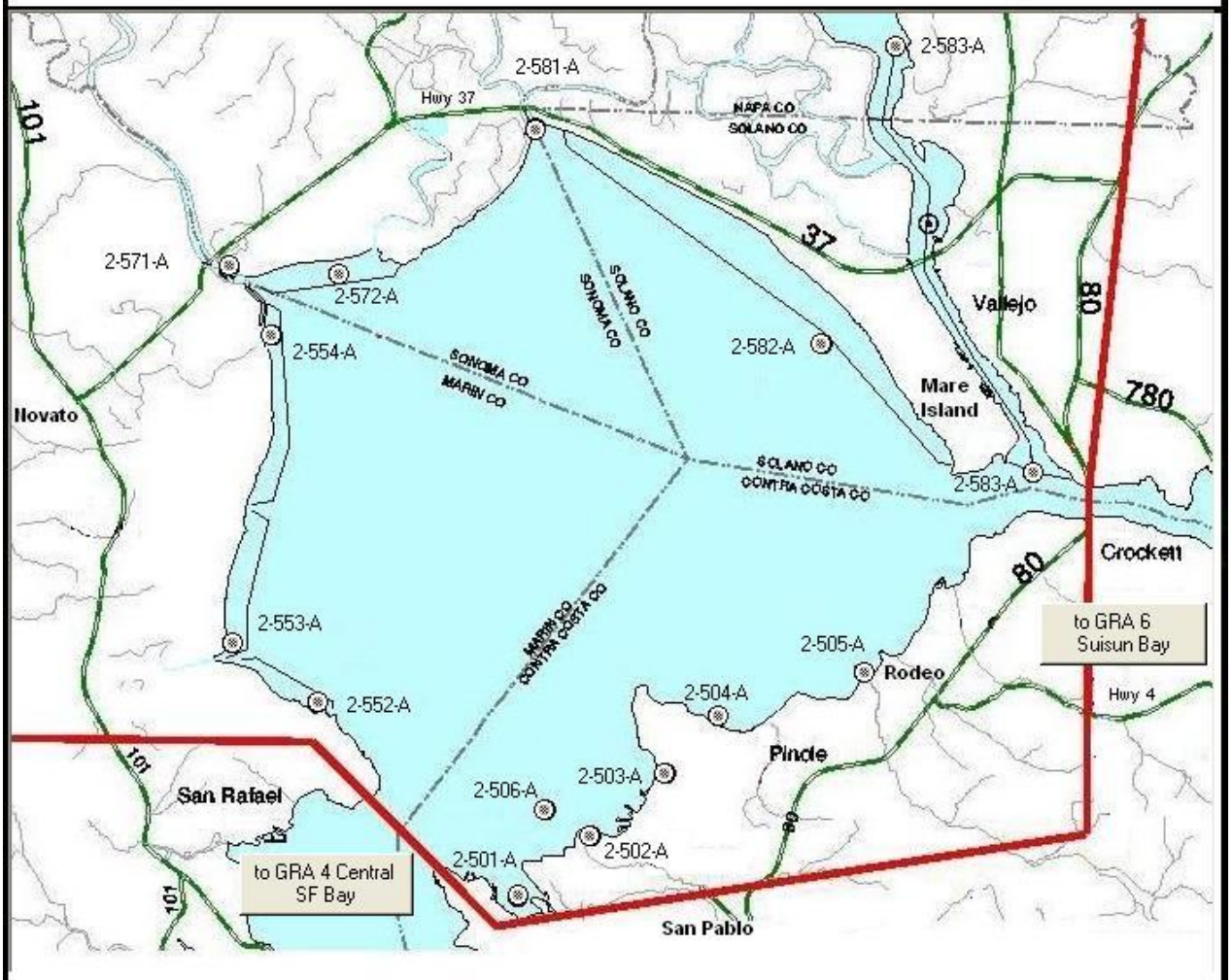
SF Geographic Response Area 5
GRA 5 - San Pablo Bay
Ecologically Sensitive Sites and Other Resourcs at Risk



0 2.5 5 Miles

Note: Marker symbols (⊙) are only site reference and do not indicate full extent of sites.

Section 9845 – GRA5 San Pablo Bay

Table of Contents GRA 5

GRA 5 Map 1
Table of Contents Introduction 2
Site Index/Response Actions 3
Summary of Sensitive Sites Response Resource List for GRA 5 4
Probability of Oil Reaching Each Sensitive Site in GRA 5 6
Response Priorities for Oil Spill Scenario GRA 5 10

9845.1 Environmentally Sensitive Sites
- 2-501-A Castro Creek and Marshes 1
- 2-502-A San Pablo Creek Marshes 4
- 2-503-A Pinole Pt. Marshes-South 7
- 2-504-A Pinole Pt. Marshes – North 10
- 2-505-A Pinole Creek and Wetlands 13
- 2-506-A San Pablo Eelgrass Beds 16
- 2-552-A China Camp Marsh 19
- 2-553-A Gallinas Creek Marshes 22
- 2-554-A Novato Creek Marshes 25
- 2-571-A Petaluma River Marshes 29
- 2-572-A Tolay Creek Marshes 32
- 2-581-A Sonoma Creek / Napa Slough 35
- 2-582-A N.E. San Pablo Bay 38
- 2-583-A Napa River Marshes 41

9845.2 Cultural and Other Resources at Risk
- 9845.21 Cultural, Historic and Archeological Resources
- 9845.22 Essential Fish Habitat
- 9845.23 Other Resources at Risk

9845.3 Economically Sensitive Sites

9845.4 Shoreline Operational Divisions

9845.5 Shoreline Access

GRP 5 Site Index/Response Actions

Site ID	Priority	Site Name	Assignment	Date/Time Required	Date/Time Completed
2-501		Castro Creek and Marshes			
2-502		San Pablo Creek Marshes			
2-503		Pinole Pt. Marshes - South			
2-504		Pinole Pt. Marshes - North			
2-505		Pinole Creek and Wetlands			
2-506		San Pablo Eelgrass Beds			
2-552		China Creek Marshes			
2-553		Gallinas Creek Marshes			
2-554		Novato Creek Marshes			
2-571		Petaluma River Marshes			
2-572		Tolay Creek Marshes			
2-581		Sonoma Creek/Napa Slough			
2-582		N. E. San Pablo Bay			
2-583		Napa River Marshes			

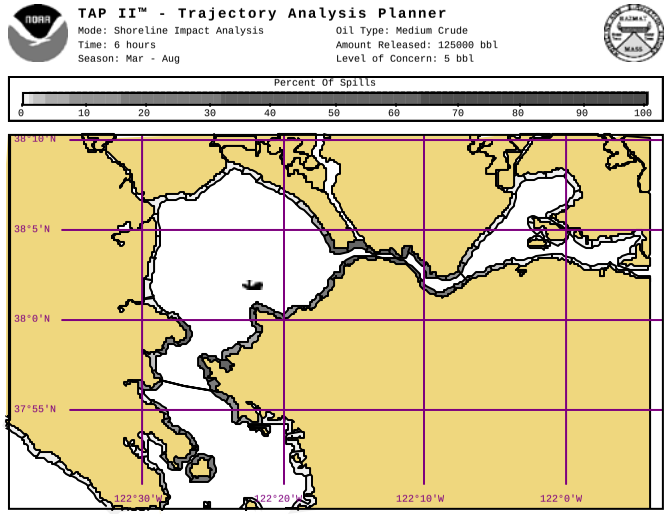
Summary of Geographic Response Area 5 (GRA 5) Response Resources by Site Strategy

Site	Site Name														
sub-strategy	PREVENTION OBJECTIVE OR CONDITION FOR DEPLOYMENT														
	Harbor Boom	Swamp boom	Other boom/TYPE	Sorbant boom	Anchoring No	type of gear	Boom boat	Skiff	Skimmer No	Type	Special Equipment No	and kinds	(and notes)	deploy staff	Staff to tend
2-501	*Castro Creek and Marshes*														
.1 -	**Exclusion booming of mouth of Castro Cove, adjacent partially diked pond, and mouth of Castro Creek**														
	4000				10	22+/Danforth + 20' chain	4	0	0					12	
.2 -	**Back up exclusion at mouth of Castro Cove**														
	200	3800	0	0	10	22+/Danforth + 20' chain	4	2	0		0		Shallow water	14	4
.3 -	**Exclusion at Creek mouth for inland spill or backup backup**														
	0	2000	0	0	4	22+/Danforth + 20' chain	1	2	0		0			8	2
.4 -	**Exclusion booming of entries to nearby harbors and channels**														
	0	1800			4	4/22+/danforth + chain	1	1					very shallow strandable Bboat	3	
2-502	*San Pablo Creek Marshes*														
.1 -	**Exclusion booming of mouths of inlets to prevent oil from entering creek and marshes.**														
	2000				15	12+#Danforth	2	2						10	
.2 -	**Backup exclusion booming of mouths of inlets to prevent oil from entering creek and marshes.**														
	0	2000	0	0	15	12+#Danforth anchors	2	2	0		0			10	2
2-503	*Pinole Pt. Marshes-South*														
.1 -	**Exclusion booming to prevent oil from entering the marsh.**														
		900		900	8	12+ lb Danforth anchors	1	1						5	
.2 -	**Exclusion/Protection booming of entire emergent marshfront**														
	5400	0	0	6000	16	22+ lb Danforth anchors	2	1	0		0			8	
2-504	*Pinole Pt. Marshes - North*														
.1 -	**Exclude oil from the inner marshes of Whittell and Garrity Creek.**														
	2000	500			8	22# pound Danforth	1	1						5	
.2 -	**If high tide expected, exclude oil from marsh front.**														
	0	0	0	25000	50	3lb	1	3	0		0		very shallow water, Access from Shore	9	
2-505	*Pinole Creek and Wetlands*														
.1 -	**Exclude oil from entering the creek.**														
	0	200			2	20#+ danforths	0	1						4	
.2 -	**Protective booming to prevent oil from coming in contact with the bayfront marsh vegetation.**														
	0	3500		3500	8	8/22/danforths & stakes	2	3						13	8
2-506	*San Pablo Bay Eelgrass Bed*														
.1 -	**Assess need for protective booming: Eelgrass is only vulnerable at very low tides when eelgrass tops are exposed to floa**														
														1	
.2 -	**Deflect oil from coming into contact with the eelgrass during low tides.**														
	2000	0	0	0	6	#22lbdanforth	3	0	0		0			4	
2-552	*China Camp Marsh*														
.1 -	**On-water recovery of oil to prevent oil from entering marshes, tidal channels and mudflats.**														
	0						1	0	2	SPS				3	
.2 -	**Deflect oil away from shoreline into main channel. Prevent oil from entering marshes and tidal channels.**														
	1000				8	22+ lb Danforth	1	0	0					3	
.3 -	**Exclude oil from entering marshes and tidal channels from Gallinas Creek to Rat Rock.**														
	0	2700			12	15+lb. Danforth	2	1	0				fence boom materials, oil snare, stakes	10	6
.4 -	**Protective booming of marsh fronts from Gallinas Creek to Rat Rock**														
	0	10400	0		65	15+ lb. Danforth	5	2	0		0		shallow draft boats	23	
2-553	*Gallinas Creek Marshes*														
.1 -	**Deflect/collect oil to prevent from entering Gallinas Creek and interior marsh channels along bayfront.**														
	1500				6	6x25 lb. Danforths	1	0	1	VT/weir			stakes to anchor boom in marsh	7	
.2 -	**Exclude oil from entering marsh channels and/or marshfront north of Gallinas Creek.**														
	0	350		400		stakes	1	0	0				stakes, contractor fence, oil snare	7	
.3 -	**Prevent oil from entering Gallinas Creek.**														
	1000				6	6x 20 lb.			1	VT or flo			Storage cap. Necessary	7	
2-554	*Novato Creek Marshes*														
.1 -	**Exclusion booming of Novato Creek and the three major and any minor tidal channels south of Novato Creek to prevent oil**														
	600	200		400	6	6/22+/danforth	1	1					shallow bboat capable of grounding, stake	5	
.2 -	**Deflection when oil is approaching from South or East of Novato Creek, deflect past Novato Creek mouth toward Petaluma**														
	3000				9	9/22+/danforth with chain	2	1						7	
.3 -	**Skimming in channel if heavy oil is threatening to overwhelm the exclusion strategy (.1) for Novato Creek mouth, deploy a**														
	0	300			2	2/15+/danforth				vessel sk			stakes	3	
.4 -	**Protective booming of the marshy shoreline north of Novato Creek to Petaluma River. Consider that this deployment will r**														
	1500			0	150	15/15+/anchors	6	2					very shallow/groundable bboats, 3 stakes	23	

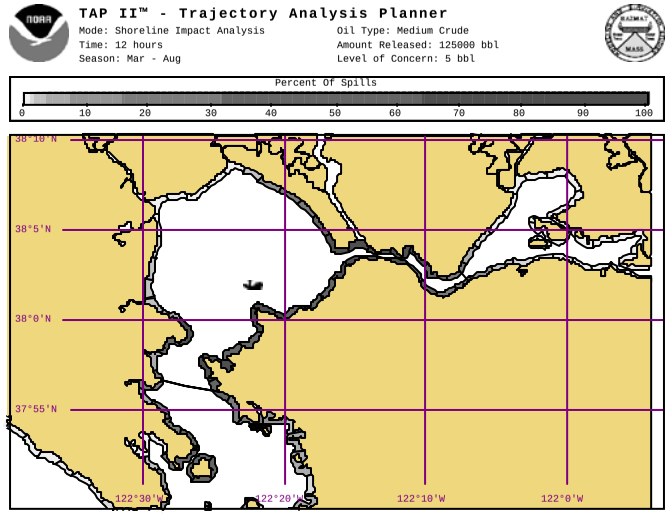
Site	Site Name														
sub-strategy	PREVENTION OBJECTIVE OR CONDITION FOR DEPLOYMENT														
	Harbor Boom	Swamp boom	Other boom/TYPE	Sorbant boom	Anchoring No	type of gear	Boom boat	Skiff	Skimmer No	Type	Special Equipment No	and kinds	(and notes)	deploy staff	Staff to tend
.5	-	Protective booming of the marshy shoreline south of Novato Creek													
	13000			0	14	14/15+/anchors	6	2				very shallow/groundable bboats, 30 stakes		23	
2-571	Petaluma River Marshes														
.1	-	Primary exclusion/collection strategy for Petaluma River and NW San Pablo Bay: divert oil to shore collection and boom ti													
	2300	2800		300	35	14/22+ and 21/15+/danforths	2	0	1	skimmer		40 stakes and 1000' of line		13	
.2	-	Collection strategy for controlling oil threats to Petaluma River and NW San Pablo Bay by diverting to onwater skimmer.													
	2500	500			12	12/12+/anchors with chain	2	1	1	self-prop		shallow draft bboats		7	
.3	-	Deflection/collection for upstream oil threats or oil past exclusion strategies at the mouth, deploy collection at best possib													
	0														
2-572	Tolay Creek Marshes														
.1	-	Exclude oil from Tolay Creek and other openings to marsh. Access by skiff from land or via water route.													
	0	750		400	6	6/22+/danforth	0	1				stakes to aid in securing		2	
.2	-	Divert to prevent oil from moving up channel while in San Pablo Bay still away from shoreline.													
	200				3	3/22/anchors	1	0				shallow draft boomboat		3	
.3	-	Protection booming to prevent oil from accumulating along the marshy shoreline of San Pablo Bay Consider that this depl													
	10500				65	65/15+/anchors	5	2				shallow draft bboats which can strand		20	
2-581	Sonoma Creek / Napa Slough														
.1	-	Deflection/Collection: Prevent oil from entering Sonoma Creek and Napa Slough.													
	2000		400		10	8-10, 25lb. Danforths			1	self-prop				8	
2-582	N.E. San Pablo Bay														
.1	-	Deflection booming to prevent oil from coming in contact with the marsh vegetation.													
	7300	0	0	200	25	22 to 25, 25 lb. Danforths	2	2	2	self prop		sandbags, 5 rolls plastic, baled hay		11	
2-583	Napa River Marshes														
.1	-	Deflection/Collection: Deflect oil before it enters into the marsh area. There is little or no access once within the marsh. Us													
	6000				15	12-15, 25 lb. Danforth	2	2						11	
.2	-	Protection/Exclusion from shoreline marshes and wharf when exclusion strategy 2-583.1) is not successful													
	5000	0	0	0	12	22+danforths	4	2	0		0				

PROBABILITY OF OIL REACHING EACH SENSITIVE SITE IN GRP 5

GRP 5



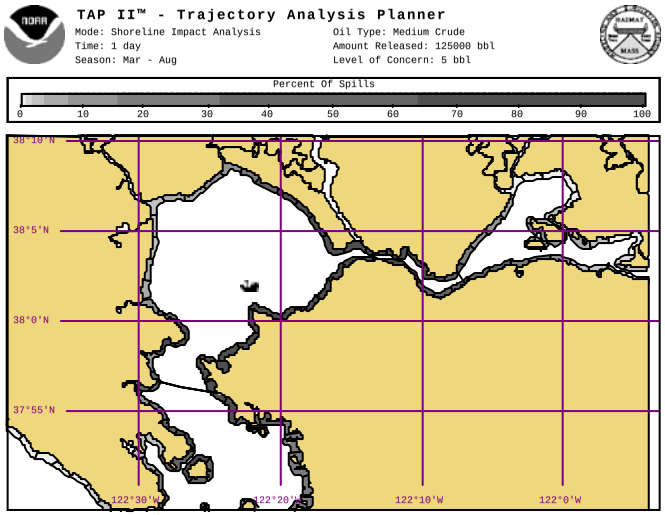
6 hours from start of spill



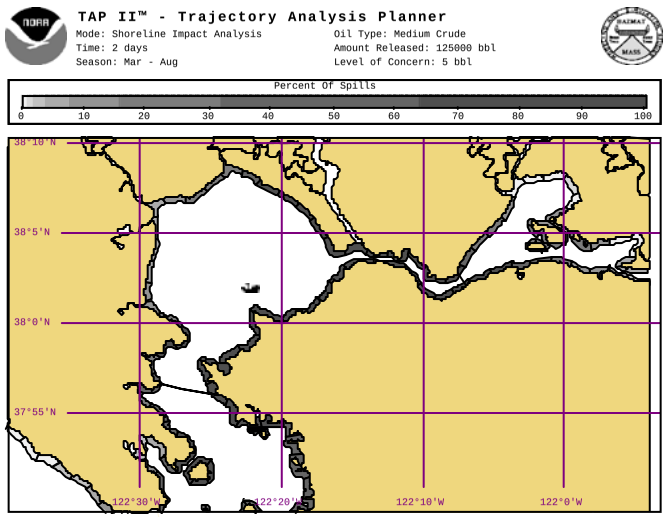
12 hours from start of spill

TAP II Maps for GRP5 Scenario: Spill of 125,000 bbls of crude at Pinole Shoal, San Pablo Bay in the Spring. The shades of grey at each impacted site correspond to a percentage in the legend of the number of spill scenarios (from 500 runs of various wind, tides and currents) that brought more than 5 bbls (= Level Of Concern) of oil to that site in the specified time frame (6 hours or 12 hours).

GRP 5



24 hours from start of spill



48 hours from start of spill

TAP II Maps for GRP5 Scenario: Spill of 125,000 bbls of crude at Pinole Shoal, San Pablo Bay in the Spring. The shades of grey at each impacted site correspond to a percentage in the legend of the number of spill scenarios (from 500 runs of various wind, tides and currents) that brought more than 5 bbls (= Level Of Concern) of oil to that site in the specified time frame (24 hours or 48 hours).

Table of Percent of Spills that bring oil (> 5 bbls) to each site from the GRP5 scenario.

ACP SITE#	ES	SITENAME	LAT W (Deg. Min.)	LONG W (Deg. Min.)	6 HOURS (% prob)	12 HOURS (% prob)	24 HOURS (% prob)
2-582	A	N.E. San Pablo Bay	38 05	122 17	50	92	99
2-583	A	Napa River Marshes	38 12	122 19	47	88	98
2-501	A	Castro Creek and Marshes	37 58	122 24	43	70	90
2-506	A	San Pablo Bay Eelgrass Bed	37 59	122 25	43	70	90
2-452	A	Richmond Eelgrass Beds	37 58	122 24	43	69	89
2-427	A	Marin Islands	37 58	122 28	42	70	95
2-551	A	McNear's Beach Marshes	38 00	122 27	42	70	95
2-552	A	China Camp Marsh	38 00	122 28	42	70	95
2-651	A	Southhampton Bay	38 04	122 11	38	76	94
2-451	A	Castro Rocks	37 50	122 24	30	48	80
2-652	A	Benicia Marsh	38 02.7	122 09.7	28	53	86
2-504	A	Pinole Pt. Marshes - North	38 05	122 21	27	76	90
2-503	A	Pinole Pt. Marshes-South	37 59	122 21.6	25	72	89
2-421	C	Tiburon Penninsula	37 54	122 27	21	37	64
2-422	B	Keil Cove	37 55	122 27	21	37	64
2-424	B	Paradise Cove	37 54	122 27	21	37	6
2-423	C	Angel Island	37 54	122 27	21	32	59
2-601	A	Martinez Marsh	38 02	122 08	16	29	63
2-654	A	Goodyear Marsh	38 04	122 07	16	29	61
2-502	A	San Pablo Creek Marshes	37 58.5	122 23	15	39	72
2-420	A	Richardson Bay Marshes	36 56	122 30	13	23	39
2-603	A	Bulls Head Marsh and Pacheco Creek	38 03	122 07	11	23	61
2-505	A	Pinole Creek and Wetlands	38 01	122 18	10	39	74
2-425	A	Corte Madera Marshes	38 56	122 30	9	22	36
2-455	C	Santa Fe Channel	37 55	122 22	8	23	53
2-630	A	Suisun Shoal	38 03.5	122 06	5	14	50
2-151	C	Pt. Diablo to Lime Pt.	37 49	122 30	5	8	23
2-453	A	Brook's Island	37 54	122 21.5	2	20	48
2-426	A	San Rafael Creek Marsh	37 58	122 29	2	6	14
2-605	A	Hastings Slough, Point Edith and Seal Is.	38 03	122 03	2	3	34
2-454	A	Richmond Inner Harbor/Hoffman Marsh	37 54.5	122 20		11	40
2-553	A	Gallinas Creek Marshes	38 01	122 30		3	

2-150	C	Point Bonita and Bonita Cove	37 49	122 31		2	3
2-458	A	Emeryville Lagoon/Mudflats	37 50	122 29		8	28
2-402	B	Alcatraz Island	37 50	122 25		8	24
2-456	A	Albany Marsh	37 54	122 19		6	30
2-457	A	Berkeley Eelgrass Beds	37 51	122 19		6	30
2-401	B	Pier 39	37 48	122 22		5	10
2-153	A	Land's End	37 47	122 30		2	9
2-154	A	Cliff House and Seal Rocks	37 47	122 31		2	9
2-400	C	San Francisco Waterfront	37 46	122 23		2	5
2-581	A	Sonoma Creek / Napa Slough	38 09	122 24		1	11
2-572	A	Tolay Creek Marshes	38 07	122 02.7		1	4
2-573	B	Midshipman Point	38 07	122 37		1	4
2-155	A	Ocean Beach/Fort Funston	37 45	122 30		1	2
2-571	A	Petaluma River Marshes	38 06	122 29			3
2-554	A	Novato Creek Marshes	38 06	122 29			2
2-351	A	Yerba Buena Island	37 48	122 22			13
2-607	A	Belloma Slough	38 03	122 01			11
2-302	C	Alameda Eelgrass Beds	37 45	122 16			9
2-633	A	Middle Ground Island	38 03.7	121 59			6
2-667	A	Freeman & Snag Islands	38 08.8	121 59.5			6
2-303	A	San Leandro Bay	37 45	122 13			5
2-608	A	Shore Acres Marsh	38 08	121 58.8			4
2-304	C	Bay Farm Island Eelgrass Beds	37 44	122 15.5			3
2-668	A	Dutton Island	38 08.8	121 59.5			3
2-148	A	Rodeo Lagoon	37 50	122 32			2
2-149	A	Bird Island	37 49	122 32			2
2-660	A	Grizzly Bay	38 08	122 02			2
2-665	A	Simmons Island	38 05.4	122 00			2
2-655	A	Joice Island/Suisun & Montezuma Sloughs	38 08	122 04			1
2-670	A	Honker Bay	38 04	121 56.3			1
2-673	A	Honker Bay East - Chipps Island Shore	38 04	121 56.3			1

RESPONSE PRIORITIES FOR GRP 5*

TIDE AND WIND AT TIME OF INSTANEOUS DISCHARGE	TIME PERIOD OILED (HOURS)	PRIORITY	SITE ID	SITE DESCRIPTION
0000 hrs 10 January 1998		1		Spill Site Containment
12000 Barrels		2		On -Water Recovery
Prudhoe Bay Crude	4 hrs	3	551	McNear's Beach Marshes
Point San Pablo	6 hrs	4	552	China Camp Marsh
Channel Marker 7	6 hrs	5	553	Gallinas Creek Marshes
122 22.64' W	12 hrs	6	572	Tolay Creek
38 1.82' N	12 hrs	7	573	Midshipman Pt
2 hours after slack before ebb	16 hrs	8	582	NE San Pablo Bay
wind 10 - 20 kts from South	16 hrs	9	581	Sonoma Cr / Napa Slough
First 24 hours only	18 hrs	10	554	Novato Creek Marshes
	18 hrs	11	571	Petaluma River Marshes
		12		
		13		
		14		
		15		
		16		
		17		
		18		
		19		
		20		
		21		
		22		
		23		
		24		
		25		
		26		
		27		
		28		
		29		
		30		

* Based on a 1998 BlueWater trajectory using the Oil Map Trajectory Model

Site Summary- Castro Creek and Marshes

2-501 -A

County:	Contra Costa	Thomas Guide Location	Latitude N 3 7 58 / Longitude W 122 24
USGS Quad:	San Quentin	NOAA Chart:	18649 Entrance SF 18654 San Pablo Bay

Last Page Update : 1/1/2000

SITE DESCRIPTION:

The site includes Castro Creek and the surrounding marshes from the Richmond Parkway and extends bayward (westerly) including Castro Cove from the tip of the channel jetty to the Richmond Rod and Gun Club to the point on the opposite shore and the partially diked basin on the north, The creek, shallow embayment and the partially diked pond on the north have extensive marshes, eelgrass beds, and mudflats. Castro Creek, which joints this bay on its southeast side, has well developed marshes along its length for several miles and its flood plain and the easterly margin of the cove is pickleweed marsh. The site is heavily used by marsh birds, wading birds and diving ducks for foraging and resting. The easterly end is very shallow.

