spotty in this area.


Montezuma Slough
Grizzly Island
2-680.1
Suisun Slough
Joice Island
2-680.1
Grizzly Bay
Morrow Island
0 0.25 0.5 1
Miles
N
CDFW - OSPR & USCG Site: 2-680 Name: Suisun Marsh West: Suisun Slough Drainage
G.Ewing (OSPR) & M. Schommer (OSPR) Date: 10/14/2020
Harbor Boom

County: Solano **ACP Division/Segment:** SO - H - S05 SO - M - S01 SO - M - S14 SO - L - S01 SO - L - S11

NOAA Chart: SUISUN BAY 18652/18659/18656 ***Map Book:*** ***Decimal Degrees:*** 38.140917 -122.003096

Site Description:

This site extends upstream from the mouth at Grizzly Bay and includes all the salt-marsh areas and sloughs which are tributary to Monteuma Slough including: Cutoff Slough, Tree Slough, Island Slough, Frost Slough, Cross Slough, Roaring River Slough but not Nurse/Denverton Sloughs. This site includes about one-half of Suisun Marsh which is about 50% of SF Bay salt-marsh. It is diked and partially diked salt-marsh with emergent tule marsh on slough margins. Some locales are in natural historic condition. Many Special Status Species are present. Most of the land is private duck clubs but large tracts are in public ownership including DFW State Wildlife Refuges and Solano County Wildlife Refuge.

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	common yellowthroat	FP, SSC	Year-round	Jun-Aug
Fish	longfin smelt	ST	Year-round	Nov-May
Fish	delta smelt	FT, SE	Year-round	Mar-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Plants	Mason's lilaeopsis	SR	Year-round	Apr-Nov
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
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C	/Coordinator	Northwest Information Center	(707) 588-8455
O	/Dispatch, 24-hr	California Department of Water Resources	(916) 574-2714
O	/Office	Suisun Resource Conservation District	(707) 425-9302
T	/Environmental Program Manager	CA Dept. of Fish & Wildlife, Bay Delta Region	(707) 576-2837
T	/Wildlife Area Manager	CA Dept. of Fish & Wildlife, Grizzly Island WR	(707) 738-3485
T	/Oil Spill Point of Contact	NOAA National Marine Fisheries Service	(707) 480-3496
T	/Restoration Ecologist	US Department of Agriculture	(530) 304-2304
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 plant species as well as Suisun song sparrow, yellow rail, Suisun ornate shrew, tule elk, etc. occur in the area.

Concerns and Advice to Responders:

Primary concern is to halt movement of oil into or out of the sloughs. The strategies are intended to "box" oil into a minimal exposure of channel and salt-marsh. The salt-marsh here are full of listed species which would be harmed by oiling. Response activities can harm wildlife and plants as well. Keep in mind that there are endangered plants and animals under foot. Avoid trampling oil into sediments.

Hazard and Restrictions:

There are extreme shallows throughout the sloughs.

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

Strategy: **2-690.1** ***Objective:*** Contain/exclude - minimize spread of oil through channels: use multiple diversion booms to collection sites, and close side channels.

Strategy: This is a generic strategy since the exact origin of an oil spill can not be predicted, and the east side pipeline corridor crosses several sloughs: Locate oil threat and set booms across sloughs above and below oil slick at a sufficient diagonal to avoid entrainment. Include extra length and midpoint anchoring to account severe tidal fluctuations. Repeat to insure capture. Set up collection with shoreside skimming at best available locale with land access if possible. Otherwise use waterbased skimmers with booms anchored to shoreline.

Also, close any and all nearby slough mouths and branches, particularly Honker Cut and Connection Slough which would permit oil spreading to Montezuma Slough.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
Boom	Swamp	6x6	inch	4000	feet
Anchor	Danforth	22	lb	14	
Vessel	Boom Boat			1	
Vessel	Skiff or Punt			1	
Staff	Staff to Deploy			5	

Last Page Update

Logistics:

Directions: This area is mostly accessible by water from Suisun City or Pierce Harbor. There is limited land access from via Hwy 12 to Grizzly Island Road at Suisun City or Denverton Road (to the easterly portion). Most subsequent access is private duck club roads along the margin.

Land Access: Access varies based uopn location.

On-Water Limitations: Very shallow especially during lower tide cycles. There is a minimal boat ramp on Grizzly Island (parking lot 7). Otherwise, Suisun City Marinas, Pittsburg, Martinez/Benicia and Pierce Harbor Marinas.

Facilities, Staging Areas, Command Posts, Available Equipment: Deploy from Suisun City, Martinez Marina, Benicia Marina or Pittsburg Marina. All the above may provide adequate support for field post, as may DFW Grizzly Island Wildlife Refuge.

Communications Problems: Cell reception varies.


Montezuma Slough
Grizzly Island
Suisun Slough
2-690.1
Joice Island
2-690.1
Grizzly Bay
Morrow Island
0
0.25
0.5
1
Miles
N
CDFW - OSPR & USCG Site: 2-680 Name: Suisun Marsh West: Suisun Slough Drainage
G.Ewing (OSPR) & M. Schommer (OSPR) Date: 10/14/2020
Swamp Boom

2-695-A Site Summary - Suisun Marsh North: Denverton/Nurse Sl Drainage 2-695-A

County: Solano **ACP Division/Segment:** SO - K - S001 SO - K - S009

NOAA Chart: SUISUN BAY 18652/18656 ***Map Book:*** ***Decimal Degrees:*** 38.167378 -121.934605

Site Description:

This site extends upstream from the mouth of Nurse Slough on Montezuma Slough and includes Denverton and Luco Sloughs and the adjacent salt-marsh fringe and sloughs. This site includes about one sixth of Suisun Marsh which is about 50% of SF Bay salt-marsh. It is diked and partially diked salt-marsh with emergent tule marsh on slough margins. Some locales are in natural historic condition. Many listed species are present year round. Most of the land consists of private duck clubs but a few sites are in public ownership.