SEASONAL and SPECIAL RESOURCE CONCERN

The marshes are an A-priority all year.

RESOURCES OF PRIMARY CONCERN

This area has very prime and sensitive habitats. Tidal marshes are habitat for the marsh life including some endangered species; there are both cordgrass emergent marshes and higher pickleweed marshes on the easterly potions of the site. The shallow mud flats have a rich fauna and are important feeding areas to migratory waterfowl, resident wading birds, waterbirds and fish life. The relatively protected waters here make the bay a favored resting area for migratory birds and gulls.

There is heavy bird use of this area. The marshes are habitat for the endangered California clapper rail and other marsh birds. During the winter and spring, migratory birds rest and feed on the cove and tidal flats. The diked pond is a favorite place for ducks and for gulls which forage at the nearby dump.

The endangered salt marsh harvest mouse also inhabits the high pickleweed marshes.

CULTURAL, HISTORIC, and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area.

KEY CONTACTS: Trustee (T); Entry/Owner/Access (E); Cultural (C); or Other Assistance (O)

Type	Name / Title	Organization	Phone
	Chevron Long Wharf	Chevron Corp., Operations Control Room (24hrs.)	(510) 242-4494
	Joseph Didonato Stewardship Manager	East Bay Regional Park District	(510) 544-2346
	EBRP Dispatch EBRP	East Bay Regional Park District	(510) 881-1833
	John Hitchen Pt. Pinole Park Sup.	East Bay Regional Park District	(510) 237-6896
	Mike Josselyn	NOAA, National Marine Fisheries Service	(415) 454-8868
	Mark Ragatz Shoreline Parks Manager	East Bay Regional Park District	(510) 715-7784
	Jean Takakawa	US Fish & Wildlife Service, SF Bay (NWR)	(510) 792-0222

ADDITIONAL SITE SUMMARY COMMENTS:

Site Strategy - Castro Creek and Marshes

2-501 -A

County and Thomas Guide Location	NOAA CHART	Latitude N	Longitude W
Contra Costa	18649 Entrance SF 18654 San Pablo Bay	3 7 58	122 24

Last Page Update :

CONCERNS and ADVICE to RESPONDERS:

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

HAZARDS and RESTRICTIONS:

This area has many shallow and under water obstructions.

SITE STRATEGIES

This large area requires multiple exclusion deployments.

Strategy 2-501.1 **Objective: Exclusion booming of mouth of Castro Cove, adjacent partially diked pond, and mouth of Castro Creek** ACP DATE 1/1/2000

a) Close the mouth of Castro Cove with 3800' harbor boom from the jetty on the south to the dike on the north. This deployment may need to be angled to direct oil toward a shoreline collection (preferrably to the south). A backup layer (2-501.2) may be needed as a result of wind chop. Report back to IC on need for land collection at the jetty or open water skimmer between boom layers.
b) Close the westerly opening of the partially diked pond with a chevron deployment with 200' harbor boom.

Strategy 2-501.2 **Objective: Back up exclusion at mouth of Castro Cove** ACP DATE 7/1/2005

a) Backup initial closure of the mouth of Castro Cove (2-501.1) with a second layer (3800') of swamp boom set a few yards behind the harbor boom. It will capture oil cresting the first boom as a result of wind chop. This deployment may need to be angled to direct oil toward a shoreline collection (preferrably to the south). Report back to IC on need for land collection at the jetty or open water skimmer between boom layers.
b) Close the inner (southerly) opening of the partially diked pond with a chevron deployment (200' harbor boom).

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

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

Strategy 2-501.4 **Objective: Exclusion booming of entries to nearby harbors and channels** ACP DATE 1/1/2000

a) Deploy 1600' of swamp boom across the mouth of the Chevron Rod & Gun Club channel to the west at a diagonal to the jetty and down the jetty to tie into the exclusion boom.
b) Deploy 200' of exclusion boom across the mouth of the marina. Very shallow, strandable boom boat with protected props will be necessary.

Table of Response Resources

strategy number	harbor boom	swamp boom	Other boom type	sorb boom	Anchoring no	Anchoring type and gear	Boom boat	Skiffs punts	Skimmers No	Skimmers Type	Special Equipment No	Special Equipment and kinds	staff deploy	Staff tend
2-501.1	4000				10	/22+/Danforth + 20' chain	4	0	1	open wat			16	
2-501.2	200	3800	0	0	10	22+/Danforth + 20' chain	4	2	0		0	Shallow water	14	4
2-501.3	0	2000	0	0	4	22+/Danforth + 20' chain	1	2	0		0		8	2
2-501.4	0	1800			4	4/22+/danforth + chain	1	1				very shallow strandable Bboat	3	

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

There is a poor land access from the Chevron Rod and Gun Club which requires pre-arrangements with Chevron. ""By boat, proceed north from the San Rafael Bridge and past Pt San Pablo, continue east in the channel past the Brothers Marina toward the Chevron Refinery. The site includes Castro Creek and the surrounding marshes from the Richmond Parkway and extends bayward (westerly) including Castro Cove from the tip of the channel jetty to the Richmond Rod and Gun Club to the point on the opposite shore and the partially diked basin on the north,

LAND ACCESS: very limited (foot), except good on SW side.

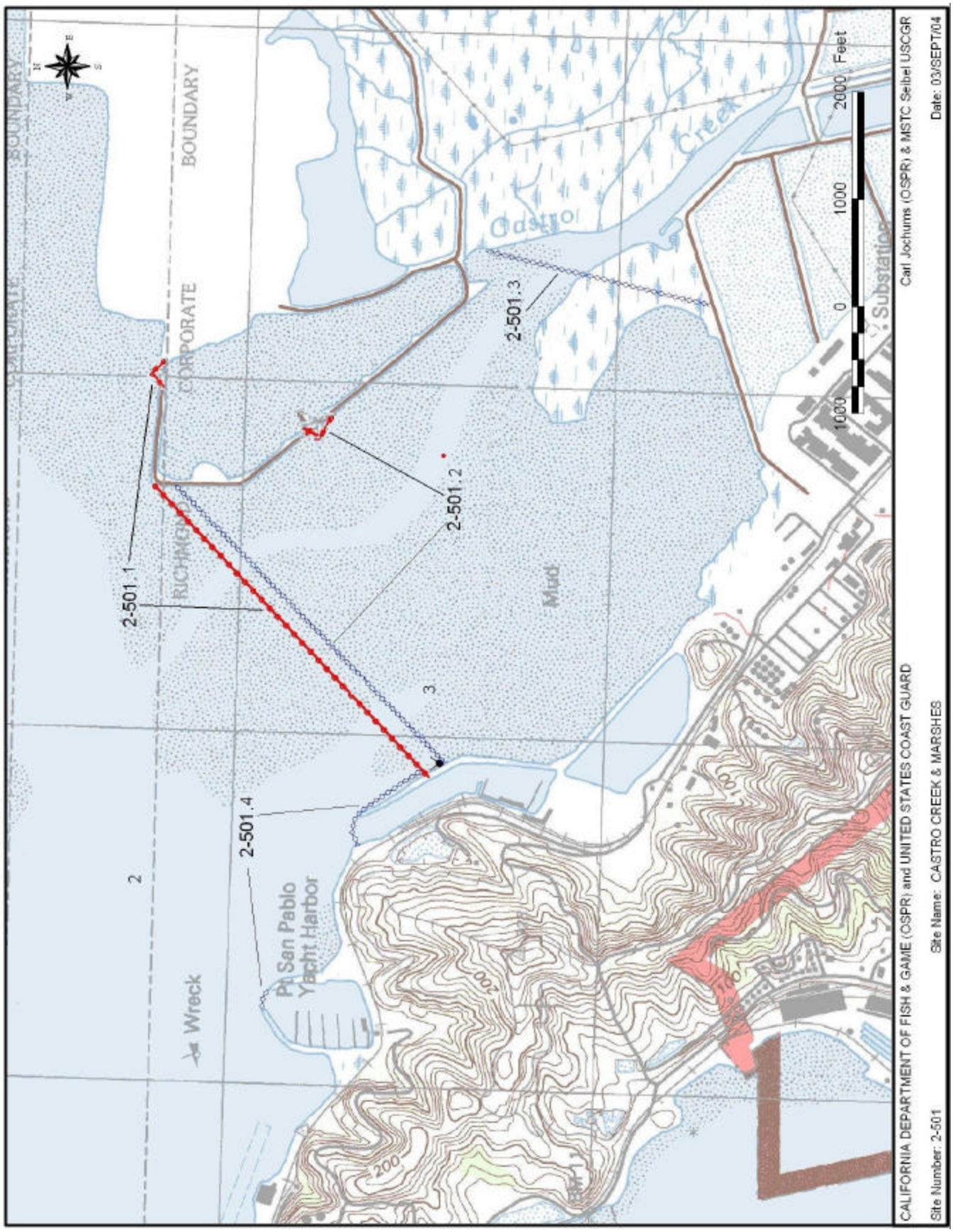
WATER LOGISTICS: very shallow and with obstructions.
Limitations: depth, obstruction

Launching, Loading, Docking and Services Available: Boat launch at Brothers Marina, Richmond Harbor, possibly at Chevron. Gas at Brother & Richmond. Full services at Richmond.

FACLITIES. STAGING AREAS. POSSIBLE FIELD POSTS AND EOUIPMENT AVAILABLE:

Boom may be staged locally at Richmond Rod & Gun and at Brothers Marina. Both may provide field posts and Brothers has food and water. Full services and ample staging are available in Richmond inner harbor. Boom resupply at Brothers or Richmond.

COMMUNICATIONS PROBLEMS:


CALIFORNIA DEPARTMENT OF FISH & GAME (OSPR) and UNITED STATES COAST GUARD
Site Number: 2-501
Site Name: CASTRO CREEK & MARSHES
Carl Jochums (OSPR) & MSTC Selbel USCGR
Date: 03/SEPT/04
1000 0 1000 2000 Feet
Castro Creek
Substation
Mud
Pt San Pablo Yacht Harbor
Wreck
2-501.1
2-501.2
2-501.3
2-501.4
2
3
200
100
BOUNDARY
CORPORATE
Harbor Boom
Swamp Boom
sss / sfs
Sorbent Boom
Other Boom
tsa / sps
Dike or Berm
Excellcior Fence
tba/voo

Site Summary- San Pablo Creek Marshes

2-502 -A

County:	Contra Costa	Thomas Guide Location	AAA Richmond	Latitude N	37 58.5	Longitude W	122 23.0
USGS Quad:	Richmond, San Quentin	NOAA Chart:	18649 Entrance SF 18654 San Pablo Bay				

Last Page Update : 1/1/2000

SITE DESCRIPTION:

The site is bounded on the south by the West Contra Costa Sanitary Landfill and on the north by a skeet range. Salt marshes front most of the two miles of shoreline from .3 mi. south of the San Pablo Creek mouth to .5 mi. south of Pinole point. The marsh is up to .4 mi. wide and vulnerable to oiling along the entire length of the shoreline as there are no leeves. There are also extensive intertidal mudflats to the north and west of the marsh.

SEASONAL and SPECIAL RESOURCE CONCERN

Birds are especially abundant during the fall and winter.

RESOURCES OF PRIMARY CONCERN

This area has very prime and sensitive habitats. Tidal marshes are habitat for the marsh life including some endangered species; there are both cordgrass emergent marshes and higher pickleweed marshes on the southerly portions of the site. The shallow mud flats have a rich fauna and are important feeding areas to migratory waterfowl, resident wading birds, waterbirds and fish life. The relatively protected waters here make the bay a favored resting area for migratory birds and gulls.

There is heavy bird use of this area. The marshes are habitat for the endangered California clapper rail and other marsh birds. During the winter and spring, migratory birds rest and feed on the cove and tidal flats.

CULTURAL, HISTORIC, and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison (916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880) for specific information on historic or cultural resources in this area.

KEY CONTACTS: Trustee (T); Entry/Owner/Access (E); Cultural (C); or Other Assistance (O)

Type	Name / Title	Organization	Phone
	Joy Albertson	US Fish & Wildlife Service, SF Bay (NWR)	(510) 792-0222
	Joseph Didonato Stewardship Manager	East Bay Regional Park District	(510) 544-2346
	EBRP Dispatch EBRP	East Bay Regional Park District	(510) 881-1833
	John Hitchen Pt. Pinole Park Sup.	East Bay Regional Park District	(510) 237-6896
	Mike Josselyn	NOAA, National Marine Fisheries Service	(415) 454-8868
	Niall F. McCarten, Ph.D.	Jones & Stokes Associates, Inc.	(916) 737-3000
	Mark Ragatz Shoreline Parks Manager	East Bay Regional Park District	(510) 715-7784

ADDITIONAL SITE SUMMARY COMMENTS:

Site Strategy - San Pablo Creek Marshes

2-502 -A

County and Thomas Guide Location	NOAA CHART	Latitude N	Longitude W
AAA Richmond Contra Costa	18649 Entrance SF 18654 San Pablo Bay	37 58.5	122 23.0

Last Page Update :

CONCERNS and ADVICE to RESPONDERS:

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

HAZARDS and RESTRICTIONS:

Very shallow water. Submerged obstructions likely.

SITE STRATEGIES

Strategy 2-502.1 **Objective: Exclusion booming of mouths of inlets to prevent oil from entering creek and marshes.**

ACP DATE 1/1/2000

Deploy at least one layer of harbor boom in the mouth of each inlet to the marsh. Place the boom at a 45 degree angle to the centerline of the inlet. Back the harbor boom with swamp boom or sorbent boom. Deploy harbor boom in an inverted "V" off the larger inlets, those wider than 10 feet. Use a length of boom at least three times the width of the inlet. Anchor the ends of the boom at the edge of the marsh vegetation at least one inlet width either side of the inlet mouth. Anchor the center of the boom off the inlet mouth.

Table of Response Resources

strategy number	harbor boom	swamp boom	Other boom type	sorb boom	Anchoring no	Anchoring type and gear	Boom boat	Skiffs punts	Skimmers No	Skimmers Type	Special Equipment No and kinds	staff deploy	Staff tend
2-502.1	2000	2000			80	80	4	4				16	

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

Access by shallow draft vessel only. Launch ramp at Chevron Refinery. Hoist available at Pt San Pablo Yacht harbor. The site is bounded on the south by the West Contra Costa Sanitary Landfill and on the north by a skeet range.

LAND ACCESS: None

WATER LOGISTICS: Shallow water with numerous obstructions.
Limitations: depth, obstruction

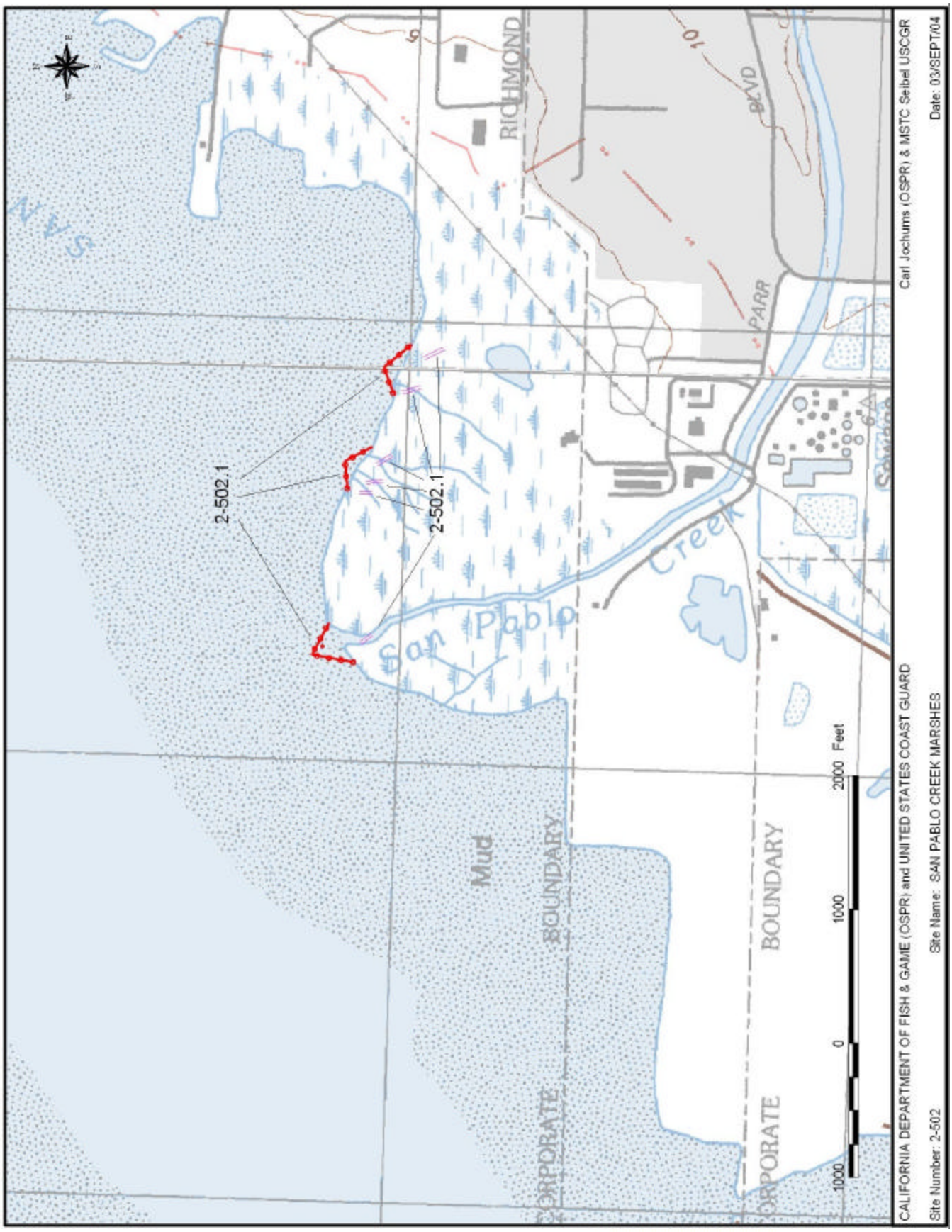
Launching, Loading, Docking and Services Available: Boat services available at Pt. San Pablo Yacht harbor, Richmond Marina, and Chevron Rod and Gun Club.

FACLITIES. STAGING AREAS. POSSIBLE FIELD POSTS AND EOUIPMENT AVAILABLE:

The Chevron Refinery offers the nearest quality facilities. The Pt. San Pablo Yacht Harbor may be suitable for staging or a field post.

COMMUNICATIONS PROBLEMS:

ADDITIONAL OPERATIONAL COMMENTS:



Harbor Boom
Swamp Boom
sss / sfs

Sorbent Boom
Other Boom
tsa / sps

Dike or Berm
Excellcior Fence
tba/voo

Site Summary- Pinole Pt. Marshes-South

2-503 -A

County:	Contra Costa	Thomas Guide Location	AAA Richmond	Latitude N	3 7 59	Longitude W	122 21.6
USGS Quad:	Mare Island	NOAA Chart:	San Pablo Bay 18654				

Last Page Update : 7/1/2005

SITE DESCRIPTION:

The site includes is bounded on the north by Point Pinole and continues south approximately 2 miles to the Richmond Rod and Gun Club skeet range. Approximately 50 acres of salt marshes run intermittently from one mile south of Pinole Pt. to a filled area approximately 2 miles south of Pinole Pt. Predominately contained within the Point Pinole Regional Shoreline. The south 1/2 mile of shoreline access is controlled by private owners (Richmond Rod and Gun Club, Bruener Property). Salt marshes front most of the two miles of shoreline from .3 mi. south of the San Pablo Creek mouth to .5 mi. south of Pinole point. This prograding marsh is up to .4 mi. wide and vulnerable to oiling along the entire length of the shoreline since there are no levees.

SEASONAL and SPECIAL RESOURCE CONCERN

This is an A priority all year.

RESOURCES OF PRIMARY CONCERN

This area has very prime and sensitive habitats. Tidal marshes are habitat for the marsh life including some endangered species; there are both cordgrass emergent marshes and higher pickleweed marshes on the southerly portions of the site. The shallow mud flats have a rich fauna and are important feeding areas to migratory waterfowl, resident wading birds, waterbirds and fish life. The relatively protected waters here make the bay a favored resting area for migratory birds and gulls.

Species which may occur in the marshes include: the endangered salt marsh harvest mouse, endangered California clapper rail, and California black rail. There is heavy bird use of this area. During the winter and spring, migratory birds rest and feed on the cove and tidal flats.

CULTURAL, HISTORIC, and ARCHEOLOGICAL SENSITIVITIES

There are historic sites on the uplands. Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area.

KEY CONTACTS: Trustee (T); Entry/Owner/Access (E); Cultural (C); or Other Assistance (O)

Type	Name / Title	Organization	Phone
	Peter Baye, Ph.D. Coastal Plant Ecologist		(415) 310-5109
	Joseph Didonato Stewardship Manager	East Bay Regional Park District	(510) 544-2346
	EBRP Dispatch EBRP	East Bay Regional Park District	(510) 881-1833
	John Hitchen Pt. Pinole Park Sup.	East Bay Regional Park District	(510) 237-6896
	Jan Knight	US Fish and Wildlife Service	(916) 978-4866
	Niall F. McCarten, Ph.D.	Jones & Stokes Associates, Inc.	(916) 737-3000
	Mark Ragatz Shoreline Parks Manager	East Bay Regional Park District	(510) 715-7784

ADDITIONAL SITE SUMMARY COMMENTS:

Site Strategy - Pinole Pt. Marshes-South

County and Thomas Guide Location	NOAA CHART	Latitude N	Longitude W
AAA Richmond Contra Costa	San Pablo Bay 18654	3 7 59	122 21.6

Last Page Update :

CONCERNS and ADVICE to RESPONDERS:

Should oil enter the marsh injury and death of vegetation and wildlife can be expected.

HAZARDS and RESTRICTIONS:

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

SITE STRATEGIES

Extreme shallows here require vessel approach from north (Pt Pinole) and follow channel near shore.

Strategy 2-503.1 **Objective: Exclusion booming to prevent oil from entering the marsh.** ACP DATE 7/1/1997

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

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

If high tides are anticipated, protection of the marsh front is needed. Deploy 5,400 feet of harbor boom (2 layers of swamp boom held by 3 to 6 feet apart may be subsituted) immediately east of the rows of piles offshore of Parchester Marsh. Backed with 6,000 feet of sorbent boom or oil snare.

Table of Response Resources

strategy number	harbor boom	swamp boom	Other boom type	sorb boom	Anchoring no	type and gear	Boom boat	Skiffs punts	Skimmers No	Type	Special Equipment No	and kinds	staff deploy	Staff tend
2-503.1		900		900	8	12+ lb Danforth anchors	1	1					5	
2-503.2	5400	0	0	6000	16	22+ lb Danforth anchors	2	1	0		0		8	

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

Approximately 50 acres of salt marshes run intermittently from one mile south of Pinole Pt. On the north to a filled area approximately 2 miles south of Pinole Pt. From I-80 in Richmond, exit at the Richmond Parkway. From the Richmond Parkway, turn right onto Giant Highway and proceed to the park entrance. Limted access can also be obtained through Goodrick Ave, off Richmond Parkway. The site includes is bounded on the north by Point Pinole and continues south approximately 2 miles to the Richmond Rod and Gun Club skeet range.

LAND ACCESS:

WATER LOGISTICS:

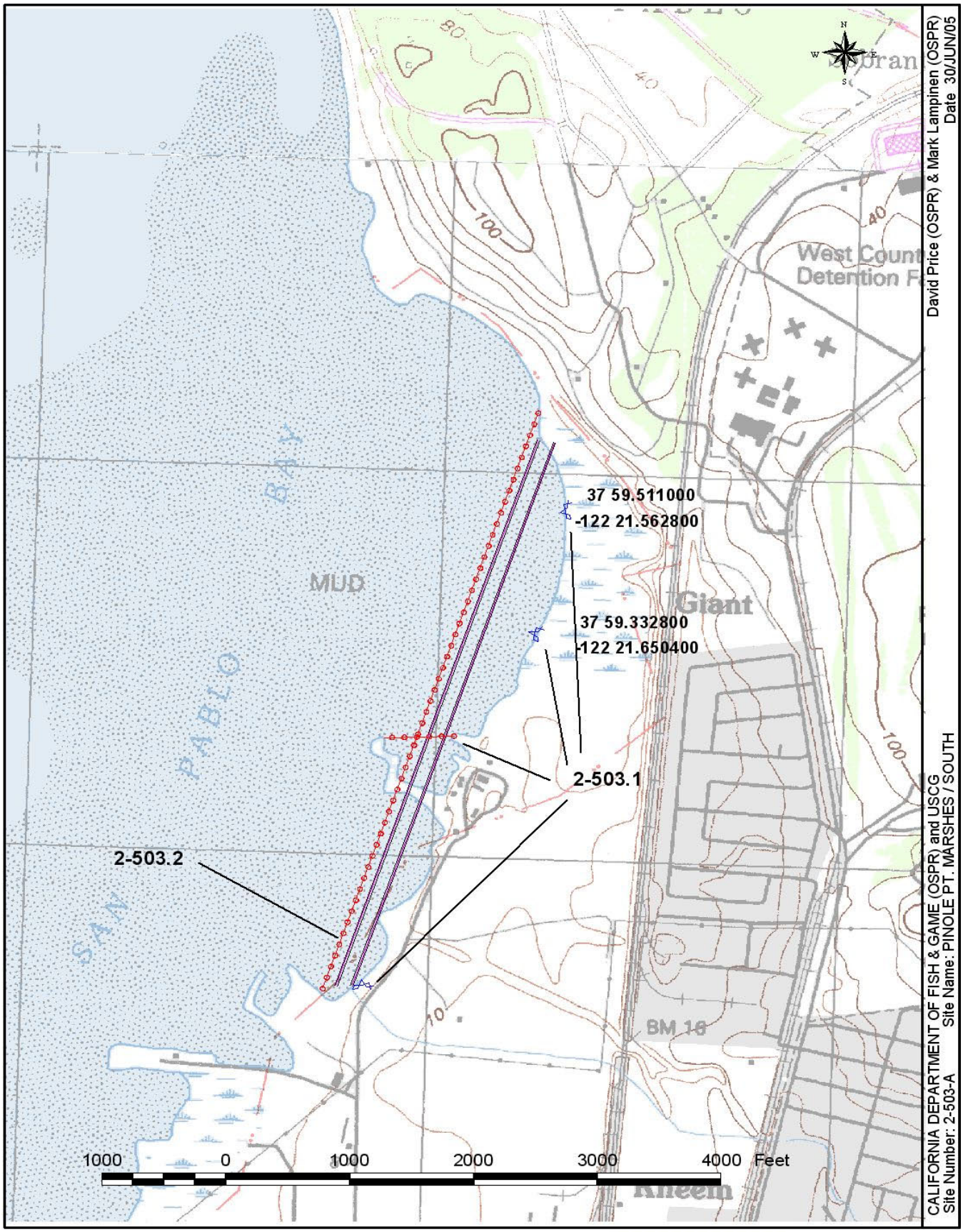
Limitations: depth, obstruction

Launching, Loading, Docking and Services Available:

FACLITIES. STAGING AREAS. POSSIBLE FIELD POSTS AND EOUIPMENT AVAILABLE:

COMMUNICATIONS PROBLEMS:

ADDITIONAL OPERATIONAL COMMENTS:



Harbor Boom
Swamp Boom
sss / sfs
Sorbent Boom
Other Boom
tsa / sps
Dike or Berm
Excellcior Fence
tba/voo

Site Summary- Pinole Pt. Marshes - North

2-504 -A

County:	Contra Coasta	Thomas Guide Location	AAA Richmond	Latitude N	3 8 05	Longitude W	122 21
USGS Quad:	Mare Island	NOAA Chart:	San Pablo Bay 18654				

Last Page Update : 7/1/2005

SITE DESCRIPTION:

The site occurs between Pinole and Wilson Point, covering a distance of approximately 2 miles. The Pinole Point marshes are part of East Bay Regional Parks. Approximately 100 acres of salt marshes run intermittently from Garrity Creek on the west to Pinole Pt. The shoreline is low, and the water offshore is very shallow. The bottom is fine sand and mud. There is an intermittent storm berm separating the beach from the marsh. The top of the storm berm is composed of medium to coarse sand and shell. It is very near the high tide level and broken by many tidal channels. The land behind the storm berm is below the high tide level and vegetated with a variety of high marsh plants.

SEASONAL and SPECIAL RESOURCE CONCERN

"A" priority year-round due to salt marsh and presence of special status species.

RESOURCES OF PRIMARY CONCERN

Extensive saltmarsh and mudflats are present throughout the site. Several threatened and endangered species utilize the marsh and surrounding areas.

The California clapper rail, black rail, soft bird's beak (all special status species), wading birds and raptors are present all year. In the spring (Mar - May) and fall (Oct - Nov) migratory shorebirds are abundant throughout the marshes and mudflats. In the winter (Sept - Mar) waterfowl are abundant over the mudflats and open bay waters.
A variety of surfperch, flatfish, sturgeon, striped bass, and salmon are present in the waters over the mudflats.

CULTURAL, HISTORIC, and ARCHEOLOGICAL SENSITIVITIES

There are historic sites on the uplands. Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area.

KEY CONTACTS: Trustee (T); Entry/Owner/Access (E); Cultural (C); or Other Assistance (O)

Type	Name / Title	Organization	Phone
	Peter Baye, Ph.D. Coastal Plant Ecologist		(415) 310-5109
	Baylands Nature Preserve Office	Baylands Nature Preserve	(650) 329-2506
	Joseph Didonato Stewardship Manager	East Bay Regional Park District	(510) 544-2346
	EBRP Dispatch EBRP	East Bay Regional Park District	(510) 881-1833
	Jan Knight	US Fish and Wildlife Service	(916) 978-4866
	Niall F. McCarten, Ph.D.	Jones & Stokes Associates, Inc.	(916) 737-3000
	Mark Ragatz Shoreline Parks Manager	East Bay Regional Park District	(510) 715-7784

ADDITIONAL SITE SUMMARY COMMENTS:

Site Strategy - Pinole Pt. Marshes - North

County and Thomas Guide Location	NOAA CHART	Latitude N	Longitude W
AAA Richmond Contra Coasta	San Pablo Bay 18654	3 8 05	122 21

Last Page Update :

CONCERNS and ADVICE to RESPONDERS:

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

HAZARDS and RESTRICTIONS:

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

SITE STRATEGIES

Strategy 2-504.1 **Objective: Exclude oil from the inner marshes of Whittell and Garrity Creek.** ACP DATE 7/1/1997

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

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

b) Exclude oil from Garrity Creek by placing three 100 foot sections of swamp boom at a 45 degree angle across the creek. Back with sorbents. Use 300 feet of oil snare on a rope or 100 feet of 4 high construction fence with oil snares fastened every 14 inches in 3 rows. If insufficient boom available, one inlet can be closed with 50 sand bags. There is adequate sand on the beach to fill the bags.

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

The natural berm separating the marshes from San Pablo Bay is topped by waves at only the highest spring tides. If such tides are expected, 5 layers of oil snare on a rope, or other sorbent appropriate to the type of oil spilled, should be placed along the top of the berm for its entire length. This will require approximately 25,000 feet of oil snare on a rope.

Table of Response Resources

strategy number	harbor boom	swamp boom	Other boom type	sorb boom	Anchoring no	Anchoring type and gear	Boom boat	Skiffs punts	Skimmers No	Skimmers Type	Special Equipment No	Special Equipment and kinds	staff deploy	Staff tend
2-504.1	2000	500			8	8-30 pound Danforth	1	1					14	
2-504.2	0	0	0	25000	50	3lb	1	3	0		0	very shallow water. Access from Shore		

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

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

LAND ACCESS:

WATER LOGISTICS:

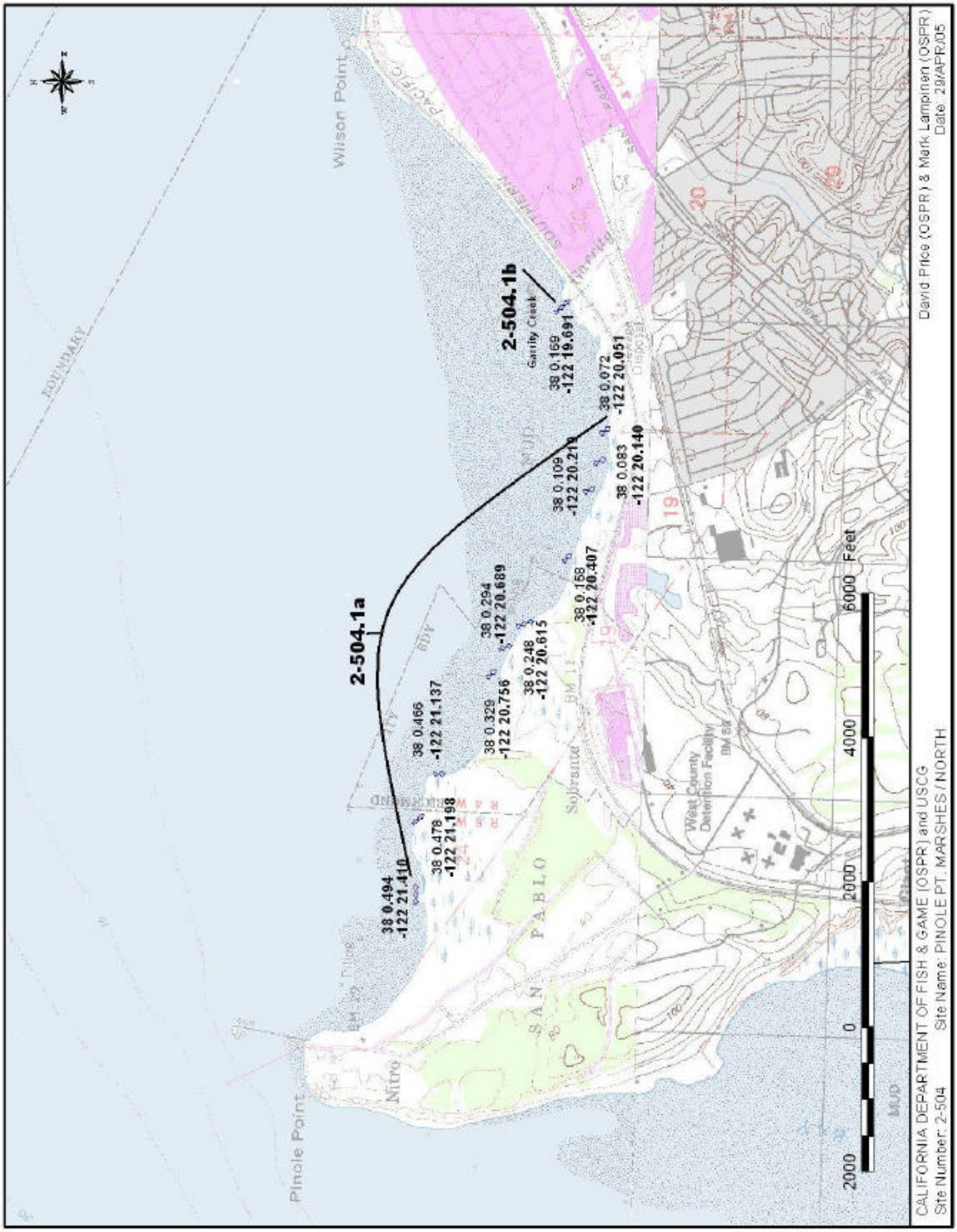
Limitations: depth, obstruction

Launching, Loading, Docking and Services Available:

FACLITIES. STAGING AREAS. POSSIBLE FIELD POSTS AND EOUIPMENT AVAILABLE:

COMMUNICATIONS PROBLEMS:

ADDITIONAL OPERATIONAL COMMENTS:



Harbor Boom
Swamp Boom
sss / sfs

Sorbent Boom
Other Boom
tsa / sps

Dike or Berm
Excellcior Fence
tba/voo

Site Summary- Pinole Creek and Wetlands

2-505 -A

County:	Contra Costa County	Thomas Guide Location	AAA Richmond	Latitude N	38 01.0	Longitude W	122 18.0
USGS Quad:	Mare Island	NOAA Chart:	18654 SAN PABLO BAY				

Last Page Update : 7/1/1996

SITE DESCRIPTION:

One-half mile in both directions along shore from Pinole Creek. Creek is a narrow channel (c.a. 25 ft.) with cordgrass marsh along its banks inland to the bridge. A sand/gravel bar extends from the east side creek mouth out into bay. Shorelines on either side of creek are mudflats backed by marshes.

SEASONAL and SPECIAL RESOURCE CONCERN

"A" priority year-round due to salt marsh and presence of special status species.

RESOURCES OF PRIMARY CONCERN

Special status species:
Birds: California black rail (FT/CT)
Cordgrass salt marsh, mudflat, eelgrass beds, and associated wildlife are vulnerable year-round.

Waterfowl, shorebirds, and gulls are present throughout the area.

Clam beds are present near the shore. Fish inhabit the creek.

CULTURAL, HISTORIC, and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison (916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880) for specific information on historic or cultural resources in this area.

KEY CONTACTS: Trustee (T); Entry/Owner/Access (E); Cultural (C); or Other Assistance (O)

Type	Name / Title	Organization	Phone
	Baylands Nature Preserve Office	Baylands Nature Preserve	(650) 329-2506
	Joseph Didonato Stewardship Manager	East Bay Regional Park District	(510) 544-2346
	EBRP Dispatch EBRP	East Bay Regional Park District	(510) 881-1833
	John Hitchen Pt. Pinole Park Sup.	East Bay Regional Park District	(510) 237-6896
	Mark Ragatz Shoreline Parks Manager	East Bay Regional Park District	(510) 715-7784

ADDITIONAL SITE SUMMARY COMMENTS:

2-505 -A Site Strategy - Pinole Creek and Wetlands

2-505 -A

County and Thomas Guide Location	NOAA CHART	Latitude N	Longitude W
AAA Richmond Contra Costa County	18654 SAN PABLO BAY	38 01.0	122 18.0

Last Page Update :

CONCERNS and ADVICE to RESPONDERS:

Impacts to saltmarsh, mudflat, and eelgrass beds, and their associated wildlife.

HAZARDS and RESTRICTIONS:

Railroad tracks across creek.

SITE STRATEGIES

Strategy 2-505.1 **Objective: Exclude oil from entering the creek.** ACP DATE 7/1/1996

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

Strategy 2-505.2 **Objective: Protective booming to prevent oil from coming in contact with the bayfront marsh vegetation.** ACP DATE 7/1/1996

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

Table of Response Resources

strategy number	harbor boom	swamp boom	Other boom type	sorb boom	Anchoring no	Anchoring type and gear	Boom boat	Skiffs punts	Skimmers No	Skimmers Type	Special Equipment No	Special Equipment and kinds	staff deploy	Staff tend
2-505.1	0	200			2	2-20#	1	1					4	
2-505.2	0	3500		3500	8	8/22/danforths & stakes	2	3					13	8

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

Key access is from I-80 to City of Pinole. Exit Pinole Valley Road. Proceed north across San Pablo Ave. where Pinole Valley Rd. turns into Tennent. Proceed north to Waste Water treatment plant at shoreline. Parking and gate to levee road is here. One-half mile in both directions along shore from Pinole Creek.

LAND ACCESS: 2WD, LG TRUCK, HVY EQ, 4WD, AT

WATER LOGISTICS: VERY SHALLOW WATER

Limitations: depth, obstruction

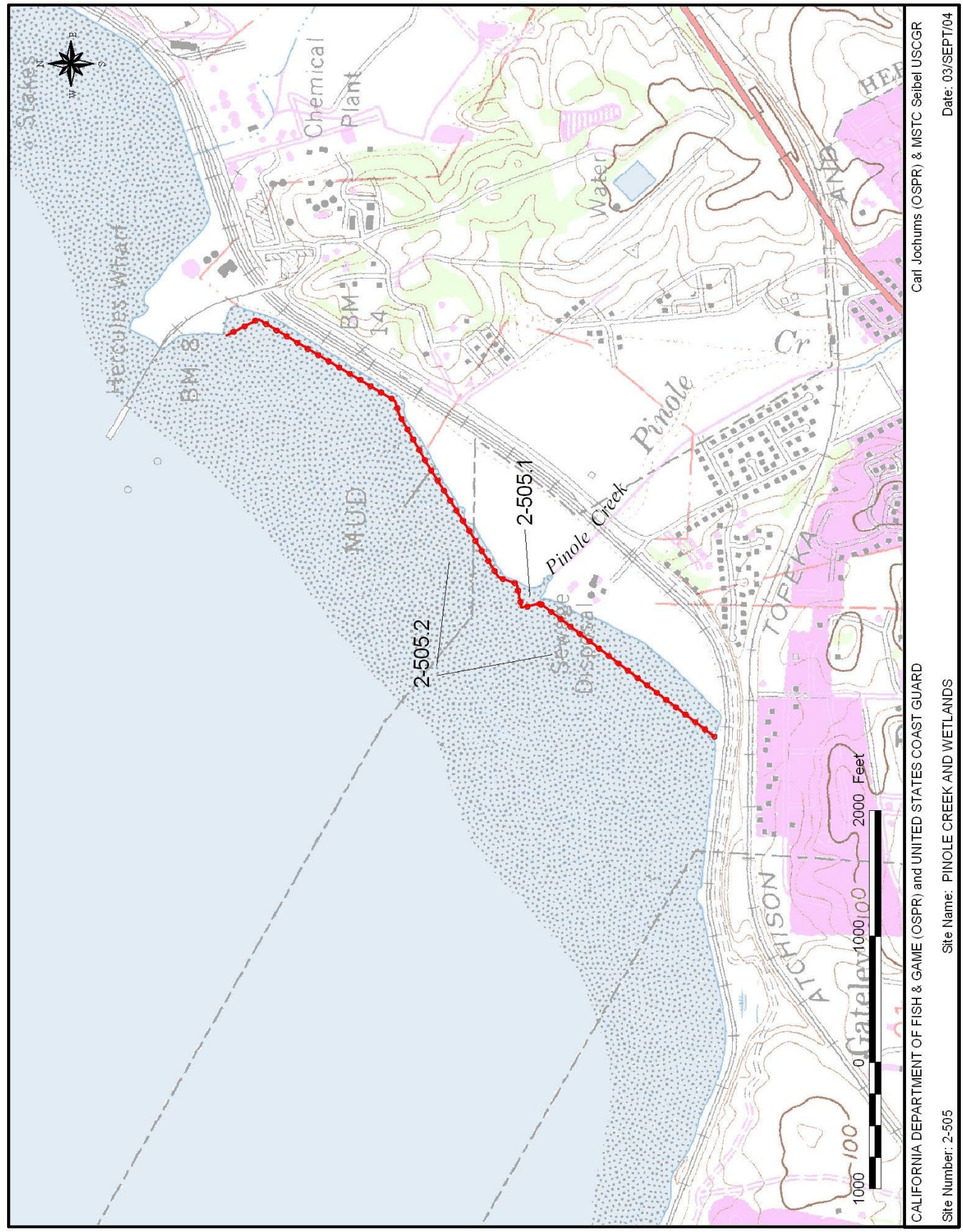
Launching, Loading, Docking and Services Available: Punts can be launched at Pinole Creek.

FACLITIES. STAGING AREAS. POSSIBLE FIELD POSTS AND EOUIPMENT AVAILABLE:

Stage from area around waste water treatment plant.

COMMUNICATIONS PROBLEMS:

ADDITIONAL OPERATIONAL COMMENTS:


Chemical Plant
Water
Hercules Wharf
BM 14
BM 00
MUD
Pinole Cr
Pinole Creek
2-505.1
2-505.2
Sewage Disposal
TOPEKA
ATCHISON
Gateley
0 1000 2000 Feet
Carl Jochums (OSPR) & MSTC Seibel USCGR
Date: 03/SEPT/04
CALIFORNIA DEPARTMENT OF FISH & GAME (OSPR) and UNITED STATES COAST GUARD
Site Name: PINOLE CREEK AND WETLANDS
Site Number: 2-505
Harbor / Curtain Boom
Swamp / River Boom
all other boom types
Sorbent boom
Berm, Dam, or Dike
Filter fence
Boom tow
SSS - Shoreside Skimming System
SFS - Stationary Floating Skimmer
SPS - Self Propelled Skimmer
TSA - Towed Skimming Array

2-506 -C/A Site Summary- San Pablo Bay Eelgrass Bed

County:	Contra Costa	Thomas Guide Location	AAA West Contra	Latitude N	3 7 59	Longitude W	122 25
USGS Quad:	San Quentin	NOAA Chart:	18654 San Pablo Bay				

Last Page Update : 1/1/2000

SITE DESCRIPTION:

This large eelgrass bed is located between Point San Pablo and Point Pinole one mile northwest of the West Contra Costa Sanitary Land Fill. This eelgrass bed, like all eelgrass beds can vary in distribution, density, and height from year to year. Because the most of the bed is deeper than 8 feet (MLLW), it is rarely exposed to oil, only when tides are so low that the eelgrass tops are exposed on the surface (hence the sliding sensitivity). This is a shallow subtidal soft bottom area of the bay. The eelgrass bed occupies approximately 300 acres. It is easily visible from the air at low tide. It may be difficult to find at high tide.

SEASONAL and SPECIAL RESOURCE CONCERN

This eelgrass bed has A-level protection priority when exposed.

RESOURCES OF PRIMARY CONCERN

The eelgrass itself becomes vulnerable to oil at tide levels below +2 ft and its vulnerability increases as the tide drops. The eelgrass bed is densest and will therefore collect the most oil during late summer and early fall.

Black brant (geese) depend upon the eelgrass for food during the winter.

A wide variety of fish reside and feed in the eelgrass bed

CULTURAL, HISTORIC, and ARCHEOLOGICAL SENSITIVITIES

This is unlikely to include any cultural or historic resources.

KEY CONTACTS: Trustee (T); Entry/Owner/Access (E); Cultural (C); or Other Assistance (O)

Type	Name / Title	Organization	Phone
B	Chuck Armor	CA Dept. of Fish & Game, Bay/Delta	(209) 944-7800
	Chevron Control Room	Chevron-Operations Control Room (24hrs.)	(510) 242-4494
	Mike Josselyn	National Marine Fisheries Service, Tiburon	(415) 454-8868

ADDITIONAL SITE SUMMARY COMMENTS:

2-506 -C/A Site Strategy - San Pablo Bay Eelgrass Bed

County and Thomas Guide Location	NOAA CHART	Latitude N	Longitude W
AAA West Contra Contra Costa	18654 San Pablo Bay	3 7 59	122 25

Last Page Update :

CONCERNS and ADVICE to RESPONDERS:

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

SITE STRATEGIES

Strategy 2-506.1 **Objective: Assess need for protective booming: Eelgrass is only vulnerable at very low tides when eelgrass tops are exposed to floating oil.** ACP DATE 7/1/1997

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

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

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

Table of Response Resources

strategy number	harbor boom	swamp boom	Other boom type	sorb boom	Anchoring no	Anchoring type and gear	Boom boat	Skiffs punts	Skimmers No	Skimmers Type	Special Equipment No	Special Equipment and kinds	staff deploy	Staff tend
2-506.1													1	
2-506.2	2000	0	0	0	6	#22lbdanforth	3	0	0		0		4	

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)
Access by water only. Launch ramp at Richmond Marina or Chevron Refinery. This large eelgrass bed is located between Point San Pablo and Point Pinole one mile northwest of the West Contra Costa Sanitary Land Fill. This eelgrass bed, like all eelgrass beds can vary in distribution, density, and height from year to year. Because the most of the bed is deeper than 8 feet (MLLW), it is rarely exposed to oil, only when tides are so low that the eelgrass tops are exposed on the surface (hence the sliding sensitivity).