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 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
Fish	delta smelt	FT, SE	Year-round	Mar-May
Mammals	salt-marsh harvest mouse	FE, SE	Year-round	
Plants	Mason's lilaeopsis	SR	Year-round	Apr-Nov
Plants	soft bird's beak	FE, SR	Year-round	Jul-Nov
Reptiles	giant garter snake	FT, ST	Year-round	Jul-Oct

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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O	/Dispatch, 24-hr	California Department of Water Resources	(916) 574-2714
O	/Office	Suisun Resource Conservation District	(707) 425-9302
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T	/Wildlife Area Manager	CA Dept. of Fish & Wildlife, Grizzly Island WR	(707) 738-3485
T	/Oil Spill Point of Contact	NOAA National Marine Fisheries Service	(707) 480-3496
T	/Restoration Ecologist	US Department of Agriculture	(530) 304-2304
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 plant species reside in the area.

Concerns and Advice to Responders:

Primary concern is to halt movement of oil into or out of the sloughs. The strategies are intended to "box" oil into a minimal exposure of channel and salt-marsh. The marshe here and the marshy margins are full of creature and plant which would be harmed by oil. Response activities can harm wildlife and plants as well. Keep in mind that there are endangered plants and animals under foot. Avoid tromping oil into sediments.

Hazard and Restrictions:

There are shallows throughout the sloughs.

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

Strategy: **2-695.1** ***Objective:*** Confine/Exclude - Minimize spread of oil through channels: use multiple diversion booms to collection sites, and close side channels.

Strategy: This is a generic spill response strategy since it is not possible to predict the exact location of a spill origin, and a pipeline corridor lies on the east side of the site: Locate oil threat and set booms across sloughs above and below oil slick at a sufficient diagonal to avoid entrainment. Include extra length and midpoint anchoring to account severe tidal fluctuations. Repeat to insure capture. Set up collection with shoreside skimming at best available locale with land access if possible. Otherwise use waterbased skimmers with booms anchored to shoreline.

Also, close any and all nearby slough mouths and branches, particularly Honker Cut and Connection Slough which would permit oil spreading to Montezuma Slough.

Table of Response Resources

Equipment	Sub-Type	Size	Unit	QTY	Unit
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	

Last Page Update

Logistics:

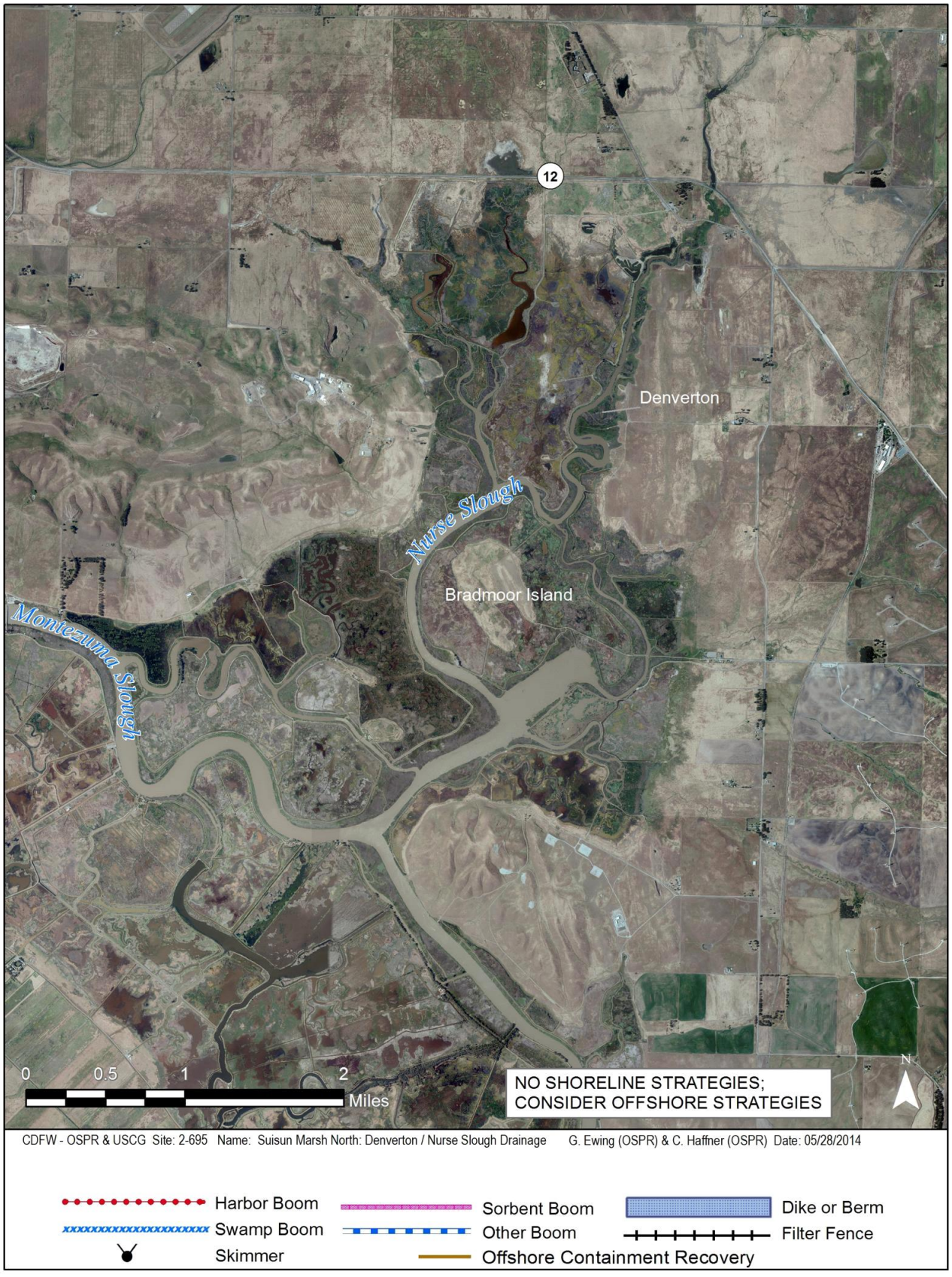
Directions: This area is very inaccessible. There is limited land access via private duck club and military roads accessed from Hwy 12 to Shiloh Road (to the easterly edge) and Grizzly Island Road. Water access is from Montezuma Slough via Nurse Slough.