LAND ACCESS: Boat access only

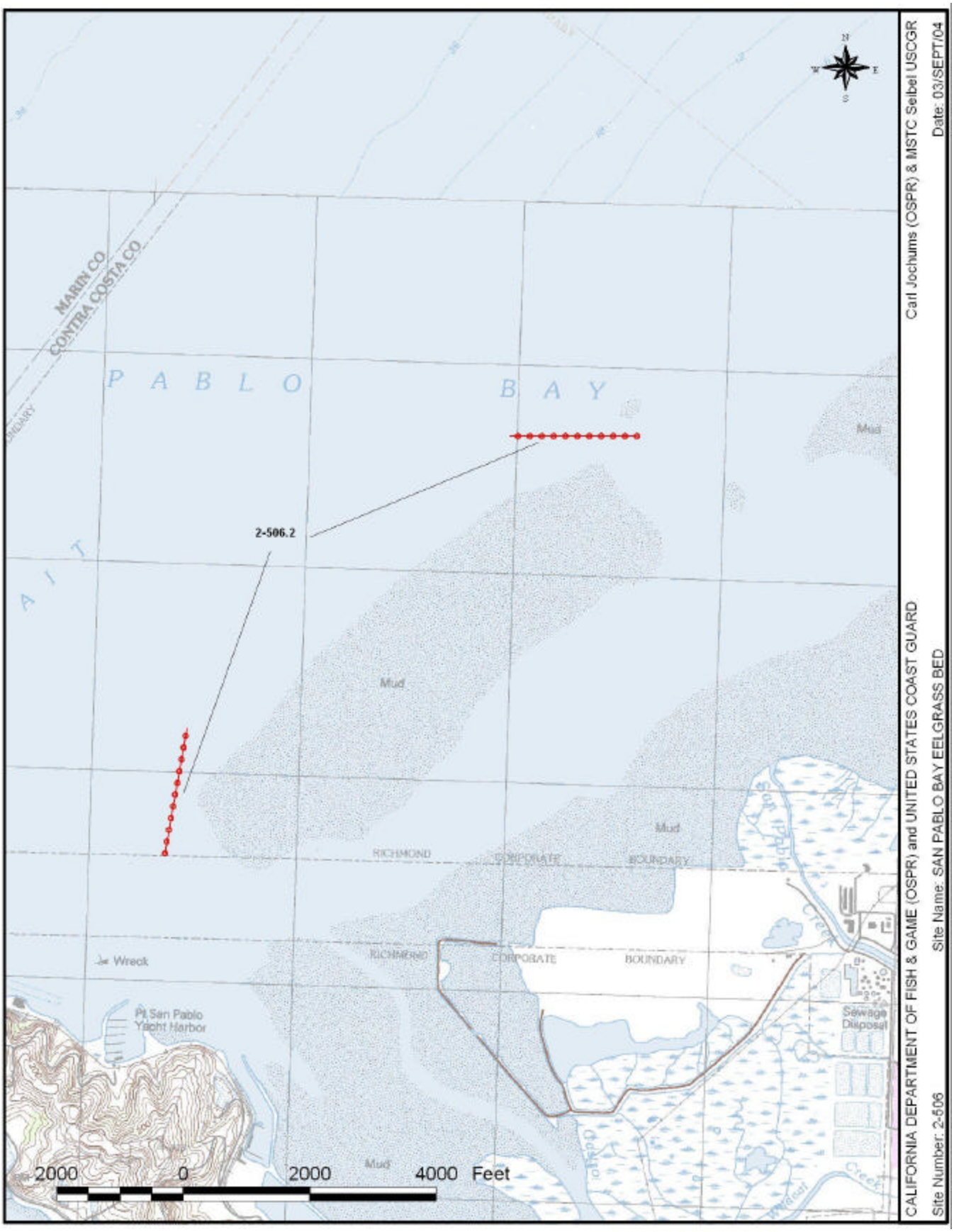
WATER LOGISTICS: shallow draft vessels only
Limitations: depth, obstruction

Launching, Loading, Docking and Services Available: Richmond Marina, Pt San Pablo Yacht harbor, and Chevron Refinery

FACLITIES. STAGING AREAS. POSSIBLE FIELD POSTS AND EOUIPMENT AVAILABLE:
Richmond Harbor and Chevron Refinery

COMMUNICATIONS PROBLEMS:

ADDITIONAL OPERATIONAL COMMENTS:



Harbor Boom
Swamp Boom
sss / sfs
Sorbent Boom
Other Boom
tsa / sps
Dike or Berm
Excellcior Fence
tba/voo

Site Summary- China Camp Marsh

2-552 -A

County:	Marin	Thomas Guide Location	Marin County, S	Latitude N	3 8 00	Longitude W	122 28
USGS Quad:	San Quentin, Petaluma Pt	NOAA Chart:	18654 San Pablo Bay				

Last Page Update : 1/1/2000

SITE DESCRIPTION:

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

SEASONAL and SPECIAL RESOURCE CONCERN

The marshes and listed species are an A priority all year. Spring and winter months are exceptionally vulnerable times for migratory species of birds.

RESOURCES OF PRIMARY CONCERN

Extensive saltmarsh and mudflats are present throughout the site. Several threatened and endangered species utilize the marsh and surrounding areas.

The California clapper rail, black rail, and San Pablo song sparrow (all special status species), wading birds and raptors are present all year. In the spring (Mar - May) and fall (Oct - Nov) migratory shorebirds are abundant throughout the marshes and mudflats. In the winter (Sept - Mar) waterfowl are abundant over the mudflats and open bay waters.

The endangered salt marsh harvest mouse is present in the marsh all year.

A variety of surfperch, flatfish, sturgeon, striped bass, and salmon are present in the waters over the mudflats.

A variety of shrimp, worms and other invertebrates are present on the mudflats.

CULTURAL, HISTORIC, and ARCHEOLOGICAL SENSITIVITIES

There are cultural and historic resources present. Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area.

KEY CONTACTS: Trustee (T); Entry/Owner/Access (E); Cultural (C); or Other Assistance (O)

Type	Name / Title	Organization	Phone
	State Water Project Ops C	CA Dept. of Water Resources St Water Proj	(916) 574-2714
	Sarah Allen	Pt. Reyes National Seashore	(415) 464-5187
	DPR Dispatch	Golden Gate National Recreation Area	(415) 561-4620
	Lawson's Landing Store &	Lawson's Landing Store & Campground	(707) 878-2443
	Thomas O. Moore	CA Dept. of Fish & Game	(707) 875-4261
	Pt. Reyes NP Dispatch PRNS	Pt. Reyes National Seashore (Ranger)	(415) 464-5170
	Barbra Salzman	Audubon Society - Marin Co Chapter	(415) 924-6057

ADDITIONAL SITE SUMMARY COMMENTS:

Site Strategy - China Camp Marsh

2-552 -A

County and Thomas Guide Location	NOAA CHART	Latitude N	Longitude W
Marin County, S Marin	18654 San Pablo Bay	3 8 00	122 28

Last Page Update :

CONCERNS and ADVICE to RESPONDERS:

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

HAZARDS and RESTRICTIONS:

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

SITE STRATEGIES

Strategy 2-552.1 **Objective: On-water recovery of oil to prevent oil from entering marshes, tidal channels and mudflats.** ACP DATE 1/1/2000

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

Strategy 2-552.2 **Objective: Deflect oil away from shoreline into main channel. Prevent oil from entering marshes and tidal channels.** ACP DATE 1/1/2000

Deploy deflection harbor boom (18-20 in.) from mainland shore near Rat Rock and at Buckeye Point (at pier pilings). Deploy in 200-500 ft. sections. 500 ft. at each site.

Strategy 2-552.3 **Objective: Exclude oil from entering marshes and tidal channels from Gallinas Creek to Rat Rock.** ACP DATE 1/1/2000

Exclusion booming of inlets in largest (west) marsh if limited by equipment/time. At least six major tidal channels are present in the largest marsh. Deploy a combination of "V" shape swamp booms across channel openings (50 ft. each) and utilize contractor type fence booms with sorbents and/or oil snares in the channels. Deploy remaining boom segments along marsh fronts - 1000 ft; 1000 ft; and 400ft from Buckeye Point to Rat Rock.

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

Deploy curtain boom (8 in. swamp) along marsh fronts to exclude oil. Deploy at high tide over mudflats as close to marsh front as possible. From west to east, the marshes at this site require 8000 ft.; 1000 ft.; 1000 ft.; and 400 ft. of exclusion boom.

Table of Response Resources

strategy number	harbor boom	swamp boom	Other boom type	sorb boom	Anchoring no	Anchoring type and gear	Boom boat	Skiffs punts	Skimmers No	Skimmers Type	Special Equipment No	Special Equipment and kinds	staff deploy	Staff tend
2-552.1	0						2	0	2	self-prop			9	
2-552.2	1000				8	6-8. 25 lb. Danforth	3	0	0				13	
2-552.3	0	2700			12	15+lb. Danforth	2	1	0			fence boom materials. oil snare. stakes	10	6
2-552.4	0	10400	0		65	15+ lb. Danforth	5	2	0		0	shallow draft boats	23	

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

From Hwy 101 in San Rafael, Marin County; take the San Pedro Road exit. Proceed east on San Pedro Road to China Camp State Park. Site includes the marshes and mudflats of China Camp State Park. Approximate boundaries are Rat Rock/Five Pines Point on the east to Gallinas Creek on the west (approximately the power line tower).

LAND ACCESS: large truck okay

WATER LOGISTICS: Very shallow water (<3 ft.)
Limitations: depth, obstruction

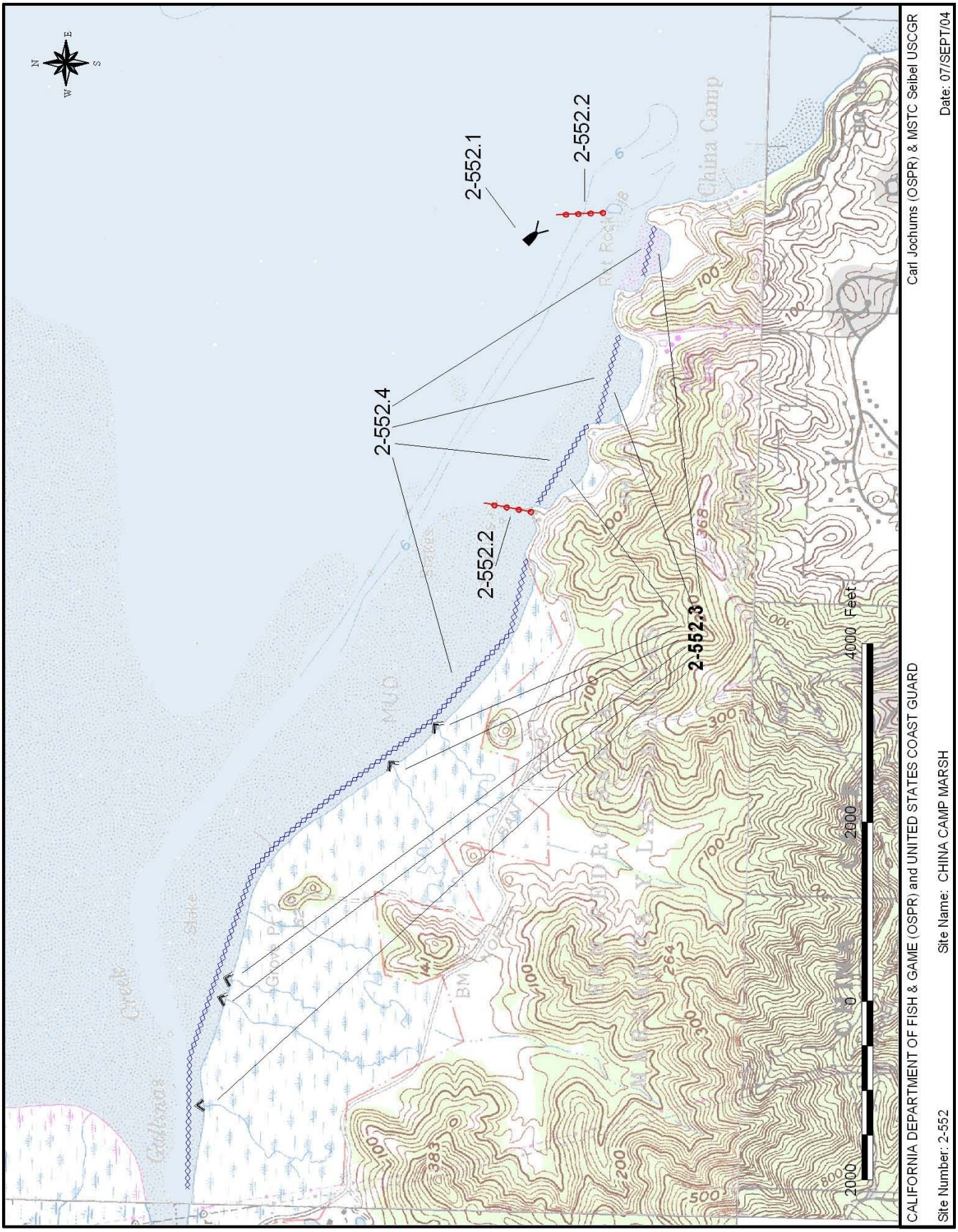
Launching, Loading, Docking and Services Available: Small boat launch at Buck's Landing. Water access also near Rat Rock (Bullshead flat).

FACLITIES. STAGING AREAS. POSSIBLE FIELD POSTS AND EOUIPMENT AVAILABLE:

Small restaurant/store at Buck's Landing. Staging at Buck's Landing, Bullhead Flat and McNear's Beach.
No spill response equipment stored locally.

COMMUNICATIONS PROBLEMS:

ADDITIONAL OPERATIONAL COMMENTS:



Harbor Boom
Swamp Boom
sss / sfs
Sorbent Boom
Other Boom
tsa / sps
Dike or Berm
Excellcior Fence
tba/voo

2-553 -A Site Summary- Gallinas Creek Marshes 2-553 -A

County:	Marin	Thomas Guide Location	Marin City, San	Latitude N	3 8 01	Longitude W	122 30
USGS Quad:	San Quentin, Petaluma Pt	NOAA Chart:	18654 San Pablo Bay				

Last Page Update : 1/1/2000

SITE DESCRIPTION:

Site contains Gallinas Creek marshes and the bayfront marshes from the creek north to old Hamilton Field. Boundaries include the south shore of Gallinas Creek as the south boundary, to the levee and tower at the south end of Hamilton air field as the north boundary. Extensive cordgrass and pickleweed saltmarsh are present on both sides of Gallinas Creek and on the San Pablo Bay marshfront from the creek to Hamilton Field. Mudflats extend out into San Pablo Bay from the marshes. At least seven major interior tidal channels in the marsh open to San Pablo Bay.

SEASONAL and SPECIAL RESOURCE CONCERN

The marshes and animals that live in and around them are an "A" priority all year.

RESOURCES OF PRIMARY CONCERN

These wetlands are home to several threatened and endangered species including: black rail, San Pablo song sparrow, burrowing owls, the saltmarsh harvest mouse, and the Pt. Reyes bird's beak (a plant). These marshes are a major north bay habitat for the endangered California clapper rail. The adjacent mudflats are heavily used by overwintering shorebirds, wading birds, and waterfowl as well as during spring and fall migration.

The clapper rail, black rail, San Pablo song sparrow, burrowing owls and wading birds are present all year. In the spring (Mar - May) and fall (Oct - Nov) thousands of migratory shorebirds are present throughout the marshes and mudflats. In the winter (Sept - Mar) waterfowl are abundant over the mudflat and open bay waters.

The saltmarsh harvest mouse (endangered) in present in the marsh all year.

A variety of surfperch, flatfish, sturgeon, striped bass and salmon are present in the waters over the mudflats.

A variety of shrimp, worms and other invertebrates are present on the mudflats.

The Point Reyes bird's beak (a Species of Special Concern) is an annual plant present in the upper marsh elevations during the spring and summer months.

CULTURAL, HISTORIC, and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area.

KEY CONTACTS: Trustee (T); Entry/Owner/Access (E); Cultural (C); or Other Assistance (O)

Type	Name / Title	Organization	Phone
	Janet Bossert Ranger	Marin County Parks & Open Space - McInnas Park	(415) 446-4423
	Chief Ranger	Marin County Parks and Open Space	(415) 499-6405
	Barbra Salzman	Audubon Society - Marin Co Chapter	(415) 924-6057
	Jean Slackweather		
	Bob Stewart		(415) 498-6405

ADDITIONAL SITE SUMMARY COMMENTS:

Site Strategy - Gallinas Creek Marshes

County and Thomas Guide Location	NOAA CHART	Latitude N	Longitude W
Marin City, San Marin	18654 San Pablo Bay	3 8 01	122 30

Last Page Update :

CONCERNS and ADVICE to RESPONDERS:

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

HAZARDS and RESTRICTIONS:

Shallow water and mudflats are extensive. Power lines over creek and parallel to mudflat will be a hazard to low flying aircraft.

SITE STRATEGIES

Strategy 2-553.1 **Objective: Deflect/collect oil to prevent from entering Gallinas Creek and interior marsh channels along bayfront.** ACP DATE 1/1/2000

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

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

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

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

Strategy 2-553.2 **Objective: Exclude oil from entering marsh channels and/or marshfront north of Gallinas Creek.** ACP DATE 1/1/2000

At least seven major interior tidal channels exist in the marsh north of Gallinas Creek. Use exclusion booming techniques to prevent oil entry. Deploy a combination of "V" shaped swamp booms across each channel opening (50 ft. each) and utilize contractor type fence booms with sorbent booms and oil snare in the channel.

Strategy 2-553.3 **Objective: Prevent oil from entering Gallinas Creek.** ACP DATE 1/1/2000

This is a fall-back strategy to strategy 2-553.1. 1) Further inside Gallinas Creek, deploy 1000 ft. of curtain boom (harbor or swamp) across the channel from the north side levee to the south shore.

2) Deflect oil to an in-channel floating skimmer; or, to a suitable shoreside collection area near the homes using a skimmer and vac truck.

Table of Response Resources

strategy number	harbor boom	swamp boom	Other boom type	sorb boom	Anchoring no	Anchoring type and gear	Boom boat	Skiffs punts	Skimmers No	Skimmers Type	Special Equipment No and kinds	staff deploy	Staff tend
2-553.1	1500				6	6x25 lb. Danforths	1	0	1	VT/weir	stakes to anchor boom in marsh	7	
2-553.2	0	350		400		stakes	1	0	0		stakes, contractor fence, oil snare	7	
2-553.3	1000				6	6x 20 lb.			1	VT or flo	Storage cap. Necessary	7	

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

From Hwy 101 in San Rafael, Marin County, take the San Pedro Road exit east towards China Camp State Park. Turn left at road to Buck's Landing and launch ramp for access to Gallinas Creek. There is no road access to the shore north of Gallinas Creek. Site contains Gallinas Creek marshes and the bayfront marshes from the creek north to old Hamilton Field. Boundaries include the south shore of Gallinas Creek as the south boundary, to the levee and tower at the south end of Hamilton air field as the north boundary.

LAND ACCESS: Large truck okay on south side, no land access on north side

WATER LOGISTICS: shallow draft vessels only
Limitations: depth, obstruction

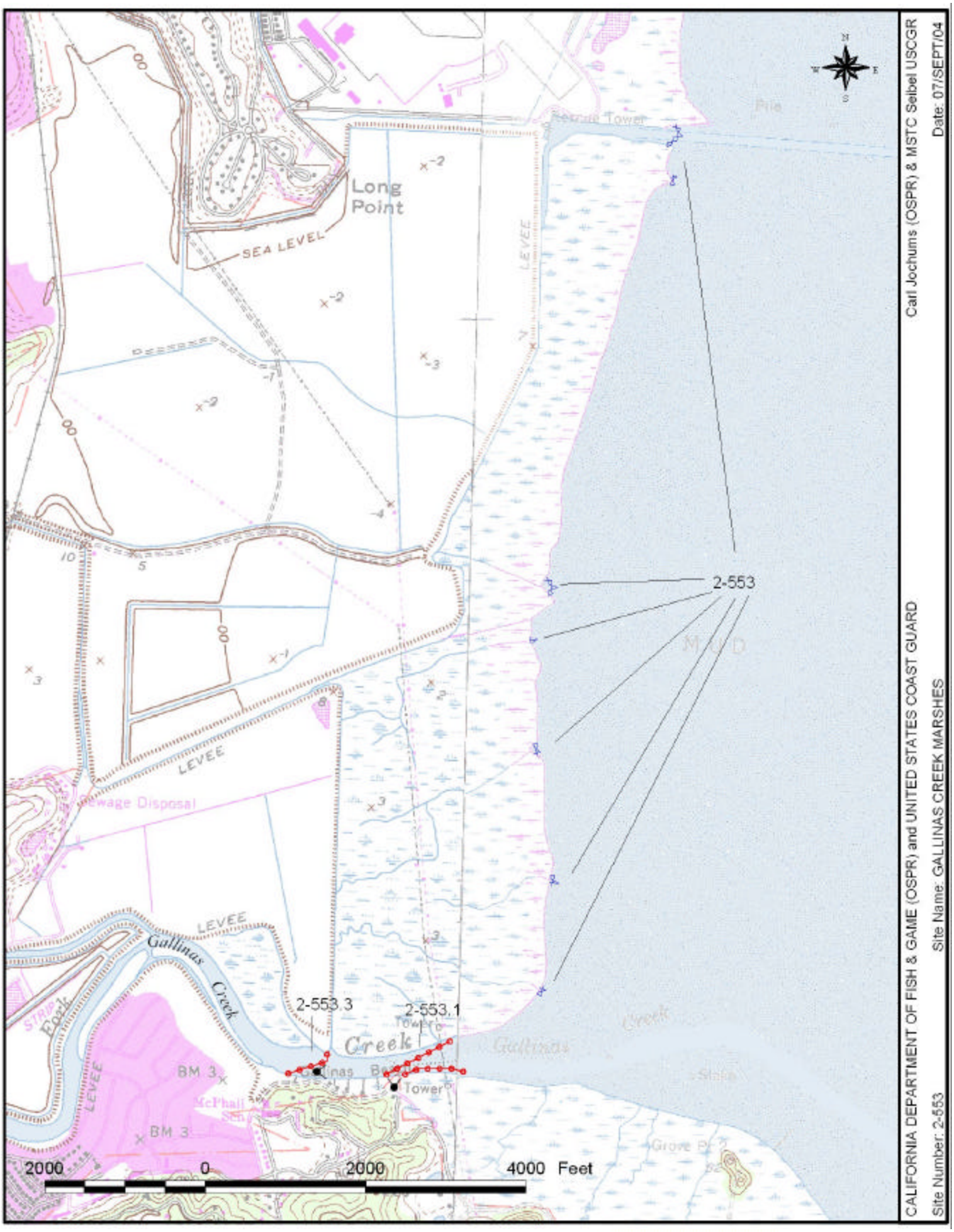
Launching, Loading, Docking and Services Available: Small boat launch at Buck's Landing. Additional water access at China Camp, Bullhead Flat. And at McNear's Beach.

FACLITIES, STAGING AREAS, POSSIBLE FIELD POSTS AND EQUIPMENT AVAILABLE:

Staging and small restaurant/store at Buck's Landing.
No spill response equipment stored locally.

COMMUNICATIONS PROBLEMS:

ADDITIONAL OPERATIONAL COMMENTS:



Harbor Boom
Swamp Boom
sss / sfs
Sorbent Boom
Other Boom
tsa / sps
Dike or Berm
Excellcior Fence
tba/voo

Site Summary- Novato Creek Marshes

2-554 -A

		Thomas Guide Location	Latitude N	Longitude W
County:	Marin		3 8 06	122 29
USGS Quad:	Petaluma Point	NOAA Chart: 18654 San Pablo Bay		

Last Page Update : 1/1/2000

SITE DESCRIPTION:

Site includes the San Pablo Bay frontage from mouth of Petaluma River (high power wires) extending 2.3 miles southerly to the levee at Hamilton Air Base and includes a mile of Novato Creek to the Bel Mar Keys locks and adjacent marshes. The bay frontage marshes between Petaluma River and Hamilton Air Base are prograding and shallow very gradually, supporting 100 to 200 meter wide variety of biota from tidal flat to high marsh: unvegetated to cordgrass to pickleweed dominated. Novato Creek is an incised channel through a wide flood plain of pickleweed marsh. In addition, there is much larger high pickleweed marsh both north and south of Novato Creek; the Northerly side is a tidal tributary to Novato Creek, while the marshes to the South are predominantly tributary directly to San Pablo Bay with several mosquito abatement outlets. The high marsh is inundated only very occasionally with extreme high tides of winter and mid summer.

SEASONAL and SPECIAL RESOURCE CONCERN

This is an A-priority site all year due to the extensive marshes. Several Special Status Species occur here including one endangered and one threatened species. These marshes and the adjacent tidal flats are heavily used my migratory shorebirds and waterfowl from September through April.

RESOURCES OF PRIMARY CONCERN

This site has both prograding marsh fronting the bay and extensive high pickleweed marsh. The bay frontage is wide continuum of biota from tidal flat to high marsh: unvegetated to chord grass to pickleweed dominated. The extensive high pickleweed marshes to the north and south of Novato Creek have tidal channels. Those to the north have numerous channels to Novato Creek. Those south of Novato Creek drain primarily though three mosquito abatement channels which have free tidal exchange directly with San Pablo Bay. There is about 2.5 miles of bay frontage with an additional 3 miles of exposure along the banks of Novato Creek.

This is excellent rearing and wintering habitat for marsh bird life including waterfowl and marsh birds. Special Status Species found here include the endangered California clapper rail and the threatened black rail. Also present is the San Pablo song sparrow.

In addition to the normal diversity of marsh mammals found in this habitat, the endangered saltmarsh harvest mouse is found here.

The soft tidal flats have rich infauna and are part of the dungeness nursery area.

The Marin knotweed, an endangered plant, may also occur in these marshes.

CULTURAL, HISTORIC, and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area.

KEY CONTACTS: Trustee (T); Entry/Owner/Access (E); Cultural (C); or Other Assistance (O)

Type	Name / Title	Organization	Phone
	Peter Baye, Ph.D. Coastal Plant Ecologist		(415) 310-5109
	Chief Ranger	Marin, County of, Open Space District	(415) 499-6405
	Mike Josselyn	NOAA, National Marine Fisheries Service	(415) 454-8868
	Barbra Salzman	Audubon Society, Marin County Chapter	(415) 924-6057
	John Takekawa	US Geological Survey, SF Bay Estuary Field Station	(707) 562-2000

ADDITIONAL SITE SUMMARY COMMENTS:

Site Strategy - Novato Creek Marshes

2-554 -A

County and Thomas Guide Location	NOAA CHART	Latitude N	Longitude W
Marin	18654 San Pablo Bay	3 8 06	122 29

Last Page Update : 5/13/2008

CONCERNS and ADVICE to RESPONDERS:

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

HAZARDS and RESTRICTIONS:

Aircraft should beware of high power wires in this area. This area is very shallow except in Novato Creek Channel.

SITE STRATEGIES

Strategy 2-554.1 Objective: Exclusion booming of Novato Creek and the three major and any minor tidal channels south of Novato Creek to prevent oil from penetrating to interior marshes (and upstream tidal channels)

Exclude oil at Novato Creek mouth by deploying 300' of Hboom diagonally across the mouth direct oil to accumulate in a pocket (lined with boom) at the northern shore (if opportunity permits, a cleared or excavated pocket may be prepared to enhance capture and collection for possible skimming). Run boom high onto marsh margin. This deployment requires a midchannel anchorage.
Also, boom each of the eight (3 major, 5 minor) small inlets in Novoto Creek by staking short lengths of swamp boom to exclude. Exclude oil from entering tidal channels south of Novato Creek with chevron booming of inlets with 100' of boom each. Back with sorbent boom. Repeat deployment if severe oiling or wave action threaten to defeat the strategy.

Strategy 2-554.2 Objective: Deflection when oil is approaching from South or East of Novato Creek, deflect past Novato Creek mouth toward Petaluma River.

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

Strategy 2-554.3 Objective: Skimming in channel if heavy oil is threatening to overwhelm the exclusion strategy (.1) for Novato Creek mouth, deploy a vessel skimmer as a backup to the deflection strategy to capture oil.

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

Strategy 2-554.4 Objective: Protective booming of the marshy shoreline north of Novato Creek to Petaluma River. Consider that this deployment will require intensive resources and time in the short navigable intervals.

Protection booming of marshfront north of Novato Creek. Deploy a 1500' layer of harbor or swamp boom along the marshy bay frontage from southerly Petaluma River mouth to Novato Creek. Deploy during periods of higher tides to permit approach near shore using shallow draft boomboats capable of stranding without damage. Set boom close to vegetation, as may be possible. Anchor at 1000' intervals and stake as necessary to secure. Under severe oil threat, two layers and a sorbent backup may be required. Two layers of swamp boom set about 10 feet apart would be equivalent to harbor boom.

Strategy 2-554.5 Objective: Protective booming of the marshy shoreline south of Novato Creek

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

Table of Response Resources

strategy number	harbor boom	swamp boom	Other boom type	sorb boom	Anchoring no	Anchoring type and gear	Boom boat	Skiffs punts	Skimmers No	Skimmers Type	Special Equipment No	Special Equipment and kinds	staff deploy	Staff tend
2-554.1	600	200		400	6	6/22+/danforth	1	1				shallow bboat capable of grounding, stak	5	
2-554.2	3000				9	9/22+/danforth with chain	2	1					7	
2-554.3	0	300			2	2/15+/danforth				vessel sk		stakes	3	
2-554.4	1500			0	150	15/15+/anchors	6	2				very shallow/groundable bboats, 3 stakes	23	
2-554.5	13000			0	14	14/15+/anchors	6	2				very shallow/groundable bboats, 30 stake	23	

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

There is no vehicle access to this site. The nearest vehicle accesses are at Petaluma River (at Hwy 37) and at Bel Mar

Keys (exit Hwy 101 at Ignacio Blvd south of Novato and proceed bay-ward). Via water, proceed bay-ward from Petaluma River and then to the south: a line of channel markers lead from the river channel to the Novato creek channel. Site includes the San Pablo Bay frontage from mouth of Petaluma River (high power wires) extending 2.3 miles southerly to the levee at Hamilton Air Base and includes a mile of Novato Creek to the Bel Mar Keys locks and adjacent marshes.

LAND ACCESS: None except on foot.

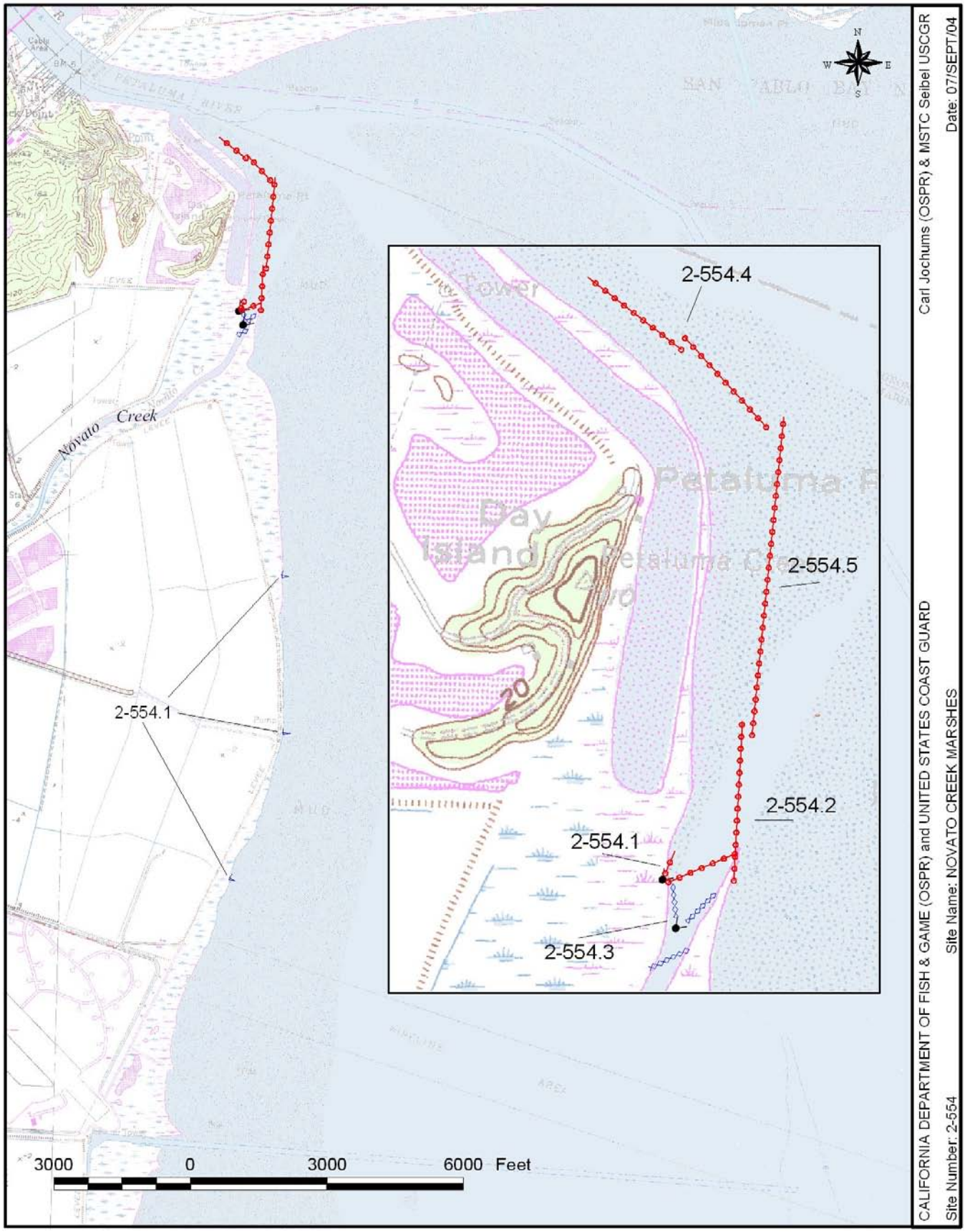
WATER LOGISTICS: Channel is very navigable. Very shallow mudflats.
Limitations: depth, obstruction

Launching, Loading, Docking and Services Available: Boat ramp, fuel, and berthage at Petaluma River- 1 mile north. There is also less useful launch and moorage at Del Mar Keys.

FACLITIES, STAGING AREAS, POSSIBLE FIELD POSTS AND EQUIPMENT AVAILABLE:
Best staging site is Petaluma River boat ramp. Also, Sonoma Marina: fuel, berthage, and some services available (water, phones, restrooms, food).

COMMUNICATIONS PROBLEMS: none known

ADDITIONAL OPERATIONAL COMMENTS:



Harbor / Curtain Boom
Swamp / River Boom
all other boom types
Sorbent boom
Berm, Dam, or Dike
Filter fence
Boom tow
SSS - Shoreside Skimming System
SFS - Stationary Floating Skimmer
SPS - Self Propelled Skimmer
TSA - Towed Skimming Array

Site Summary- Petaluma River Marshes

2-571 -A

County:	Marin & Sonoma	Thomas Guide Location	Latitude N 3 8 06	Longitude W 122 29
USGS Quad:	Petaluma Point, & River	NOAA Chart: 18654 San Pablo Bay		

Last Page Update : 1/1/2000

SITE DESCRIPTION:

This site begins at the mouth of the river (high power wire area) and continues upstream to Petaluma and includes all the marshes between the river levees and all tidally exposed marshes including "Carl Wilcox" marsh just north of Hwy 37. The Petaluma River has been dike along its length. The river channels are maintained for vessel traffic to the city of Petaluma. There flood plains to the dikes are high marsh with low marsh along the river margins. The marshes extend several miles up the river. There are diked ponds and extensive marshes on either side of Petaluma river. At the mouth, near Hwy 37, there are numerous residences with personal docks and the Sonoma Marina and a public boat ramp.

SEASONAL and SPECIAL RESOURCE CONCERN

The marshes are an A priority all year. The snowy plover, least tern, and San Pablo song sparrow nest from March through September. The adjacent mudflats and open waters are heavily used by migratory shorebirds and waterfowl from September through April. Several Special Status Species are found here.

RESOURCES OF PRIMARY CONCERN

Extensive marshes are exposed via the Petaluma River along its length to the City of Petaluma including bordering emergent marsh, flood plain pickleweed marsh, and adjacent wetlands. Numerous small tidal channels provide tidal exchange to the marshes between the Hwy bridge and the mouth, including a barrow channel at the west bank under the power wires which leads back about a 0.6 miles. There are two restored marshes near the mouth: "Carl Wilcox" marsh immediately north of Hwy 37 and Sonoma Acres, southeast of Sonoma Marina.

This is excellent rearing and wintering habitat for marsh bird life including waterfowl and marsh birds. Special Status Species found here include the endangered California clapper rail and the California least tern, the threatened black rail and the snow plover, and species of special concern, the San Pablo song sparrow.

In addition to the normal diversity of marsh mammals found in this habitat, the endangered saltmarsh harvest mouse is found here. Also present is the salt marsh wandering shrew.

The soft tidal flats have rich infauna and are part of the Dungeness nursery area.

The Marin knotweed, and endangered plant, may also occur in these marshes.

CULTURAL, HISTORIC, and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area.

KEY CONTACTS: Trustee (T); Entry/Owner/Access (E); Cultural (C); or Other Assistance (O)

Type	Name / Title	Organization	Phone
	Joy Albertson	US Fish & Wildlife Service, SF Bay (NWR)	(510) 792-0222
	Peter Baye, Ph.D. Coastal Plant Ecologist		(415) 310-5109
	Baylands Nature Preserve Office	Baylands Nature Preserve	(650) 329-2506
	Anita Brown Fire Chief	Bolinas Fire Dept.	(415) 498-6717
	Chief Ranger	Marin, County of, Open Space District	(415) 479-2311
	Joshua Collins, Ph.D	Aquatic Habitat Institute	(510) 213-9539
	Mike Josselyn	NOAA, National Marine Fisheries Service	(415) 454-8868
	Jan Knight	US Fish and Wildlife Service	(916) 978-4866
	Barbra Salzman	Audubon Society, Marin County Chapter	(415) 924-6057
	John Takekawa	US Geological Survey, SF Bay Estuary Field Statio	(707) 562-2000

ADDITIONAL SITE SUMMARY COMMENTS:

Site Strategy - Petaluma River Marshes

2-571 -A

County and Thomas Guide Location	NOAA CHART	Latitude N	Longitude W
Marin & Sonoma	18654 San Pablo Bay	3 8 06	122 29

Last Page Update :

CONCERNS and ADVICE to RESPONDERS:

There are extensive salt marshes both at the mouth the Petaluma River and upriver, which are sensitive to oil. These strategies are intended to protect those marshes by excluding oil from moving from the bay up the river and into the little tidal channels at the mouth. Avoid trampling vegetation. Be aware that small endangered plants and animals are present. Avoid trampling oil into muds.

HAZARDS and RESTRICTIONS:

Aircraft beware of high power wires. There are shallows at margins.

SITE STRATEGIES

Strategy 2-571.1 **Objective: Primary exclusion/collection strategy for Petaluma River and NW San Pablo Bay: Divert oil to shore collection and Boom tidal channels.** ACP DATE 1/1/2000

a) The collection site is at the public access immediately south of the launch ramp. Direct oil to this site by running boom from the east bank just bayward (south) of the Railroad trellis to the channel (500'), and then continue boom in cascades (1800' in 500-300' cascades), gradually angling oil out of the channel to the collection pocket. Line Collection pocket with swamp boom and parallel the cascaded boom for 400'. (Contact Marin County Parks about excavating an improved collection pocket as necessary.) Back collection area with sorbent boom. Line the west shoreline with boom (outside of private docks) to the railroad bridge. In the cascaded boom, leave an overlap opening for vessel traffic.

b) There are about 15 tidal channels (11 on east bank and 3 on west bank) between the railroad bridge and the power lines, including an inlet just northeast of the Hwy bridge which requires chevron exclusion booming which will require an additional 800' of swamp or larger boom and 15 additional anchors and stakes.

Strategy 2-571.2 **Objective: Collection strategy for controlling oil threats to Petaluma River and NW San Pablo Bay by diverting to onwater skimmer.** ACP DATE 1/1/2000

Deploy a 2500' diagonal of harbor boom from the east side of the mouth of Petaluma River under the power wires (about 150' off shore) to the second dock on the west bank. Use cascading (500') to permit vessel passage. From the west bank run 500' of boom (swamp or harbor) to the skimmer. These two boom arms result in a V-collection configuration directing oil across the current to a skimmer positioned just off the second dock.

Strategy 2-571.3 **Objective: If oil originates upstream or gets past exclusion strategies at the mouth, deploy collection at best possible locale.** ACP DATE 1/1/2000

Execute strategy as described in strategy .2 at the most favorable locale available. A similar amount of equipment including on-water skimmer will be required.

Table of Response Resources

strategy number	harbor boom	swamp boom	Other boom type	sorb boom	Anchoring no	Anchoring type and gear	Boom boat	Skiffs punts	Skimmers No	Skimmers Type	Special Equipment No and kinds	staff deploy	Staff tend
2-571.1	2300	2800		300	35	14/22+ and 21/15+/danforths w chain	2	0	1	skimmer	40 stakes and 1000' of line	13	
2-571.2	2500	500			12	12/12+/anchors with chain	2	1	1	self-prop	shallow draft bboats	7	
2-571.3	0												

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

The Petaluma River mouth vicinity is accessible by Hwy 37 from either Vallejo or Novato. To Petaluma Point, turn off Hwy 37 at Harbor drive. Follow Harbor Dr. to Grandview Ave and turn onto Grandview Ave. Turn left on Murphy Lane and right

LAND ACCESS: There is good access at Hwy 37, otherwise by foot only

WATER LOGISTICS: Limitations: depth, obstruction — Channel is very navigable. Very shallow mudflats.

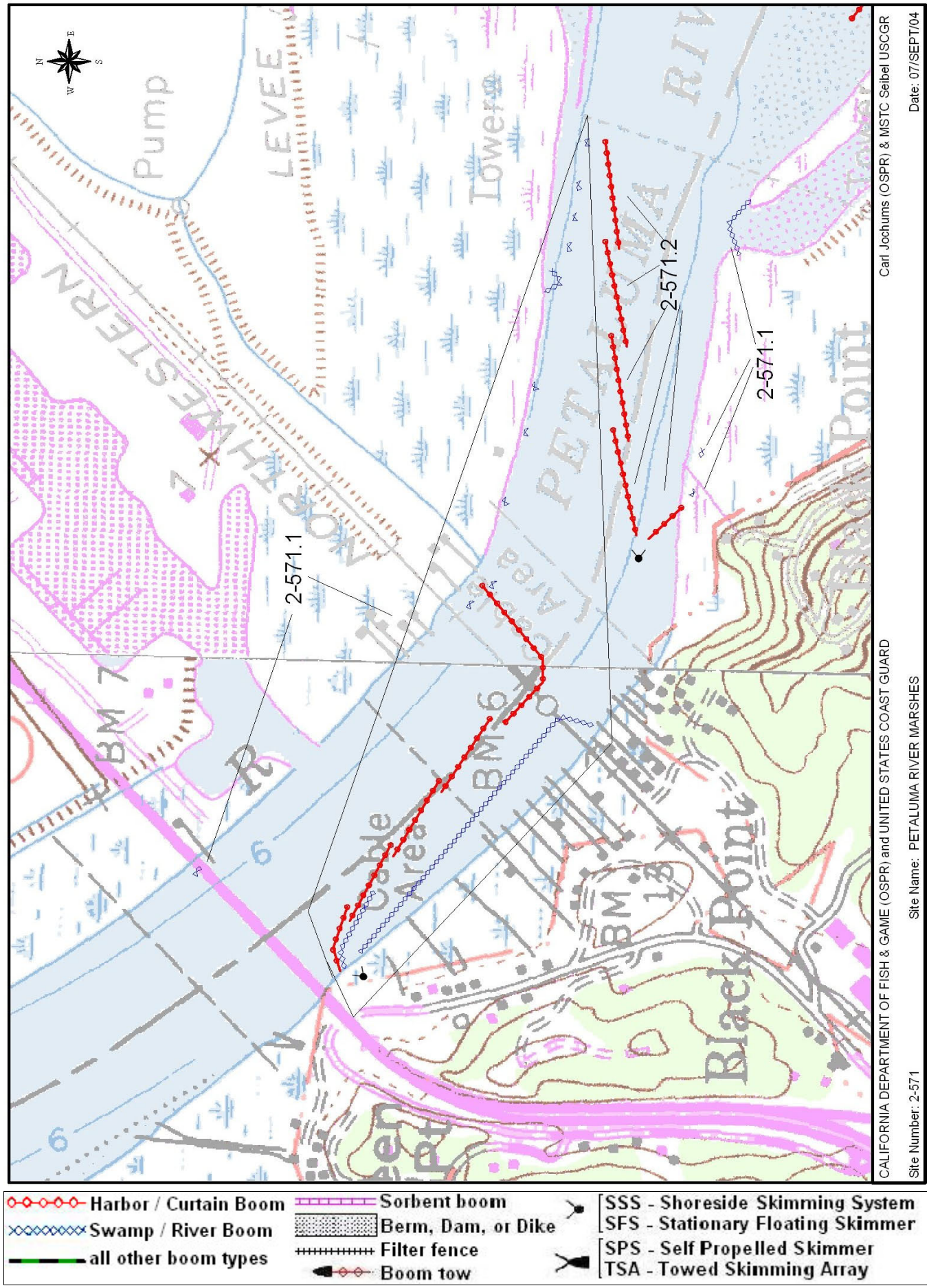
Launching, Loading, Docking and Services Available: Launching is available on site at public boat ramp. Fuel, moorage and some services are available at Sonoma Marina.

FACLITIES, , POSSIBLE FIELD POSTS AND EQUIPMENT AVAILABLE:

Sonoma Marina has best suite of facilities for staging, hq, phones, services, and some food. The launch ramp may also be used for staging and parking: no other facilities are present except portapotties.

COMMUNICATIONS PROBLEMS:

ADDITIONAL OPPERATIONAL COMMENTS:


Pump
LEVEE
Tower
NORTHWESTERN
PETALUMA RIV
Point
2-571.1
2-571.2
2-571.1
BM 7
BM 6
BM 18
Cable Area
Black Point
Harbor / Curtain Boom
Swamp / River Boom
all other boom types
Sorbent boom
Berm, Dam, or Dike
Filter fence
Boom tow
SSS - Shoreside Skimming System
SFS - Stationary Floating Skimmer
SPS - Self Propelled Skimmer
TSA - Towed Skimming Array
CALIFORNIA DEPARTMENT OF FISH & GAME (OSPR) and UNITED STATES COAST GUARD
Site Number: 2-571
Site Name: PETALUMA RIVER MARSHES
Carl Jochums (OSPR) & MSTC Seibel USCGR
Date: 07/SEPT/04

2-572 -A Site Summary- Tolay Creek Marshes 2-572 -A

		Thomas Guide Location	Latitude N	Longitude W
County:	Sonoma		3 8 07	122 02.7
USGS Quad:	Petaluma Point	NOAA Chart: 18654 San Pablo Bay		

Last Page Update : 1/1/2000

SITE DESCRIPTION:

Site includes the San Pablo Bay frontage from mouth of Petaluma River to a mile east (to Tubbs Island) of the mouth of Tolay Creek (Midshipman's Point) and includes 3 miles of Tolay Creek to Hwy 37 and adjacent tributary wildlife areas. The marshes between Petaluma River and Tolay Creek are prograding and shallow very gradually, supporting 100 to 200 meter wide continuum of biota from tidal flat to high marsh: unvegetated to chord grass to pickleweed dominated. Tolay Creek itself is an incised channel through a wide flood plain (300+ meters) of pickleweed marsh and bounded by aged levees. The creek and marshes are much less extensive north of Hwy 37. The two wetlands wildlife areas bordering the east side of Tolay Creek, connect via gated channels and culverts. The DFG marsh abuts Hwy 37. The much larger USFWS property abuts San Pablo Bay at Tolay Creek mouth with a mile of riprap dike frontage to the east and which has three additional openings exchanging directly with the Bay. There is another resorted marsh, Sonoma Bay Lands Wetland, with an open tidal exchange channel about a mile and a half west of Tolay Creek. Midshipman's point is used by harbor seals as an occasional haulout.