Land Access: Access levees only when they are dry.

On-Water Limitations: Very shallow during low tide cycles. There is a minimal boat ramp on Grizzly Island (parking lot 7) near Meins Landing. Otherwise, Suisun City Marinas, Pittsburg, Martinez, Benicia and Pierce Harbor Marinas.

Facilities, Staging Areas, Command Posts, Available Equipment: Deploy from Suisun City, Martinez Marina, Benicia Marina or Pittsburg Marina. All the above may provide adequate support for field post, as may Grizzly Island Wildlife Refuge.

Communications Problems: Cell reception may be spotty.


12
Denverton
Nurse Slough
Bradmoor Island
Montezuma Slough
0
0.5
1
2
Miles
NO SHORELINE STRATEGIES;
CONSIDER OFFSHORE STRATEGIES
N
CDFW - OSPR & USCG Site: 2-695 Name: Suisun Marsh North: Denverton / Nurse Slough Drainage G. Ewing (OSPR) & C. Haffner (OSPR) Date: 05/28/2014
Harbor Boom
Swamp Boom
Skimmer
Sorbent Boom
Other Boom
Offshore Containment Recovery
Dike or Berm
Filter Fence

9819.2 Response Summary Tables

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

Summary of ACP 2 GRA 6 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
2-601	***Martinez Marsh***		
.1 - Primary: on the flood tide, exclusion booming mouth Alhambra Creek, other tidal channels, and protect nearby shoreline			
Boom	Swamp	6x6 inch	250 feet
Anchor	Danforth	22 lb	2
Vessel	Skiff or Punt		1
Boom	Sorbent		1300 feet
Staff	Staff to Deploy		2
Anchor	Stakes		14
.2 - Deflection for the ebb tide, deflect oil away from and past Alhambra Creek & marsh with boom from old ferry slip			
Anchor	Danforth	25 lb	3
Staff	Staff to Deploy		5
Vessel	Boom Boat		1
Boom	Harbor	9x9 inch	600 feet
Vessel	Skiff or Punt		1
.3 - Deflection for the Flood Tide: deflect away from Martinez shore			
Staff	Staff to Deploy		5
Boom	Harbor	9x9 inch	2000 feet
Anchor	Danforth	25 lb	5
Vessel	Boom Boat		1
Vessel	Skiff or Punt		1
.4 - Protection Shoreline Booming: If there is threat of heavy oiling and saturation of the marsh front, deploy protective boom coverage, when resource use will not preclude defending other sites against SO 5 and 6 impacts.			
Boom	Swamp	6x6 inch	8500 feet
Anchor	Danforth	22 lb	18
Vessel	Skiff or Punt		1
Vessel	Boom Boat		3
Staff	Staff to Deploy		11

Site *Site Name*

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

Equipment	Sub-Type	Size/Unit	QTY/Unit
2-603	***Bulls Head Marsh and Pacheco Creek***		
.1 - Exclude oil from entering Pacheco Creek, Peyton Slough and four other tidal channels on flood currents			
Staff	Staff to Deploy		5
Boom	Swamp	6x6 inch	400 feet
Boom	Sorbent		1000 feet
Anchor	Danforth	25 lb	6
Vessel	Boom Boat		1
Vessel	Skiff or Punt		1
Boom	Harbor	9x9 inch	1000 feet
.2 - For flood tides, deflect oil to collection site in Pacheco Creek on Avon refinery shoreline to prevent oil spread to other marsh sites, to collect it, and prevent its free movement.			
Staff	Staff to Deploy		10
skimmer	self propelled		1
Vessel	Skiff or Punt		1
Vessel	Boom Boat		2
Anchor	Danforth	22 lb	17
Boom	Sorbent		300 feet
Boom	Harbor	9x9 inch	2700 feet
Boom	Swamp	6x6 inch	1800 feet
.3 - Marsh front protective booming: If there is threat of heavy oiling and saturation of the marsh front, and when such use will not preclude defending other sites with Strategic Objectives 5 and 6 action (seek concurrence of the trustee strategist).			
Staff	Staff to Deploy		10
Vessel	Skiff or Punt		1
Boom	Harbor	9x9 inch	9000 feet
Anchor	Danforth	22 lb	19
Vessel	Boom Boat		3
.4 - Collection/ containment of upstream threats: If oil is moving down Pacheco Slough from an inland spill, deploy a containment collection as in strategy 2-603.2			
Staff	Staff to Deploy		5
Boom	Swamp	6x6 inch	1600 feet
Anchor	Danforth	22 lb	8
Vessel	Skiff or Punt		1
Vessel	Boom Boat		1
.5 - Back-up for .1 exclusion in case of over-wash threat			
Boom	Swamp	6x6 inch	1400 feet
Anchor	Danforth	22 lb	7
Vessel	Boom Boat		1
Vessel	Skiff or Punt		1
Staff			5