SEASONAL and SPECIAL RESOURCE CONCERN

This is an A-priority site all year due to the extensive marshes. Several Special Status Species occur here: including three endangered and one threatened species. These marshes and the adjacent tidal flats are heavily used my migratory shorebirds and waterfowl from September through April.

RESOURCES OF PRIMARY CONCERN

Extensive marshes are exposed via Tolay Creek including bordering emergent marsh, flood plain pickleweed marsh, and adjacent controlled wetlands. The bay frontage to the west has extensive chord grass and pickleweed marshes and the west has tidal openings to wetlands behind bay front levees.

This is excellent rearing and wintering habitat for marsh bird life including waterfowl and marsh birds. Special Status Species found here include the endangered California clapper rail, the threatened black rail, and species of special concern, the salt marsh common yellowthroat and the San Pablo song sparrow nest here.

In addition to the normal diversity of marsh mammals found in this habitat, the endangered saltmarsh harvest mouse is found here. The salt marsh wandering shrew also inhabits this area. Harbor seals occasionally haul out on Midshipman's Point at high tide.

This area has rich infauna and is part of the Dungeness nursery area.

The Marin knotweed, an endangered plant, may also be found in these marshes.

CULTURAL, HISTORIC, and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area.

KEY CONTACTS: Trustee (T); Entry/Owner/Access (E); Cultural (C); or Other Assistance (O)

Type	Name / Title	Organization	Phone
	Sarah Allen	Pt. Reyes National Seashore	(415) 464-5187
	Peter Baye	U S Army Corps of Engineers	(415) 744-3322
	Mike Josselyn	National Marine Fisheries Service, Tiburon	(415) 454-8868
	Diane Kopec		
	Office	Baylands Nature Preserve	(650) 329-2506
	Barbra Salzman	Marin Audubon Society	(415) 924-6057

ADDITIONAL SITE SUMMARY COMMENTS:

Site Strategy - Tolay Creek Marshes

County and Thomas Guide Location	NOAA CHART	Latitude N	Longitude W
Sonoma	18654 San Pablo Bay	3 8 07	122 02.7

Last Page Update :

CONCERNS and ADVICE to RESPONDERS:

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

HAZARDS and RESTRICTIONS:

This area is very shallow except in Tolay Creek Channel.

SITE STRATEGIES

Strategy 2-572.1 **Objective: Exclude oil from Tolay Creek and other openings to marsh. Access by skiff from land or via water route.** ACP DATE 1/1/2000

Deploy 500' of 6X6+ boom across the mouth of Tolay Creek in a modified diagonal from a point halfway bayward from creek mouth to Midshipman's Point across channel to a point about 50' west of the mouth, with this anchor point well high in the marsh. A midpoint anchor must be positioned in the channel (just off the east bank) to keep the boom from sagging into a catinary curve. Back with a sorbant boom layer. Repeat configuration if there is a wind chop or waves. This deployment should prevent oil from moving up Tolay Creek and direct impingent oil to beach on the shore just to the east. Exclude oil from entrance of Sonoma Bay Lands Marsh 1 mile west of Tolay Creek with 100' 6X6+ Hboom. Also deploy 50' chevron exclusion booms in front of each of the three tidal culverts to the east of the creek mouth. Close the tidal gate at the levee near the creek mouth.

Strategy 2-572.2 **Objective: Divert to prevent oil from moving up channel while in San Pablo Bay still away from shoreline.** ACP DATE 1/1/2000

Diversion booming: If oil is posing a threat, it will move up channel which cuts across the shallow flats of San Pablo Bay. Deploy diversion boom (200 ft hboom) across channel to divert oil out of the tidal current and onto flats. Divert to windward. Deploy at higher tide with a shallow draft boom boat.

Strategy 2-572.3 **Objective: Protection booming to prevent oil from accumulating along the marshy shoreline of San Pablo Bay Consider that this deployment will require intensive resources and time in the short navigable intervals.** ACP DATE 1/1/2000

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

Table of Response Resources

strategy number	harbor boom	swamp boom	Other boom type	sorb boom	Anchoring no	Anchoring type and gear	Boom boat	Skiffs punts	Skimmers No	Skimmers Type	Special Equipment No	Special Equipment and kinds	staff deploy	Staff tend
2-572.1	0	750		400	6	6/22+/danforth	0	1				stakes to aid in securing	2	
2-572.2	200				3	3/22/anchors	1	0				shallow draft boomboat	3	
2-572.3	10500				65	65/15+/anchors	5	2				shallow draft bboats which can strand	20	

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

Vehicle access to the mouth of Tolay Creek is from Hwy 37 though the locked gate (USFWS) at the DFG wildlife area parking lot (1/2 mile east of Tolay Creek on south side of Hwy) on rough levee roads. By boat, proceed northerly from

LAND ACCESS: Marginal for large trucks. Seasonally impassible on earth levees.

WATER LOGISTICS: Limitations: depth, obstruction — Channel is very navigable. Very shallow mudflats.

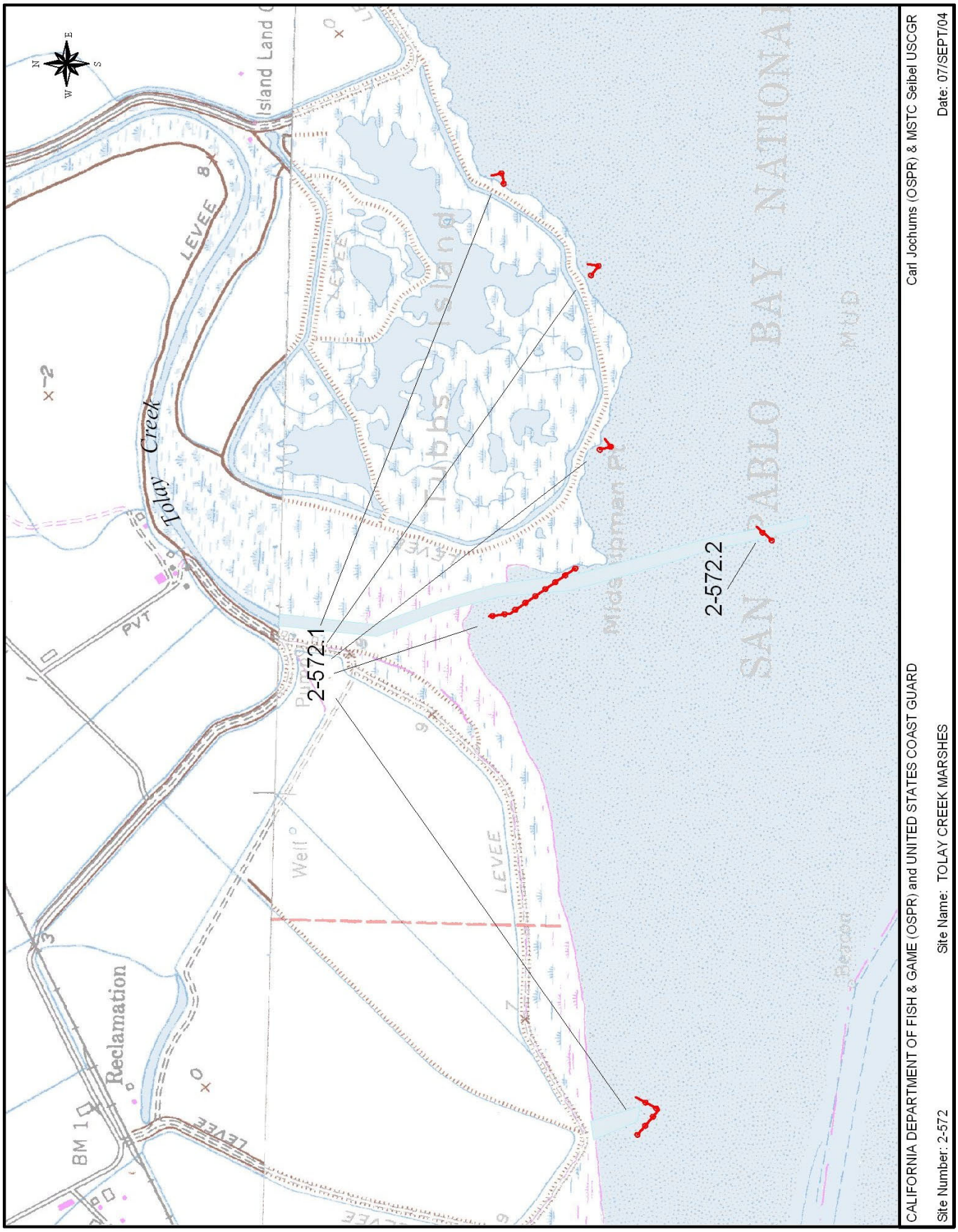
Launching, Loading, Docking and Services Available: Boat ramp, fuel, and berthage at Petaluma River- 2 miles west. Punt launch at Midshipman Pt and Hwy 37.

FACLITIES, , POSSIBLE FIELD POSTS AND EQUIPMENT AVAILABLE:

Best staging site is Petaluma River boat ramp. Also, Sonoma Marina: fuel, berthage, and some services available (water, phones, restrooms, food). Small skiff deployments can be staged at Tolay Creek at mouth or Hwy 37.

COMMUNICATIONS PROBLEMS:

ADDITIONAL OPPERATIONAL COMMENTS:



Harbor / Curtain Boom
Swamp / River Boom
all other boom types
Sorbent boom
Berm, Dam, or Dike
Filter fence
Boom tow
SSS - Shoreside Skimming System
SFS - Stationary Floating Skimmer
SPS - Self Propelled Skimmer
TSA - Towed Skimming Array

Site Summary- Sonoma Creek / Napa Slough

2-581 -A

County:	Sonoma, Napa, & Solano	Thomas Guide Location	AAA - Napa & So	Latitude N	3 8 009	Longitude W	122 024
USGS Quad:	Sears Point	NOAA Chart:	San Pablo Bay 18654				

Last Page Update : 1/1/1994

SITE DESCRIPTION:

Sonoma Creek and Napa Slough have a common mouth open to the northern end of San Pablo Bay. Levees control the waters of Sonoma Creek and Napa Slough. There are narrow marshes between the levees and the main channels, and between the levees and the waters of San Pablo Bay. There are extensive mud flats along the north shore of the bay.

SEASONAL and SPECIAL RESOURCE CONCERN

The marshes are an A priority all year. The Snowy plover, Least Tern, and San Pablo Song Sparrow nest from March through September. The adjacent Mudflats and open waters are heavily used by migratory shorebirds and waterfowl from September through April.

RESOURCES OF PRIMARY CONCERN

The marshes are important habitat for several endangered species: Saltmarsh harvest mouse, California Clapper Rail, California Least Tern, Brown Pelican, and Peregrine Falcon, and threatened species: California Black Rail and Snowy Plover. Other species of concern are: the San Pablo Song Sparrow and the salt marsh wandering shrew. Several rare plants also live here, Marin knotweed, Polygonum marinense, delta tule-pea, Lathyrus jepsonii, soft bird's beak, Cordylanthus mollis ssp. Mollis, and Susin aster, Aster chilensis var. lentus. This is an area of major importance to migrating waterfowl during the spring and fall migrations. Resting and feeding shorebirds are often abundant in this area. Salt marsh Yellowthroat.

CULTURAL, HISTORIC, and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area.

KEY CONTACTS: Trustee (T); Entry/Owner/Access (E); Cultural (C); or Other Assistance (O)

Type	Name / Title	Organization	Phone
	Joy Albertson	San Francisco Bay National Wildlife Refuge	(510) 792-0222
	Dr Peter Baye, Ph.D.	USGS Ecological Services	(707) 562-3003
	Mike Josselyn	National Marine Fisheries Service, Tiburon	(415) 454-8868
	Jim Swanson		
	Jean Takakawa	SF Bay National Wildlife Refuge	(510) 792-0222
	John Takekawa	USGS SF Bay Estuary Field Station	(707) 562-2000

ADDITIONAL SITE SUMMARY COMMENTS:

2-581 -A Site Strategy - Sonoma Creek / Napa Slough

2-581 -A

County and Thomas Guide Location	NOAA CHART	Latitude N	Longitude W
AAA - Napa & So Sonoma, Napa, & Solano	San Pablo Bay 18654	3 8 009	122 024

Last Page Update :

CONCERNS and ADVICE to RESPONDERS:

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

HAZARDS and RESTRICTIONS:

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

SITE STRATEGIES

Strategy 2-581.1 **Objective: Deflection/Collection: Prevent oil from entering Sonoma Creek and Napa Slough.**

ACP DATE 1/1/1994

The confluence of Sonoma Creek and Napa Slough (1500 ft N of HWY 37 bridge) is just before the mouth of San Pablo Bay. Prevent oil from entering into the mouth. Otherwise oil will spread into the numerous passages and channels that feed into Sonoma Creek and Napa Slough. 2,000 ft of harbor boom and 400 ft of tidal barrier boom will be required to protect the Sonoma Creek and Napa Slough.

Collection Points: On an incoming tide, oil can be collected by diversion boom at the mouth of the system. The diversion boom can lead to either side of Hwy 37 where it crosses the Creek and Slough. If oil is exiting Sonoma Creek to San Pablo Bay, diversion boom can collect the pollutant at the bend 3/4 mile northwest of the mouth.

Table of Response Resources

strategy number	harbor boom	swamp boom	Other boom type	sorb boom	Anchoring no	Anchoring type and gear	Boom boat	Skiffs punts	Skimmers No	Skimmers Type	Special Equipment No	Special Equipment and kinds	staff deploy	Staff tend
2-581.1	2000		400		10	8-10. 25lb. Danforths			1	self-prop			8	

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

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

LAND ACCESS:

WATER LOGISTICS:

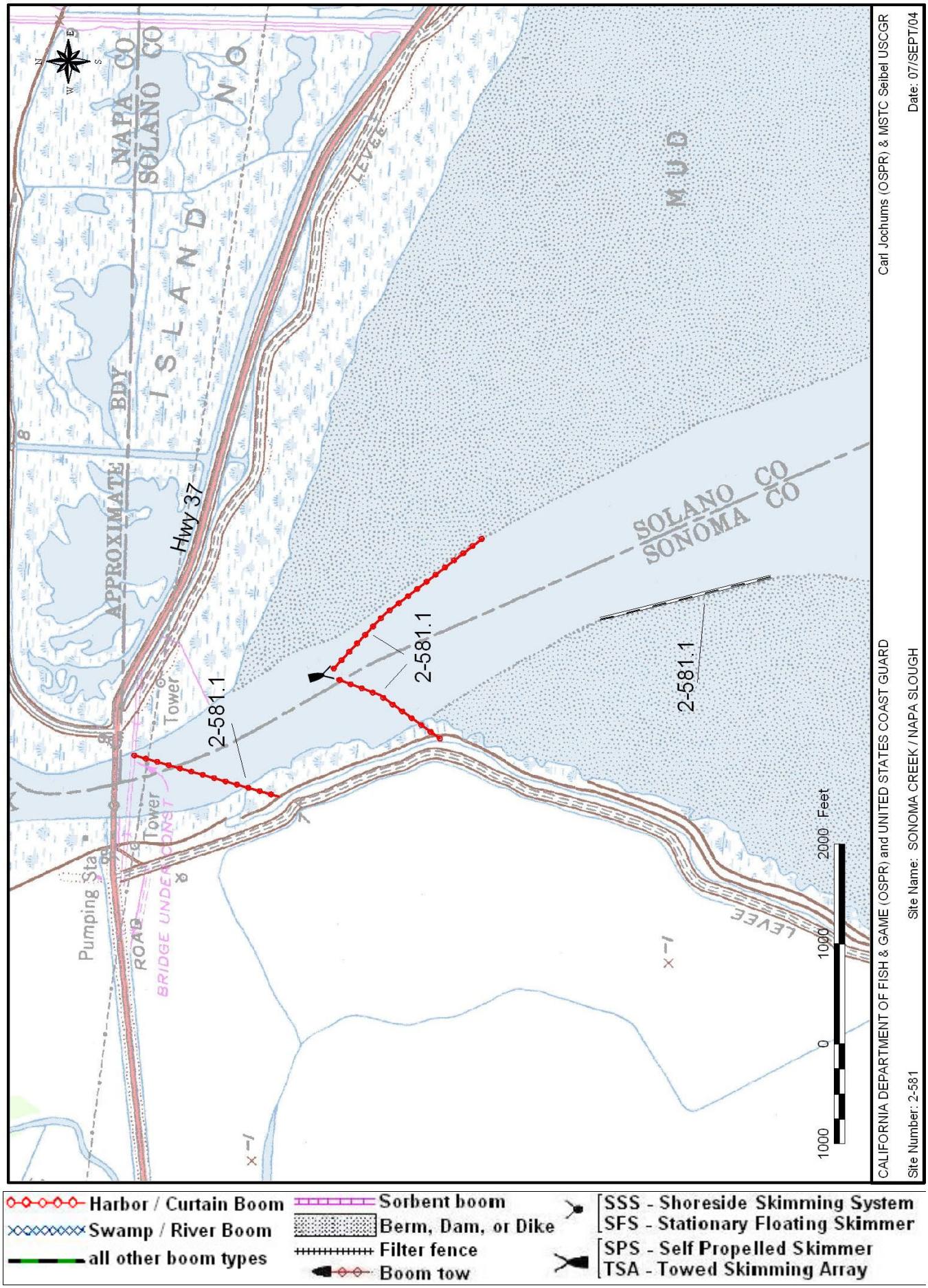
Limitations: depth, obstruction

Launching, Loading, Docking and Services Available:

FACLITIES. STAGING AREAS. POSSIBLE FIELD POSTS AND EOUIPMENT AVAILABLE:

COMMUNICATIONS PROBLEMS:

ADDITIONAL OPERATIONAL COMMENTS:



Harbor / Curtain Boom
Swamp / River Boom
all other boom types
Sorbent boom
Berm, Dam, or Dike
Filter fence
Boom tow
SSS - Shoreside Skimming System
SFS - Stationary Floating Skimmer
SPS - Self Propelled Skimmer
TSA - Towed Skimming Array

Site Summary- N.E. San Pablo Bay

2-582 -A

County:	Solano	Thomas Guide Location	AAA - Napa & So	Latitude N	3 8 005	Longitude W	122 017
USGS Quad:	Mare Island	NOAA Chart:	San Pablo Bay 18654				

Last Page Update : 1/1/1994

SITE DESCRIPTION:

The northeast shore of San Pablo Bay is bounded by a 200 to 1200 meter wide marsh of approximately 1600 acres between the leeves and the mudflat. The intertidal mudflat is approximately 1000 meters wide. Before construction of leeves, the marsh extended another 10 km to the north and east. A formerly more extensive marsh was diked and filled long ago.

SEASONAL and SPECIAL RESOURCE CONCERN

The marshes and adjacent mudflats are an A priority all year.

RESOURCES OF PRIMARY CONCERN

The marshes and adjacent mudflats are an A priority all year. The marshes are inhabited by the endangered California clapper rail, Rallus longirostris obsoletus, and salt marsh harvest mouse, Reithrodontomys raviventris. The California black rail, Laterallus jamaicensis coturnicullus, a threatened species, and the Suisun shrew, Sorex ornatus sinuosus, a species of special concern, also occur in the area. Two rare plant species live here: soft bird's beak, Cordylanthus mollis ssp. Mollis, and Suisan aster, Aster chilensis var. lentus. Resting and feeding shorebirds are often abundant on the mudflats and in the marshes. Thousands of waterfowl congregate on the water to the south of this site during the fall and winter months.

CULTURAL, HISTORIC, and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area.

KEY CONTACTS: Trustee (T); Entry/Owner/Access (E); Cultural (C); or Other Assistance (O)

Type	Name / Title	Organization	Phone
B	Dr Peter Baye, Ph.D.	USGS Ecological Services	(707) 562-3003
BTEL	Giselle Downard	USFWS San Pablo BayNational Wildlife Refuge	(707) 562-9453
B	Jan Knight	US Fish and Wildlife Service	(916) 978-4866
B	Bill Lidicker	UC Berkeley	(510) 642-1379
BELT	Clyde Morris	San Francisco Bay National Wildlife Refuge	(510) 792-0222
TEL	Christy Smith Refuge Mngr	USFWS San Pablo Bay NWR	(707) 562-3000
B	Jean Takakawa	SF Bay National Wildlife Refuge	(510) 792-0222

ADDITIONAL SITE SUMMARY COMMENTS:

2-582 -A Site Strategy - N.E. San Pablo Bay

2-582 -A

County and Thomas Guide Location	NOAA CHART	Latitude N	Longitude W
AAA - Napa & So Solano	San Pablo Bay 18654	3 8 005	122 017

Last Page Update :

CONCERNS and ADVICE to RESPONDERS:

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

HAZARDS and RESTRICTIONS:

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

SITE STRATEGIES

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

ACP DATE 1/1/1994

Deploy deflection booms (3-100 ft sections) on jetty to keep oil from entering through the jetty. Deploy seven, 1,000 ft deflection booms at the end of the jetty. Position 2 skimmers at leading tail of jetty boom. Block marsh channel and holes in breakwater using combinations of sorbents, hay bales, sandbags, and plastic sheeting.

Table of Response Resources

strategy number	harbor boom	swamp boom	Other boom type	sorb boom	Anchoring no	Anchoring type and gear	Boom boat	Skiffs punts	Skimmers No	Skimmers Type	Special Equipment No and kinds	staff deploy	Staff tend
2-582.1	7300	0	0	200	25	22 to 25, 25 lb. Danforths	2	2	2	self prop	sandbags, 5 rolls plastic, baled hay	11	

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

Take I-80 to Hwy 37 East White Slough lier either side of Hwy 37 between Sonoma Blvd and the Napa River Bridge. To get to Vallejo Launch Ramp take Wilson Ave South from Hwy 37. From the Launch Ramp Follow the E. Bank of Mare Island SE N. Hwy 37.

LAND ACCESS: foot only

WATER LOGISTICS:

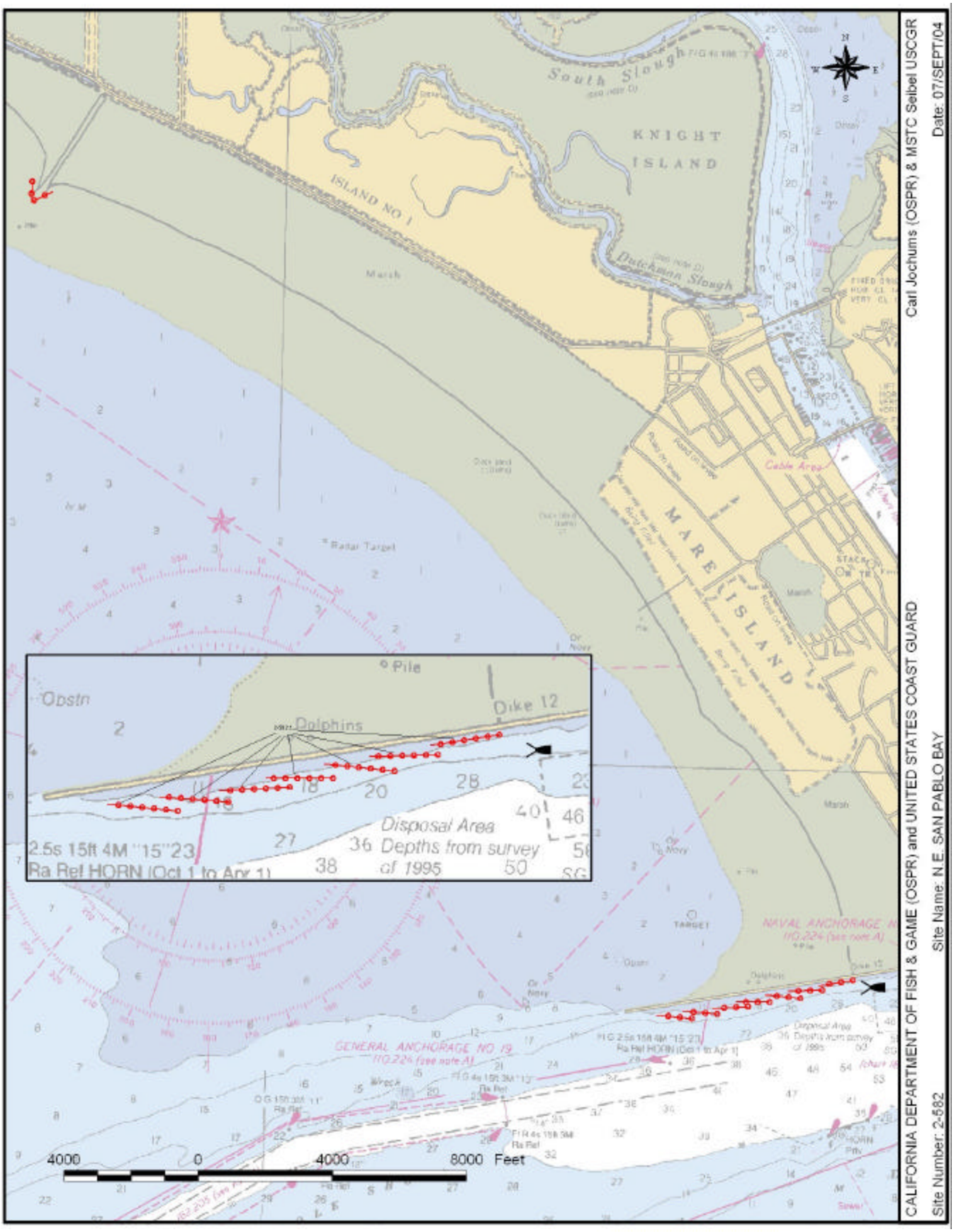
Limitations: depth, obstruction

Launching, Loading, Docking and Services Available:

FACLITIES. STAGING AREAS. POSSIBLE FIELD POSTS AND EOUIPMENT AVAILABLE:

COMMUNICATIONS PROBLEMS:

ADDITIONAL OPERATIONAL COMMENTS:



Harbor Boom
Swamp Boom
sss / sfs
Sorbent Boom
Other Boom
tsa / sps
Dike or Berm
Excellcior Fence
tba/voo

Site Summary- Napa River Marshes

2-583 -A

County:	Napa, Solano	Thomas Guide Location	AAA - Napa & So	Latitude N	3 8 012	Longitude W	122 019
USGS Quad:	Cuttings Wharf	NOAA Chart:	San Pablo Bay 18654				

Last Page Update : 1/1/1994

SITE DESCRIPTION:

Although the banks of the Napa river and adjacent sloughs are diked in many areas, in others there are extensive undiked marshes and mudflats. These undiked marshes are connected to the river by numerous channels. Elsewhere there are narrow marshes and tidal flats between the leeves and the main channels.