Sub-Strategy	PREVENTION OBJECTIVE OR CONDITION FOR DEPLOYMENT			
	Equipment	**Sub-Type**	**Size/Unit**	**QTY/Unit**
2-605	***Hastings Slough & Point Edith Marshes***			
.1 -	**Exclude oil from Hastings Slough and tidal channels to prevent oil from being carried into marsh on flood tides.**			
	Vessel	Boom Boat		1
	Vessel	Skiff or Punt		1
	Anchor	Stakes		20
	Anchor	Danforth	22 lb	9
	Boom	Sorbent		2300 feet
	Boom	Swamp	6x6 inch	1100 feet
	Staff	Staff to Deploy		5
	Boom	Harbor	9x9 inch	1500 feet
.2 -	**Deflect oil away from shoreline for sites 2-605 and 2-607 on flood tide.**			
	Vessel	Skiff or Punt		1
	Staff	Staff to Deploy		5
	Vessel	Boom Boat		1
	Anchor	Danforth	22 lb	5
	Boom	Harbor	9x9 inch	2400 feet
.3 -	**Back-up of Exclusion booming of .1 strategy for wave conditions: if waves or chop is likely to wash oil over boom.**			
	Anchor	Danforth	22 lb	5
	Staff	Staff to Deploy		5
	Boom	Swamp	6x6 inch	2300 feet
	Vessel	Boom Boat		1
	Boom	Sorbent		1000 feet
	Vessel	Skiff or Punt		1
.4 -	**Marsh front protective booming: If there is threat of heavy oiling and saturation of the marsh front, and when such deployment will not preclude defending other sites with Strategic Objectives 5 and 6 (seek concurrence of the trustee stratigist).**			
	Staff	Staff to Deploy		8
	Boom	Harbor	9x9 inch	7000 feet
	Anchor	Danforth	22 lb	15
	Vessel	Boom Boat		3
	Vessel	Skiff or Punt		1
2-607	***Weapons Station Marshes & Seal Islands***			
.1 -	**Exclusion booming of four Sloughs.**			
	Boom	Sorbent		1050 feet
	Anchor	Danforth	22 lb	5
	Vessel	Boom Boat		1
	Vessel	Skiff or Punt		1
	Staff	Staff to Deploy		5
	Boom	Swamp	6x6 inch	1050 feet
.2 -	**Diversion booming on Flood tide: Execute 2-605.2 divert out of channel and away from sites 2-605 & 2-607**			
	Anchor	Stakes		12
	Anchor	Danforth	22 lb	14
	Personnel	Staff to Deploy		3
	Boom	Swamp	6x6	1050 feet
	Boom	Sorbent		950 feet
.3 -	**Exclusion of Sloughs by sediment dike.**			
	Vehicle	dump truck		1
	Staff			4
	Skiploader			1

Site Site Name

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

Equipment	Sub-Type	Size/Unit	QTY/Unit

2-608 Shore Acres Marsh

.1 - Exclude oil from tidal channels which admit oil to back marshes. Close dead-end sloughs to reduce oil margin impacts.

Anchor	Danforth	22 lb	16
Staff	Staff to Deploy		5
Vessel	Boom Boat		1
Boom	Sorbent		1050 feet
Boom	Swamp	6x6 inch	1050 feet
Vessel	Skiff or Punt		1

.2 - Deflect oil away from shoreline and into main channel. Deflect any by-passing oil to shore capture/collection.

Boom	Harbor	9x9 inch	3000 feet
Anchor	Danforth	25 lb	18
Vessel	Boom Boat		2
Vessel	Skiff or Punt		1
skimmer	shoreside		1
Staff	Staff to Deploy		8

.3 - Marsh front protective booming: If there is threat of heavy oiling and saturation of the marsh front, and when such use will not preclude defending other sites with Strategic Objectives 5 and 6 action (seek concurrence of the trustee strategist).

Boom	Harbor	9x9 inch	8000 feet
Staff	Staff to Deploy		11
Vessel	Skiff or Punt		1
Anchor	Danforth	22 lb	20
Vessel	Boom Boat		3

2-631 Roe Island

.1 - Exclude oil from entering tidal channels and penetrating interior of island.

Boom	Harbor	9x9 inch	100 feet
Boom	Swamp	6x6 inch	500 feet
Boom	Sorbent		300 feet
Anchor	Danforth	22 lb	5
Vessel	Boom Boat		1
Vessel	Skiff or Punt		1
Staff	Staff to Deploy		5

.2 - Deflect booming at west end of island.

Boom	Harbor	9x9 inch	3000 feet
Staff	Staff to Deploy		5
Vessel	Skiff or Punt		1
Anchor	Danforth	75 lb	7
Vessel	Boom Boat		1

2-632 Ryer Island

.1 - Exclude oil from entering east section of Island though levee breaks and penetrating the west section interior via tidal inlets.

Staff	Staff to Deploy		5
Boom	Harbor	9x9 inch	1850 feet
Boom	Swamp	6x6 inch	1580 feet
Boom	Sorbent		2800 feet
Anchor	Danforth	25 lb	15
Vessel	Boom Boat		1
Vessel	Skiff or Punt		1

.2 - Deflect oil away from seal haulout at northwest tip.

Boom	Harbor	9x9 inch	400 feet
Anchor	Danforth	44 lb	4
Vessel	Boom Boat		1
Vessel	Skiff or Punt		1
Staff	Staff to Deploy		5

.3 - Reducing south shore impacts by closing barrow channel inlets.

Vessel	Boom Boat		1
Vessel	Skiff or Punt		1
Anchor	Danforth	25 lb	7
Boom	Swamp	6x6 inch	3000 feet
Staff	Staff to Deploy		5

Site	Site Name

Sub-Strategy	PREVENTION OBJECTIVE OR CONDITION FOR DEPLOYMENT			
	Equipment	**Sub-Type**	**Size/Unit**	**QTY/Unit**
2-633	***Middle Ground Island***			
.1 -	**Flood tide deflection if oil threatens from SW: only when other larger sites are assured protection**			
	Boom	Harbor	9x9 inch	1500 feet
	Anchor	Danforth	22 lb	6
	Vessel	Boom Boat		1
	Vessel	Skiff or Punt		1
	Staff	Staff to Deploy		5
.2 -	**Flood tide deflection if oil threatens from NW: only when other larger sites are assured protection**			
	Staff	Staff to Deploy		5
	Vessel	Skiff or Punt		1
	Boom	Swamp	6x6 inch	1500 feet
	Anchor	Danforth	22 lb	6
	Vessel	Boom Boat		1
2-651	***Southampton Bay***			
.1 -	**On Flood tide, deflect boom past the site on the current contour line.**			
	Boom	Harbor	9x9 inch	1200 feet
	Anchor	Danforth	25 lb	5
	Vessel	Boom Boat		1
	Vessel	Skiff or Punt		1
	Staff	Staff to Deploy		5
.2 -	**Protective booming of salt-marsh exposure. The main focus of protection should be the inner marsh.**			
	Boom	Swamp Boom	6x6 inch	3200 feet
	Anchor	Danforth	22 lb	6
	Vessel	Boom Boat		2
	Vessel	Skiff or Punt		2
	Staff	Staff to Deploy		8
.3 -	**Shoreline containment and recovery with shoreside skimming**			
	Vessel	Boom Boat		1
	Staff	Staff to Deploy		4
	Vessel	Skiff or Punt		1
	Boom	Harbor	9x9 inch	300 feet
	Anchor	Danforth	22 lb	3
	skimmer	shoreside		1
2-652	***Benicia Marsh***			
.1 -	**Exclusion boom tidal inlets.**			
	Boom	Sorbent		150 feet
	Anchor	Stakes		15
	Staff	Staff to Deploy		2
.2 -	**Protective booming of entire marsh front: When heavy or continuous re-oiling is emminant and deployment will not preempt other urgent need.**			
	Anchor	Stakes		20
	Boom	Swamp	6x6 inch	5000 feet
	Boom	Sorbent		1000 feet
	Staff	Staff to Deploy		8
	Vessel	Boom Boat		2
	Anchor	Danforth	25 lb	11
	Vessel	Skiff or Punt		1

Site	Site Name

Sub-Strategy	PREVENTION OBJECTIVE OR CONDITION FOR DEPLOYMENT			
	Equipment	**Sub-Type**	**Size/Unit**	**QTY/Unit**
2-654	***Goodyear Marsh***			
.1 -	**Exclude oil from all tidal sloughs, inlets, and Sulfur Springs Creek to keep oil out of back marsh.**			
	Staff	Staff to Deploy		5
	Anchor	Danforth	22 lb	5
	Anchor	Stakes		20
	Vessel	Boom Boat		1
	Boom	Swamp	6x6 inch	1000 feet
	Boom	Sorbent		1000 feet
	Vessel	Skiff or Punt		1
.2 -	**Deflect to collection: When heavy oiling/reoiling is a threat on incoming tide with a southerly wind, intercept along shore oil and direct to collection.**			
	Boom	Harbor	9x9 inch	1000 feet
	Vessel	Skiff or Punt		1
	skimmer	shoreside		1
	Anchor	Danforth	22 lb	8
	Boom	Sorbent		100 feet
	Boom	Swamp	6x6 inch	1000 feet
	Vessel	Boom Boat		1
	Staff	Staff to Deploy		7
.3 -	**Protection booming if oil continues to threaten marshfront, deploy protective booming as recommended in SF Inlet Study by RPI/MSRC**			
	Boom	Swamp	6x6 inch	27000 feet
	Anchor	Danforth	22 lb	55
	Vessel	Boom Boat		9
	Vessel	Skiff or Punt		3
	Staff	Staff to Deploy		33
2-655	***Joice Island, Suisun Slough, and Montezuma Slough***			
.1 -	**Prevent oil from entering Montezuma and Suisun Sloughs, and from entering tidal inlets of Joice Island: Exclusion booming offshore of Sloughs and Joice Island / Prevent oil from entering vast interior wetlands as well as Joice Island.**			
	Boom	Harbor	9x9 inch	7500 feet
	Staff	Staff to Deploy		11
	Anchor	Danforth	22 lb	25
	Vessel	Skiff or Punt		1
	Vessel	Boom Boat		3
.2 -	**Exclude from minor and major sloughs: deflect to collection Suisun and Montezuma Slough mouths and chevron exclusion at tidal inlets.**			
	Staff	Staff to Deploy		10
	Boom	Swamp	6x6 inch	800 feet
	Vessel	Skiff or Punt		1
	Anchor	Danforth	22 lb	15
	Boom	Harbor	9x9 inch	3700 feet
	Vessel	Boom Boat		2
.3 -	**Protective booming of undiked tip of Joice Island**			
	Boom	Harbor	9x9 inch	9000 feet
	Vessel	Skiff or Punt		1
	Anchor	Danforth	22 lb	19
	Vessel	Boom Boat		3
	Staff			10
2-660	***Grizzly Bay***			
.1 -	**Protective booming of northeast prograding marsh**			
	Staff	Staff to Deploy		17
	Vessel	Skiff or Punt		1
	Vessel	Boom Boat		5
	Anchor	Danforth	22 lb	27
	Boom	Harbor	9x9 inch	8500
.2 -	**Deflection at Pt. Buckler. Keep oil in the Suisun Cut channel and imped it from moving across Grizzly Bay.**			
	Anchor	Danforth	22 lb	4
	Vessel	Boom Boat		1
	Boom	Harbor	9x9 inch	300 feet
	Vessel	Skiff or Punt		1
	Staff	Staff to Deploy		5