SEASONAL and SPECIAL RESOURCE CONCERN

The marshes are an A priority all year.

RESOURCES OF PRIMARY CONCERN

Coon Island and Fagen Slough are the most important sites in the Napa River. The marshes are probable habitat for the endangered California Clapper Rail, the threatened California Black Rail, and the endangered salt marsh harvest mouse. Several rare plants also live here, Marin knotweed, Polygonum marinense, delta tule-pea, Lathyrus jepsonii spp jepsonii, soft bird's beak, Cordylanthus mollis ssp. Mollis, and Suisun aster, Aster chilensis var. lentus. Resting and feeding shorebirds are often abundant in this area.

CULTURAL, HISTORIC, and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area.

KEY CONTACTS: Trustee (T); Entry/Owner/Access (E); Cultural (C); or Other Assistance (O)

Type	Name / Title	Organization	Phone
	Dr Peter Baye, Ph.D.	USGS Ecological Services	(707) 562-3003
	J. T. Harvey, Ph.D	Moss Landing Marine Laboratory	(831) 755-8650
	Mike Josselyn	National Marine Fisheries Service, Tiburon	(415) 454-8868
	Jan Knight	US Fish and Wildlife Service	(916) 978-4866
	Jim Swanson		
	John Takekawa	USGS SF Bay Estuary Field Station	(707) 562-2000

ADDITIONAL SITE SUMMARY COMMENTS:

Site Strategy - Napa River Marshes

2-583 -A

County and Thomas Guide Location	NOAA CHART	Latitude N	Longitude W
AAA - Napa & So Napa, Solano	San Pablo Bay 18654	3 8 012	122 019

Last Page Update :

CONCERNS and ADVICE to RESPONDERS:

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

HAZARDS and RESTRICTIONS:

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

SITE STRATEGIES

Strategy 2-583.1 **Objective: Deflection/Collection: Deflect oil before it enters into the marsh area. There is little or no access once within the marsh. Use of diversion boom should be used to prevent oil from reaching the Strait.** ACP DATE 1/1/1994

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

Strategy 2-583.2 **Objective: Protection/Exclusion from shoreline marshes and wharf when exclusion strategy 2-583.1) is not successful** ACP DATE 1/1/1994

5,000 ft of harbor boom may be necessary to protect the marsh, mudflat, and docks located approximately one mile upstream from enterence.

Table of Response Resources

strategy number	harbor boom	swamp boom	Other boom type	sorb boom	Anchoring no	type and gear	Boom boat	Skiffs punts	Skimmers No	Type	Special Equipment No	and kinds	staff deploy	Staff tend
2-583.1	6000				15	12-15. 25 lb. Danforth	2	2					11	
2-583.2	5000	0	0	0	12	22+danforths	4	2	0		0			

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

Take I-80 to Hwy 37 East White Slough lier either side of Hwy 37 between Sonoma Blvd and the Napa River Bridge. To get to Vallejo Launch Ramp take Wilson Ave South from Hwy 37. From the Launch Ramp Follow the E. Bank of Mare Island SE N. Hwy 37.

LAND ACCESS:

WATER LOGISTICS:

Limitations: depth, obstruction

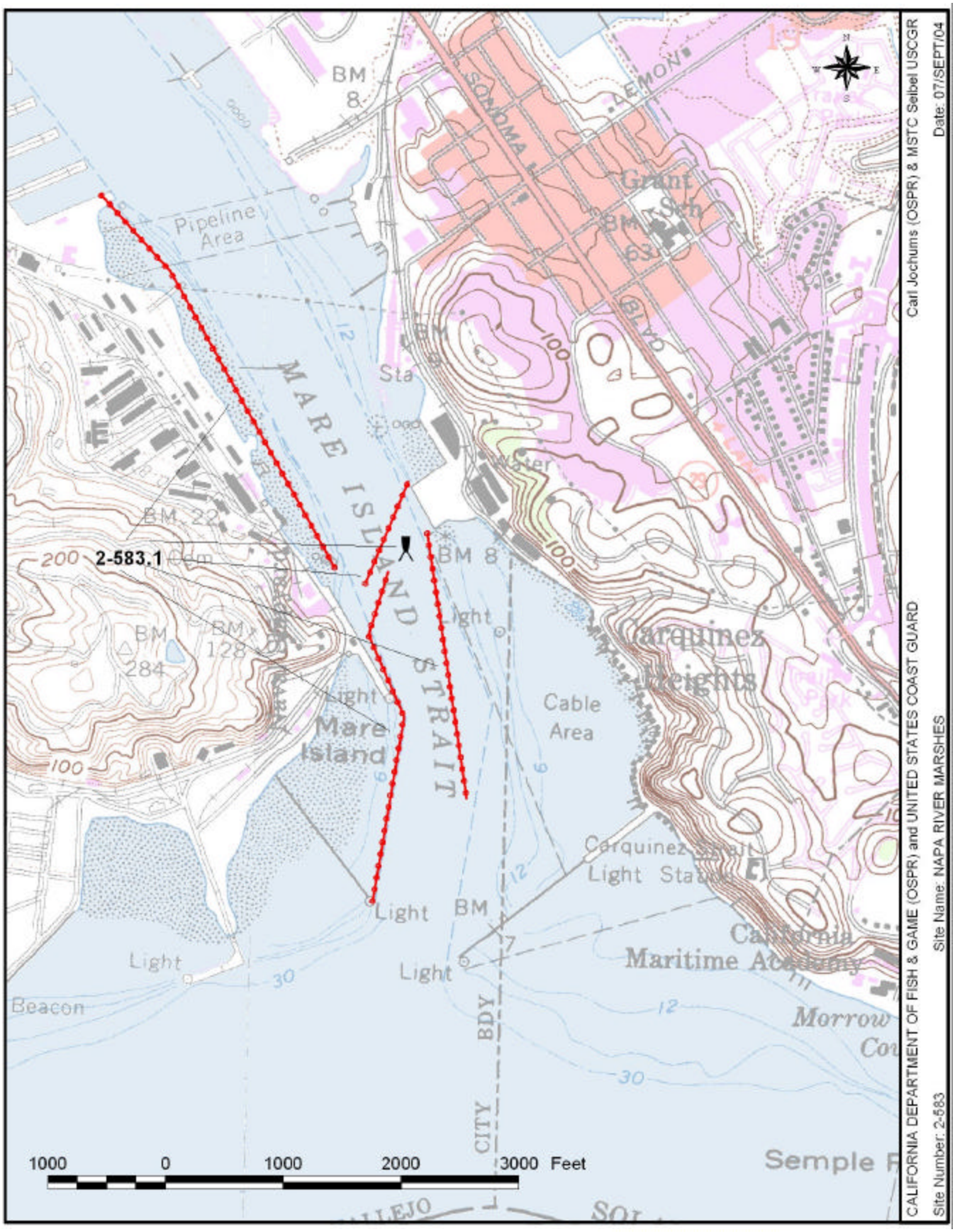
Launching, Loading, Docking and Services Available: Vallejo Marina

FACLITIES. STAGING AREAS. POSSIBLE FIELD POSTS AND EOUIPMENT AVAILABLE:

Vallejo Marina, Mare Island Naval Sta., parking lot under Hwy 37, Guadel canal village, & Solano County OES.

COMMUNICATIONS PROBLEMS:

ADDITIONAL OPERATIONAL COMMENTS:



Harbor Boom
Swamp Boom
sss / sfs
Sorbent Boom
Other Boom
tsa / sps
Dike or Berm
Excellcior Fence
tba/voo

This Page Intentionally Blank

9845.2 Cultural and Other Resources at Risk

9845.21 Cultural Resources, Historic and Archeological Resources
– see Section 9802.1,
Section 9840 for contact table, and individual Site Summaries

9845.22 Essential Fish Habitat – see Section 9802.2

9845.23 Other Resources at Risk - This section is reserved for specialized information regarding natural resources that occur in this particular geographic area; such as: seasonal migratory waterfowl and shorebird locations and densities; salmonid fish migration periods; or special considerations for eelgrass beds.

Migratory Waterfowl and Shorebirds
Large numbers of migratory waterfowl and shorebirds winter in the Bay and Delta and in GRA 5 in particular. Large numbers of waterfowl tend to raft and feed in the shallow protected areas around San Pablo Bay (GRA 5). Aggregates of thousands of may be found in the north and west portions of San Pablo Bay and hundreds elsewhere.

Eelgrass

The shallow subtidal areas and tidal flats of the San Francisco Bay and Delta region support relatively few plant communities. Eelgrass (Zostera marina) is currently the only seagrass found in San Francisco Bay. Eelgrass beds create a valuable shallow-water habitat, providing shelter, feeding, and/or breeding habitat for many species of invertebrates, fishes, and waterfowl. The current eelgrass populations may be the last remnants in San Francisco Bay and are extremely vulnerable to local extinction. Eelgrass beds can vary in distribution, density, and height from year to year. Eelgrass is vulnerable to oil based on its location and physiology.

Eelgrass is more vulnerable to oil than most marine and aquatic plants. Eelgrass leaves are rough and do not have a mucous layer like many seaweeds, therefore oil will readily attach. Eelgrass occurs in shallow water and often forms a canopy layer on the water surface, presenting an increased risk of oiling. Oil sticks to the floating eelgrass tops. Once eelgrass gets fouled with oil, oil becomes a subsurface threat to fish and other organisms which thrive in this cover and the leaves will continue to sheen, prolonging oil exposures.

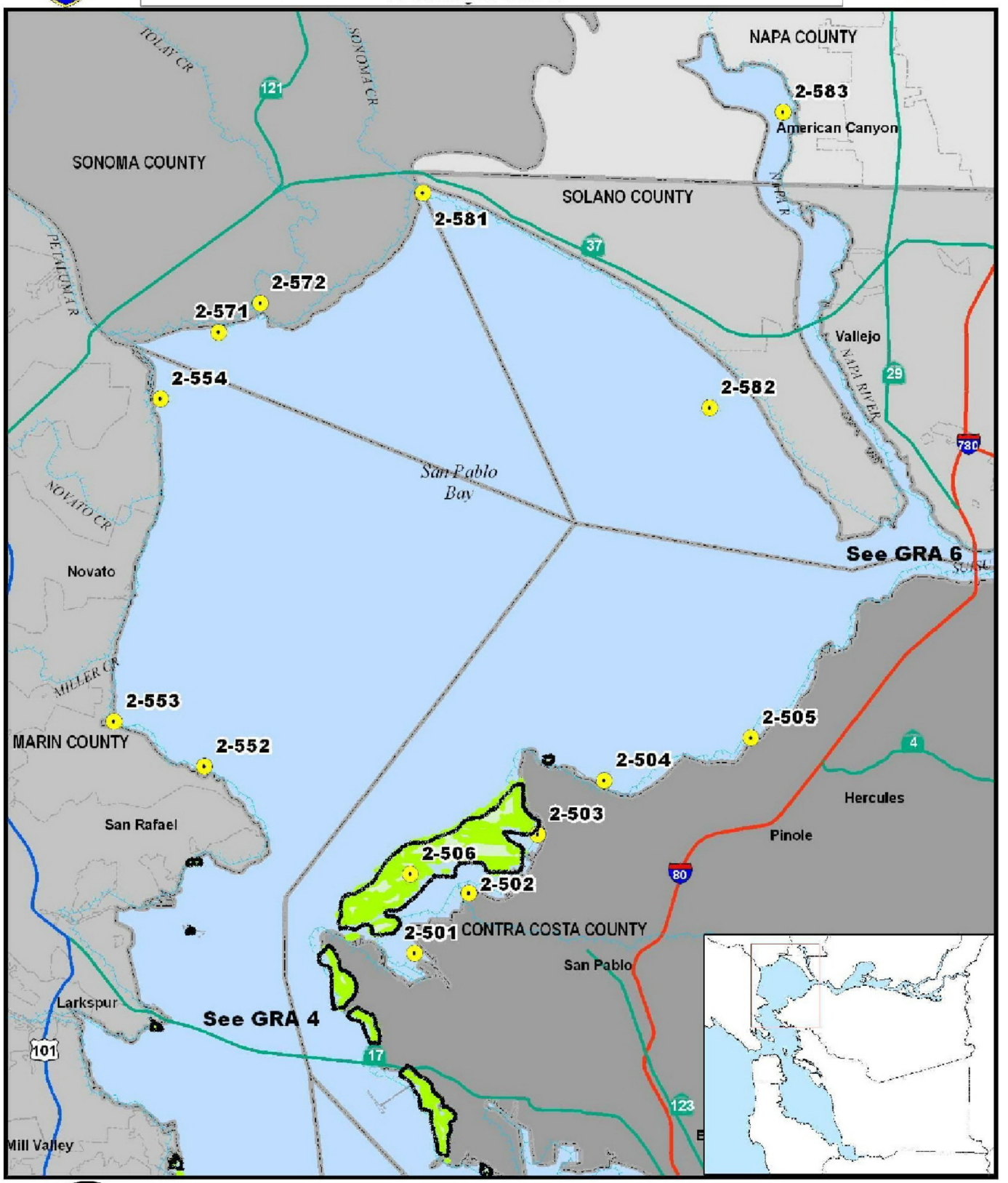
Site specific areas containing eelgrass beds have been identified in this GRA subsection and in some instances as an individual Sensitive Site. Protective strategies for eelgrass are based on its location and surface exposure in the intertidal and subtidal zones. Eelgrass would be exposed to oil and is at greatest risk in areas where it is found in the intertidal zone, but oiling can also occur with subtidal eelgrass beds when eelgrass leaves are at the surface during spring tides, particularly in the summer months.

A Sensitive Site with eelgrass as its sensitive resource is given a Category “A” resource sensitivity when eelgrass leaves are exposed at the surface during the spill and a Category “C” when the leaves stay submerged. If a spill occurs, an OSPR Resources At Risk Technical Specialist must assess the site to determine if eelgrass is at risk based on density, location and tidal exposure. Specific Site Strategies for protection of eelgrass beds are found in the individual GRA’s Sensitive Site Strategy and include assessment and booming recommendations.

A map of eelgrass distribution in GRA 4 follows.

San Francisco Geographic Response Area 5
San Pablo Bay
EELGRASS SITES

DRAFT



0 2.5 5 Miles

GRA SITE
San Francisco Area Eelgrass Beds

9845.3 Economic Sites

Strictly economic resources are designated as the third priority for dedication of oil spill response resources, following human health and safety and environmental resources. The economic sites are ranked using a continuation of the environmental scale with D, E, and F categories. Economic resources that have a greater potential for long-term damages receive a higher rank or priority for emergency response.

The following criteria or definitions are used to categorize economic resources in terms of priority for response:

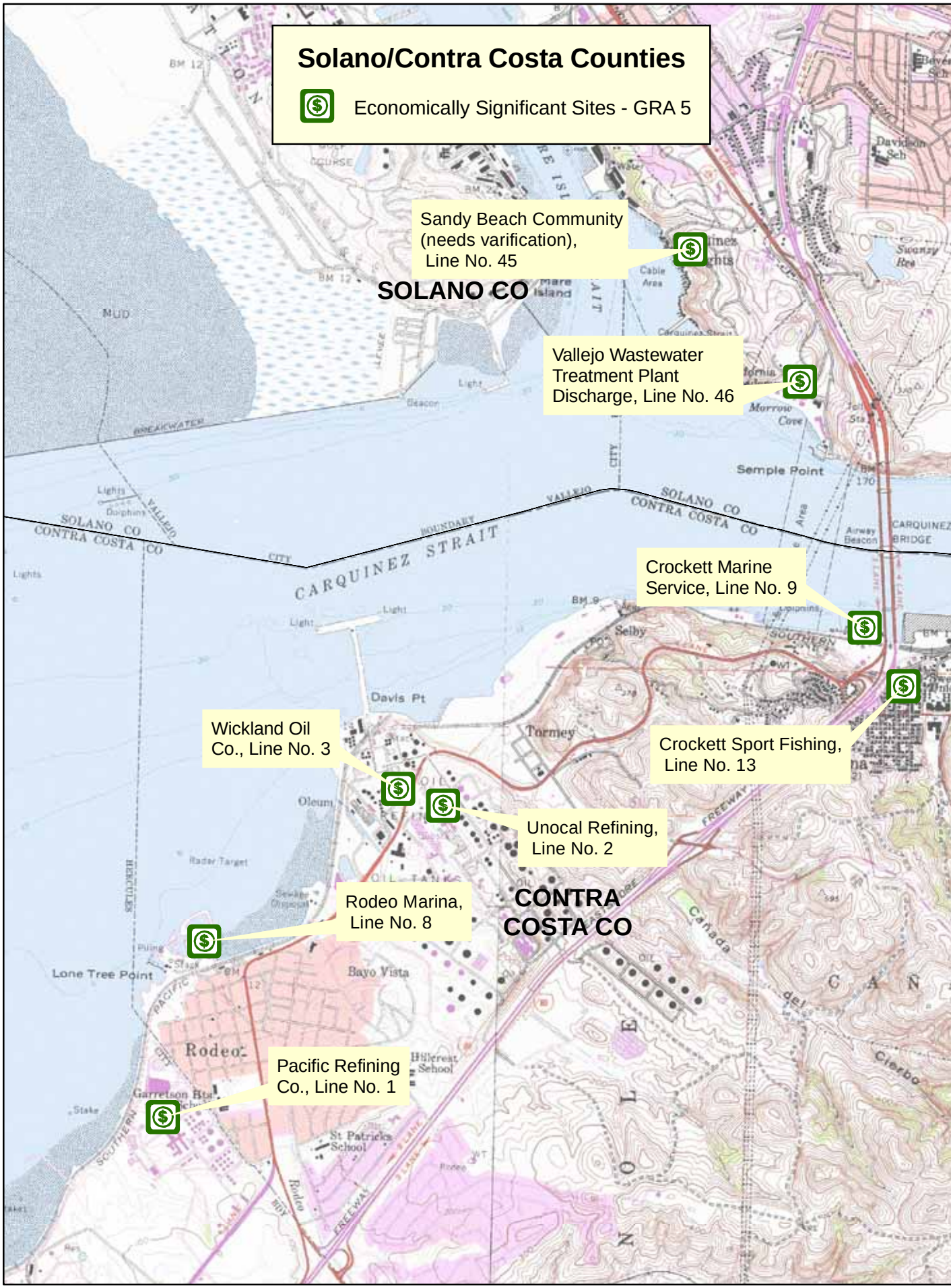
D = Economic activities and resources which require high water quality for their operations or existence. Resources that fall into this category would face severe, long-term economic impacts from a spill.

E = Facilities, businesses, or resources which directly use coastal or bay waters within their economic activity and which are at risk of oiling from a spill in marine waters. The resources falling into this category would face significant disruption of their activity, but shorter term potential damages from oiling that resources “D” category.

F = This category contains marine associated facilities, businesses and resources. These resources would face economic impacts from a marine spill, but do not depend directly on marine water for their economic base. Resources in this category will tend to face less severe damages than those identified in categories D or E.

In the following section, economic sites found within the GRA are listed in table format, which contain information such as latitude, longitude, economic sensitivity, etc. Following the table are diagrams denoting the location of an economically sensitive site(s). Diagrams are organized alphabetically by county, then numerically by map and site number.