Site *Site Name*

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

Equipment	Sub-Type	Size/Unit	QTY/Unit

2-665 *Simmons Island / Suisun Cut*

.1 - Collection/Exclusion of heavy oil flow though Suisun Cutoff, divert the oil to shore collection areas.

Equipment	Sub-Type	Size/Unit	QTY/Unit
skimmer	shoreside		1
Vessel	Skiff or Punt		1
Vessel	Boom Boat		2
Anchor	Danforth	22 lb	15
Boom	Harbor	9x9 inch	4000 feet
Staff	Staff to Deploy		10

.2 - Exclude oil from entering barrow channels and slough entrances.

Equipment	Sub-Type	Size/Unit	QTY/Unit
Anchor	Danforth	22 lb	16
Boom	Swamp	6x6 inch	1950 feet
Vessel	Boom Boat		1
Vessel	Skiff or Punt		1
Boom	Harbor	9x9 inch	1100 feet
Staff	Staff to Deploy		5

.3 - Protective Booming: If there is threat of heavy oiling and saturation of the marsh front, deploy protective boom coverage, when resource use will not preclude defending other sites against SO 5 and 6 impacts.

Equipment	Sub-Type	Size/Unit	QTY/Unit
Staff	Staff to Deploy		25
Vessel	Boom Boat		8
Boom	Swamp	6x6 inch	15000 feet
Boom	Harbor	9x9 inch	10000 feet
Vessel	Skiff or Punt		2
Anchor	Danforth	22 lb	51

2-667 *Freeman & Snag Islands*

.1 - Exclude oil from entering openings to perimeter barrow channel and interior channels of Freeman Island.

Equipment	Sub-Type	Size/Unit	QTY/Unit
Staff	Staff to Deploy		5
Vessel	Skiff or Punt		1
Vessel	Boom Boat		1
Anchor	Danforth	22 lb	8
Boom	Swamp	6x6 inch	250 feet
Boom	Harbor	9x9 inch	1200 feet

.2 - Divert oil threat from west (Suisun Cut) past windward pockets to minimize shore oiling for Freeman

Equipment	Sub-Type	Size/Unit	QTY/Unit
Anchor	Danforth	22 ls	7
Boom	Harbor	9x9 inch	1300 feet
Staff	Staff to Deploy		5
Vessel	Skiff or Punt		1
Vessel	Boom Boat		1

.3 - Deflection for S & SW winds, divert oil past windward pockets to minimize shore oiling for Freeman and Snag Island.

Equipment	Sub-Type	Size/Unit	QTY/Unit
Anchor	Danforth	22 lb	9
Boom	Harbor	9x9 inch	2600 feet
Vessel	Skiff or Punt		1
Staff	Staff to Deploy		5
Vessel	Boom Boat		1

.4 - Protective Booming: If there is threat of heavy oiling and saturation of the marsh front, deploy protective boom coverage, when resource use will not preclude defending other sites against SO 5 and 6 impacts.

Equipment	Sub-Type	Size/Unit	QTY/Unit
Boom	Swamp	6x6 inch	13000 feet
Staff			20
Vessel	Skiff or Punt		1
Anchor	Danforth	22 lb	35
Boom	Harbor	9x9 inch	4000 feet
Vessel	Boom Boat		6

Site *Site Name*

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

Equipment	Sub-Type	Size/Unit	QTY/Unit

2-668 *Dutton Island*

.1 - Exclude oil from entering barrow channels and slough entrances.

Equipment	Sub-Type	Size/Unit	QTY/Unit
Boom	Swamp	6x6 inch	2500 feet
Anchor	Danforth	22 lb	
Vessel	Boom Boat		1
Vessel	Skiff or Punt		1
Staff	Staff to Deploy		5

.2 - Exclude by Diversion to Collect at shore line: If heavy oil is threatening Honker Bay and shorelines

Equipment	Sub-Type	Size/Unit	QTY/Unit
Anchor	Danforth	22 lb	5
Staff	Staff to Deploy		7
Boom	Harbor	9x9 inch	1500 feet
Vessel	Boom Boat		1
Vessel	Skiff or Punt		1
skimmer	shoreside		1

.3 - Portective booming of shoreline: When prevailing wind and oil threatens to overwhelm these measures, exclusion boom to protect shoreline especially easterly.

Equipment	Sub-Type	Size/Unit	QTY/Unit
Anchor	Danforth	22 lb	13
Vessel	Boom Boat		2
Vessel	Skiff or Punt		1
Staff	Staff to Deploy		8
Boom	Swamp	6x6 inch	6000 feet

2-670 *Honker Bay*

.1 - Skimming to intercept oil approaching the bay with towed skimming arrays.

.2 - Diversion to collection if heavy oil is approaching the shore, divert the oil to collection areas.

.3 - Protection/exclusion boom: Protect the 2-mile stretch of marshfront from approaching heavy oil slick.

2-671 *Honker Bay West - Wheeler Island Shore*

.1 - Exclude oil from entering barrow channels and slough entrances.

Equipment	Sub-Type	Size/Unit	QTY/Unit
Staff	Staff to Deploy		5
Boom	Harbor	9x9 inch	1600 feet
Boom	Swamp	6x6 inch	700 feet
Anchor	Danforth	22 lb	12
Vessel	Boom Boat		1
Vessel	Skiff or Punt		1

.2 - Exclusion/deflection boom at the best angle fend oil past marshfront when heavy oil is approaching the shore - divert the oil to on-water skimming.

Equipment	Sub-Type	Size/Unit	QTY/Unit
Vessel	Skiff or Punt		1
Staff	Staff to Deploy		5
Vessel	Boom Boat		1
Anchor	Danforth	22 lb	4
Boom	Harbor	9x9 inch	1700 feet

.3 - Protective Booming: If there is threat of heavy oiling and saturation of the marsh front, deploy protective boom coverage, when resource use will not preclude defending other sites against SO 5 and 6 impacts.

Equipment	Sub-Type	Size/Unit	QTY/Unit
Vessel	Boom Boat		4
Anchor	Danforth	22 lb	25
Vessel	Skiff or Punt		1
Boom	Swamp	9x9 inch	11000 feet

Site	Site Name

Sub-Strategy	PREVENTION OBJECTIVE OR CONDITION FOR DEPLOYMENT			
	Equipment	**Sub-Type**	**Size/Unit**	**QTY/Unit**
2-672	***Honker Bay North - Van Sickle Island Shore***			
.1 -	**Exclude/collect oil: exclude from entering Spoonbill Creek and barrow channels and divert to collection on Van Sickle Isl shore.**			
	Staff	Staff to Deploy		
	skimmer	shoreside		2
	Vessel	Skiff or Punt		1
	Vessel	Boom Boat		1
	Anchor	Danforth	22 lb	8
	Boom	Sorbent		300 feet
	Boom	Harbor	9x9 inch	800 feet
	Boom	Swamp	6x6 inch	300 feet
.2 -	**Deflect to collection site: use prevailing winds**			
	Vessel	Boom Boat		1
	Boom	Harbor	9x9 inch	2000 feet
	Boom	Sorbent		500 feet
	Anchor	Danforth	22 lb	5
	Vessel	Skiff or Punt		1
	Staff	Staff to Deploy		7
	skimmer	shoreside		1
.3 -	**Protective Booming: If there is threat of heavy oiling and saturation of the marsh front, deploy protective boom coverage, when resource use will not preclude defending other sites against SO 5 and 6 impacts.**			
	Staff	Staff to Deploy		14
	Boom	Harbor	9x9 inch	12000 feet
	Anchor	Danforth	22 lb	25
	Vessel	Boom Boat		4
	Vessel	Skiff or Punt		1
2-673	***Honker Bay East - Chipps Island Shore***			
.1 -	**Exclude oil from entering barrow channels and slough entrances.**			
	Boom	Swamp	6x6 inch	1900 feet
	Boom	Sorbent		1000 feet
	Anchor	Danforth	22 lb	15
	Vessel	Boom Boat		1
	Vessel	Skiff or Punt		1
	Staff	Staff to Deploy		5
	Boom	Harbor	9x9 inch	400 feet
.2 -	**For EBB flow, Deflection at Pt Simmons, to divert oil past site to keep oil in channel and to avert carry-back into Honker Bay on eddy.**			
	Vessel	Boom Boat		1
	Boom	Harbor	9x9 inch	600 feet
	Anchor	Danforth	22 lb	4
	Staff	Staff to Deploy		5
	Vessel	Skiff or Punt		1
.3 -	**Protective Booming: If there is threat of heavy oiling and saturation of the marsh front, deploy protective boom coverage, when resource use will not preclude defending other sites against SO 5 and 6 impacts.**			
	Anchor	Danforth	22 lb	27
	Vessel	Skiff or Punt		1
	Staff	Staff to Deploy		17
	Vessel	Boom Boat		5
	Boom	Harbor	9x9 inch	13000 feet
2-680	***Suisun Marsh West: Suisun Slough Drainage***			
.1 -	**Contain/exclude - minimize spread of oil through tidal channels: use multiple diversion booms to collection sites, and close side channels.**			
	Staff	Staff to Deploy		5
	Vessel	Skiff or Punt		1
	Vessel	Boom Boat		1
	Anchor	Danforth	22 lb	11
	Boom	Harbor	9x9 inch	3000 feet

Site	Site Name			
Sub-Strategy	PREVENTION OBJECTIVE OR CONDITION FOR DEPLOYMENT			
	Equipment	Sub-Type	Size/Unit	QTY/Unit
2-690	*Suisun Marsh Central: Grizzly Isle/ Montezuma Sl*			
.1 -	**Contain/exclude - minimize spread of oil through channels: use multiple diversion booms to collection sites, and close side channels.**			
	Vessel	Boom Boat		1
	Vessel	Skiff or Punt		1
	Anchor	Danforth	22 lb	14
	Boom	Swamp	6x6 inch	4000 feet
	Staff	Staff to Deploy		5
2-695	*Suisun Marsh North: Denverton/Nurse Sl Drainage*			
.1 -	**Confine/Exclude - Minimize spread of oil through channels: use multiple diversion booms to collection sites, and close side channels.**			
	Vessel	Skiff or Punt		1
	Staff	Staff to Deploy		5
	Vessel	Boom Boat		1
	Anchor	Danforth	22 lb	5
	Boom	Swamp	6x6 inch	2000 feet

9819.3 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.

Site Information	Site Number & Location	Lat/Long & Priority
McAvoy Yacht Harbor 1001 McAvoy Rd Bay Point CA 94565 Phone: 925-458-2568 **Site Description:**	Site Number: 2-6-CC-100-D Operational Division:	Public Marinas and Harbors **D** Lat/Long: 38.05 -121.96
Martinez Marina/ Almar Marina 7 N Court Sr Martinez CA 94553 Phone: 925-313-0942 **Site Description:**	Site Number: 2-6-CC-105-D Operational Division:	Public Marinas and Harbors **D** Lat/Long: 38.03 -122.14
Martinez Regional Shoreline Park Ferry St Martinez CA 94553 Phone: 888-327-2757 **Site Description:**	Site Number: 2-6-CC-110-D Operational Division:	Parks, Beaches, Recreational Areas **D** Lat/Long: 38.03 -122.14
Benicia State Recreation Area 1 State Park Rd Benicia CA 94510 Phone: 707-648-1911 **Site Description:**	Site Number: 2-6-CC-115-D Operational Division:	Parks, Beaches, Recreational Areas **D** Lat/Long: 38.07 -122.19
9th St. Boat Launch Benicia CA 94510 Phone: **Site Description:**	Site Number: 2-6-SO-100-D Operational Division:	Public Marinas and Harbors **D** Lat/Long: 38.06 -122.18
Benicia Marina 266 E B St Benicia CA 94510 Phone: 707-745-2628 **Site Description:**	Site Number: 2-6-SO-105-D Operational Division:	Public Marinas and Harbors **D** Lat/Long: 38.04 -122.16
Benicia Wastewater Treatment 614 E 5th St Benicia CA 94510 Phone: 707-746-4336 **Site Description:**	Site Number: 2-6-SO-110-HHS Operational Division:	Human Health and Safety or Critical Infrastructure Lat/Long: 38.04 -122.15
Glen Cove Waterfrony Park Whitesides Dr Vallejo CA 94591 Phone: 707-648-4600 **Site Description:**	Site Number: 2-6-SO-115-D Operational Division:	Parks, Beaches, Recreational Areas **D** Lat/Long: 38.07 -122.21
Morrow Island Distribution System Phone: **Site Description:** Dept. of Water Resource: Flood control gates	Site Number: 2-6-SO-120-D Operational Division:	Water Intakes [Non-Human Health and Safety Lat/Long: 38.12 -122.09
Goodyear Slough Outfall Phone: **Site Description:** Dept. of Water Resources; East of Vista Point	Site Number: 2-6-SO-125-D Operational Division:	Water Intakes [Non-Human Health and Safety Lat/Long: 38.07 -122.12

Site Information	Site Number & Location	Lat/Long & Priority
Suisun City Marina 800 Kellogg St Suisun City CA 94585 Phone: 707-429-2628 **Site Description:**	Site Number: 2-6-SO-130-D Operational Division:	Public Marinas and Harbors **D** Lat/Long: 38.24 -122.04
Solano Yacht Club 703 Civic Center Blvd Suisun City CA 94585 Phone: 707-429-0284 **Site Description:**	Site Number: 2-6-SO-135-D Operational Division:	Public Marinas and Harbors **D** Lat/Long: 38.24 -122.04
Grizzly Island Wildlife Area 2548 Grizzly Island Rd Suisun City CA 94585 Phone: 707-425-3828 **Site Description:**	Site Number: 2-6-SO-140-D Operational Division:	Parks, Beaches, Recreational Areas **D** Lat/Long: 38.16 -121.97
Fairfield/Suisun Wastewater Treatment Pl Fairfield CA 94534 Phone: 707-429-8930 **Site Description:** Discharge Point	Site Number: 2-6-SO-145-D Operational Division:	Water Intakes [Non-Human Health and Safety Lat/Long: 38.2 -122.07
Roaring River Slough Distribution System Phone: **Site Description:** Treated water discharge point	Site Number: 2-6-SO-150-D Operational Division:	Water Intakes [Non-Human Health and Safety Lat/Long: 38.1 -122.07
Suisun Marsh Salinity Control Gates Phone: **Site Description:** Dept. of Water Resources; Confluence of Roaring River & Montezuma Slough	Site Number: 2-6-SO-155-D Operational Division:	Water Intakes [Non-Human Health and Safety Lat/Long: 38.09 -121.89
Suisun Resourcce Conservation District Suisun City CA Phone: 707-426-2431 **Site Description:** Water intakes within Suisun Marsh	Site Number: 2-6-SO-160-D Operational Division:	Water Intakes [Non-Human Health and Safety Lat/Long: 38.15 -1121.98
Benicia Yacht Club 400 E 2nd St Benicia CA 94510 Phone: 707-746-0739 **Site Description:**	Site Number: 2-6-SO-165-D Operational Division:	Public Marinas and Harbors **D** Lat/Long: 38.05 -122.16