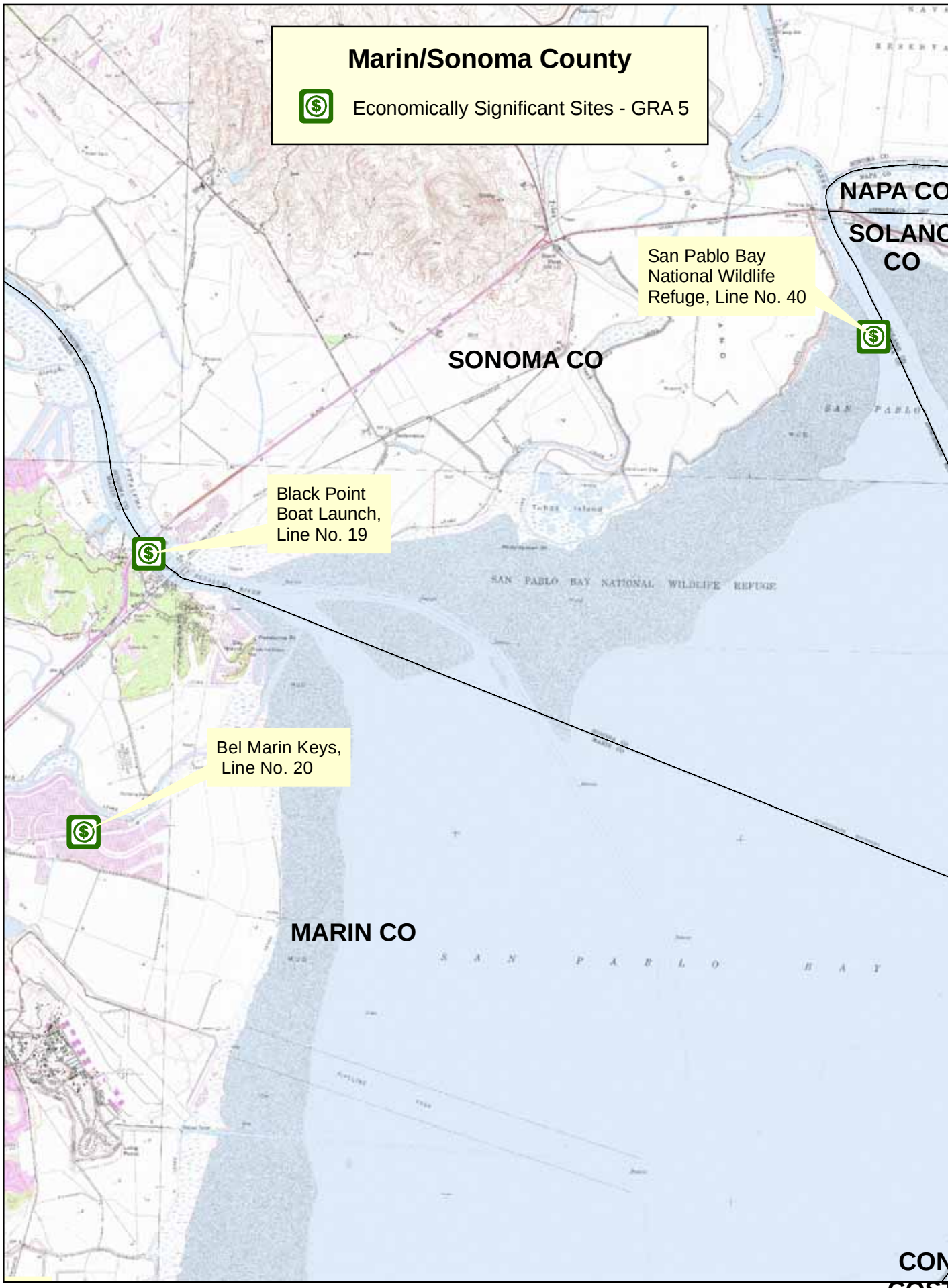
Economic Sites in GRA 5								
Line No.	**County**	**Site Name**	**Site Description**	**Latitude**	**Longitude**	**Economic Sensitivity**	**Site Function**	**Site Address**
1	Contra Costa	Pacific Refining Co.	(closed 1997)	38.03	-122.27	E	Petroleum Product	4901 San Pablo Blvd., Hercules
2	Contra Costa	Unocal Refining	(location approximate)	38.05	-122.25	E	Petroleum Product Marketing Division, San Francisco Refinery	1290 San Pablo Bvld, Rodeo
3	Contra Costa	Wickland Oil Co.		38.05	-122.26	E	Petroleum Product Transfer Facility	90 San Pablo Blvd., Crockett
8	Contra Costa	Rodeo Marina		38.04	-122.27	E	Small Craft Harbor	13 Pacific Drive, Rodeo
9	Contra Costa	Crockett Marine Service	Foot of Port Crockett (site #80 duplicate)	38.06	-122.23	E	Small Craft Harbor	
12	Contra Costa	C & E Boat Repair & Diablo Marine Services	(Sites 81 and 82 same address - combined)	38.02	-122.14	E	Small Craft Repair	245 N. Court, Martinez
13	Contra Costa	Crockett Sport Fishing	Foot of Port, Crockett	38.05	-122.22	E	Charter Fishing Parties	
14	Contra Costa	Pt. Pinole Regional Park	c/o East Bay Regional Park District	38.01	-122.36	D	Park/Recreation Area	2950 Peralta Oaks Ct., Oakland
15	Contra Costa	San Pablo Bay Regional Park		38.01	-122.32	D	Park/ Recreation Area	
19	Marin	Black Point Boat Launch		38.11	-122.51	E	Parking and 2 Lane Boat Ramps	
20	Marin	Bel Marin Keys		38.08	-122.51	F	670 Waterfront Homesites Subdivision	
21	Marin	McInnis Park	Smith Ranch Road	38.02	-122.51	E	441 Acre Park with Sports Fields, Golf Course and Canoe Launch	
22	Marin	Santa Margarita Island	Vendola Drive	38.01	-122.52	E	Vendola Drive, Hiking, Recreation Area	
23	Marin	China Camp State Park	No. San Pedro Road	38.00	-122.46	E	Hiking, Bicycle, Recreation Area, Picnic, Historical Sites	
24	Marin	McNears Beach Park	So. San Pedro Road,	37.99	-122.45	E	500 foot Fishing Pier, Recreation Area, Tennis Courts	
41	Solano	Vallejo Fishing Pier, Mare Island	South of Sears Pt. Bridge	38.12	-122.28	D	Fishing Access Approximately 1000 feet long	
42	Solano	River Park	Mare Island Strait N. of Mare Island Causeway	38.11	-122.27	F	Rec Park w Public Facilities, 500 ft Coastal Access	
45	Solano	Sandy Beach Community (needs varification)	Mare Island Strait off of Sandy Beach Blvd	38.08	-122.24	F	Unincorporated Waterfront Residential Area	
46	Solano	Vallejo Wastewater Treatment Plant Discharge	Carquinez Strait next to Maritime Academy Dr.	38.07	-122.23	E	Secondary Treated Water Discharge Point w/1 42" Pipe	
58	Solano	Vallejo Yacht Club	Mare Island Strait			E		485 Mare Island Way, Vallejo 94590
	Solano	Vallejo Municipal Marina	Mare Island Strait S. of Mare Island Causeway	38.11	-122.27	E	Boat Launching and Mooring Marina	42 Harbor Way, Vallejo 94590
40	Sonoma	San Pablo Bay National Wildlife Refuge		38.14	-122.40	D	Wildlife Habitat	



California Department of Fish and Game
Office of Spill Prevention and Response
Solano/Contra Costa Co, Layout 002

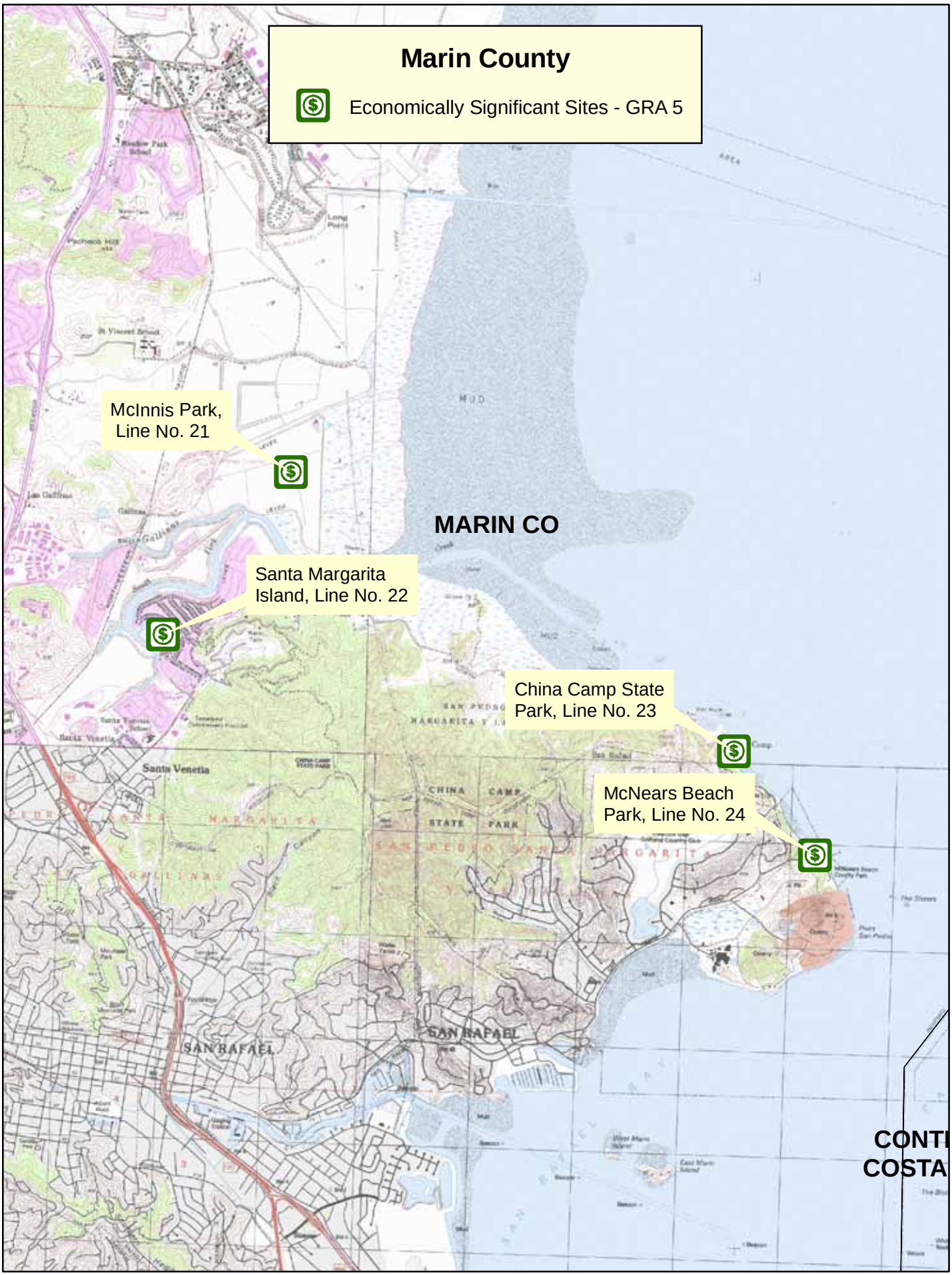
0 0.25 0.5 1 Miles

California Department of Fish and Game
Office of Spill Prevention and Response
Contra Costa Co, Layout 003



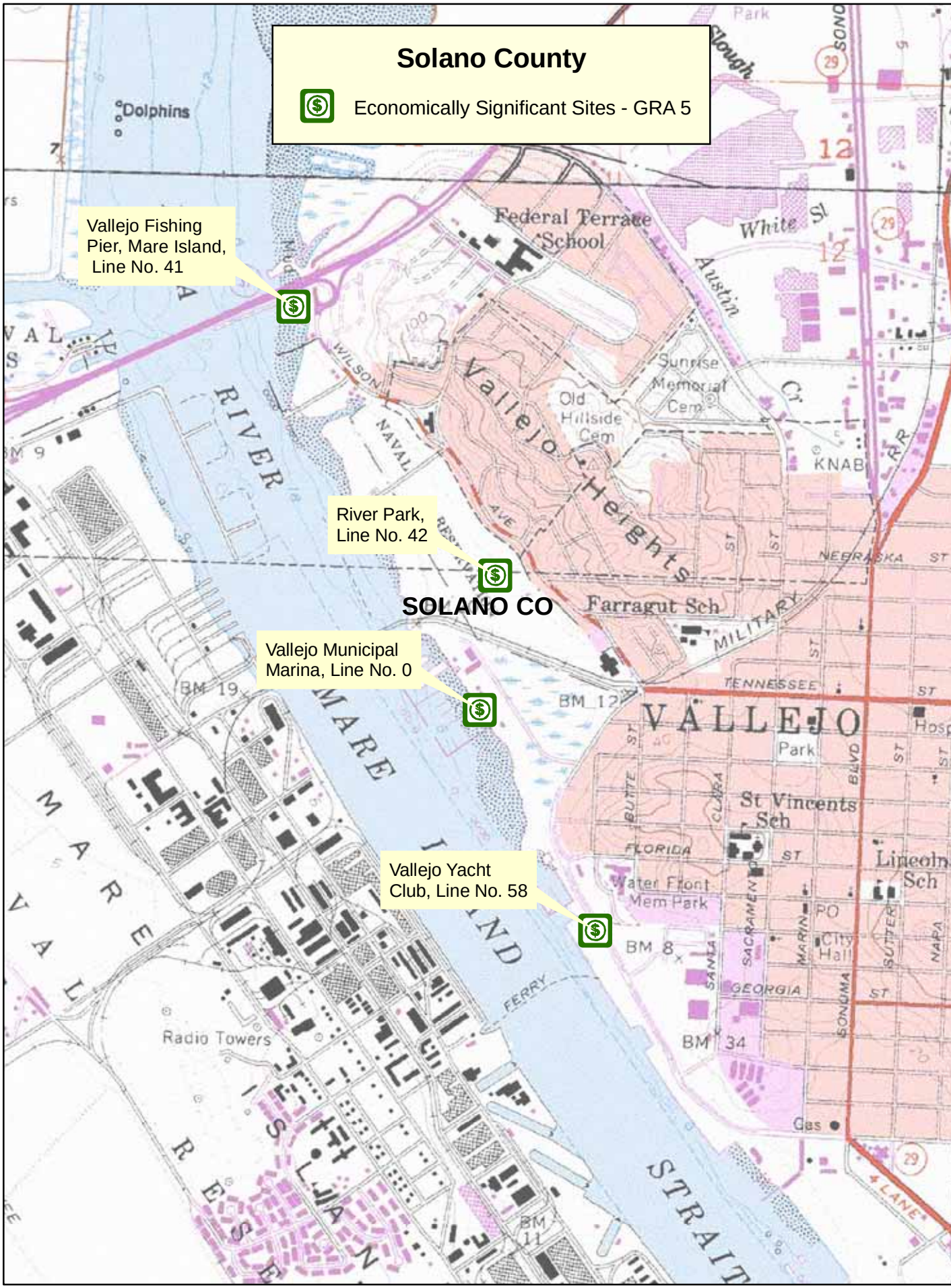
0 0.5 1 2 Miles

California Department of Fish and Game
Office of Spill Prevention and Response
Marin/Sonoma Co, Layout 005



0 0.25 0.5 1 1.5 Miles

California Department of Fish and Game
Office of Spill Prevention and Response
Marin Co, Layout 004



California Department of Fish and Game
Office of Spill Prevention and Response
Solano Co, Layout 001

This Page Left Intentionally Blank

9845.4 Shoreline Operational Division Map

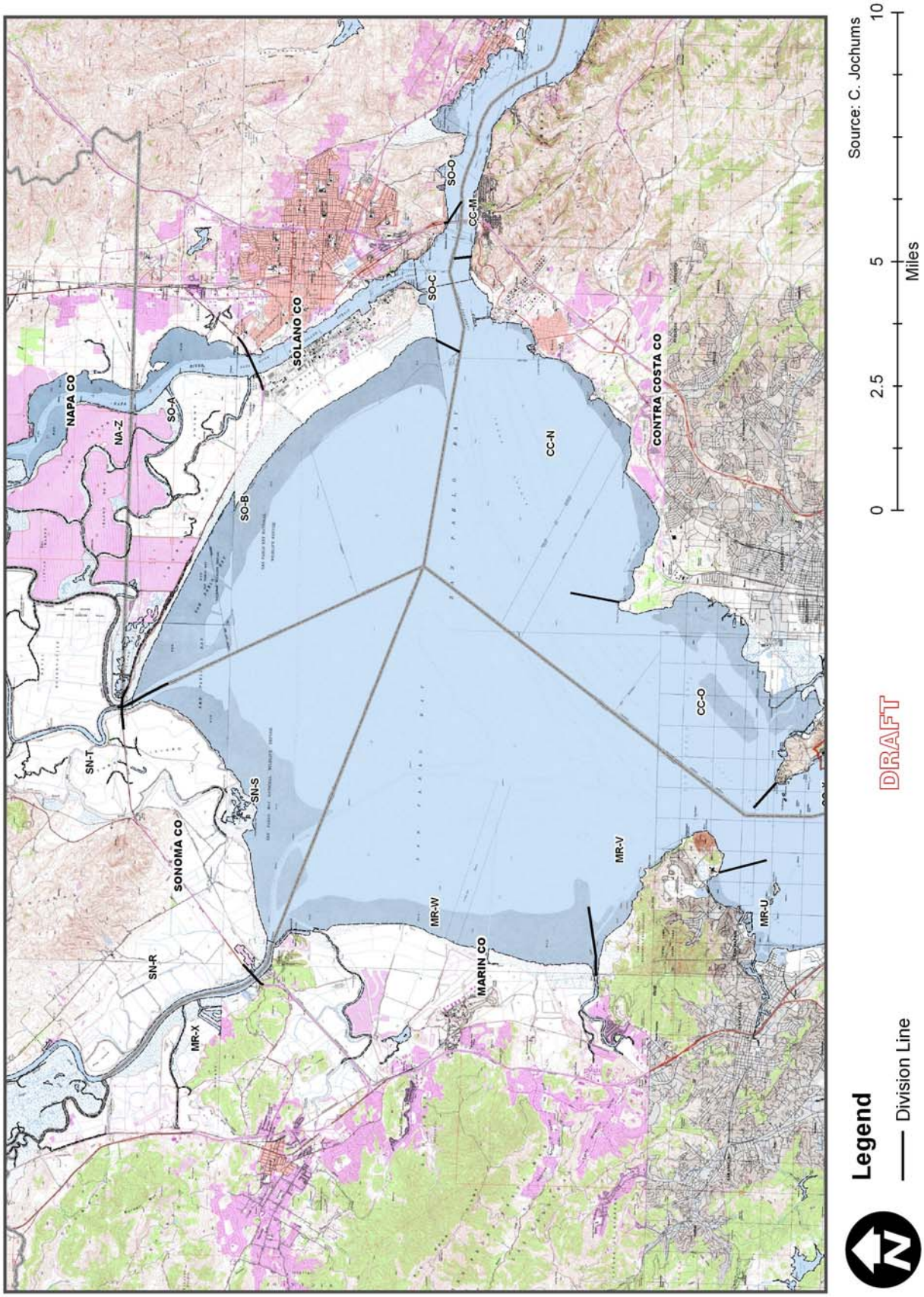
Shoreline Operational Divisions are presented in the ACP as front-loaded information to assist in rapid response planning to provide for quickly organized operational objectives and assignments along affected shorelines. The operational divisions have been developed in conjunction with the US Coast Guard, California Fish and Game OSPR, and various Oil Spill Response Organizations. Experience has demonstrated that in the earliest stages of spill response having organizational issues such as this prepared in advance is very useful to the response team.

The shoreline operational divisions are organized and named according to County boundaries. Within county domains, divisions are boundaries are guided by logical geo-political features such as coastal physical characteristics and land ownership/management issues, shoreline cleanup logistical considerations, and manageable sized coastline segments (generally not longer than about ten miles although some variation occurs.) Logistics, access, and manageability were driving considerations in this effort, particularly as it relates to types of cleanup operations required and problems likely to be present.

In ACP areas having more than one county, Shoreline Operational Divisions will utilize county codes followed by a single alpha character (A to Z). Shoreline operational divisions are labeled from north to south in each county. For example, the north-most operational division in Los Angles County is “LA-A.” In large bays (i.e. San Diego), the labeling will progress in a clockwise direction to accommodate changing coastline angles. Divisions can be easily subdivided (as necessary) by the Operations Section management to provide for appropriate work assignment effort.

Double digit alpha characters (AA to ZZ) will be used for all offshore operational areas and any other special operational areas needed during response.

GRA - 5 Shoreline Operational Divisions



9845.5 Shoreline Access

Detailed shoreline access information is provided in this section to aid Planning and Operations Section managers in rapid placement of field response personnel and equipment on coastal beaches during the emergency phase of spill response. Coastal access points were examined, mapped and photographed at virtually every location along the respective ACP coastline where personnel and equipment can gain access to specific coastal segments. Used in conjunction with Environmentally Sensitive Sites and Operational Divisions, shoreline access information enables responders to be directed to the most convenient or appropriate coastal access point for their response effort. Knowing which access point to use and the nature of any access limitation will reduce time delays in finding these locations and eliminate uncertainties about the type of equipment that can gain access. Information provided in this section includes:

a) descriptive information about the respective operational division with boundaries defined by landmark features and latitude/longitude (GPS), and a general description of recognized cultural resource issues, sensitive sites within divisions; and

b) access point specific *Thomas Bros Maps*® page and coordinates, written directions from major streets and roads, a general site description, photographs of entry points and associated shoreline, land ownership matters, and occurrence of Sensitive Sites. Descriptions may also include the length of accessed coastal segment and limitations of access where physical constraints may be a factor.

The access point identification label is a seven character alpha-numeric code describing (in order) the County (2-alpha characters) and Operational Division (1-alpha character) where the access point is located, along with a four digit number that relates to its relative physical location in the operational division. Thus, in each operational division the unit digit component will increase from north to south as access points are encountered that provide access to a discrete (partial) coastal segment of the operational division (i.e. 1110, 1115, 1120, etc.). The access point alpha-numeric code will be followed by a name the site is commonly known by (i.e. Nicholas Canyon County Beach).

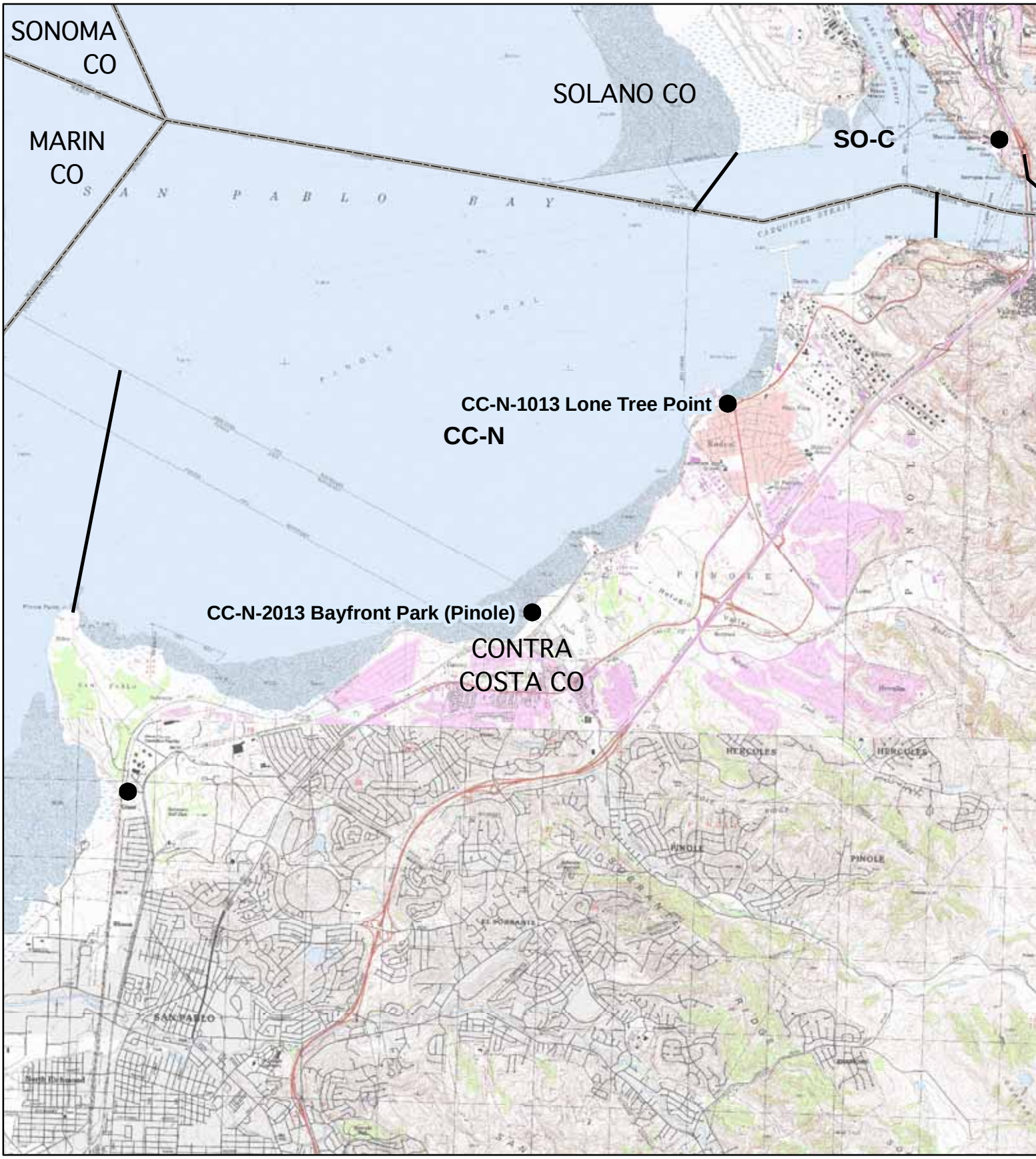
Access points are labeled from north to south within an operational division. Where segments occur within an operational division they are designated by the thousands digit of the code (i.e. 1000, 2000, 3000, etc.). An access point within a segment is identified by the tenths digit (i.e. 1010, 1020, and 1030), in this example segment one has three access points. Or, there can be multiple isolated shorelines (segments) each with only one access point (i.e. 1010, 2010, 3010, etc).

In contrast, an operational division with clear, unimpeded access for its entire length may have several access points identified by the hundreds digit (i.e.1100, 1200, 1300, 1400). In this example the operational division (1000 – which can be thought of as one large segment) is accessible from four access points with no physical barriers preventing movement along its entire length. Responders can enter at any access point, and exit again at any other (providing the pathway will accommodate the equipment). In any given operational division shoreline ownership/management may change. The unit digit of the four digit code reflects that condition (i.e. 1108, 4016, 3011, etc). Higher numbers indicate more difficult access issues. Military lands are identified by the number 9,

Federal lands such as National Parks, National Monuments, National Wildlife Refuges, etc. are identified by the number 8, Tribal lands are identified with the number 7, State Lands such as State Parks, State Beaches, etc. are identified by the number 6, and County lands are identified by the number 5. Properties of cities are labeled with 4. The number 1 identifies private property, while 0 indicates that the ownership is not known. The numbers 3 and 2 are currently not assigned.

(Shoreline access pages that follow pp 9845.5 -3 to 44 are not included in printed copies but are available on web files and other digital copies. These pages have detailed directions for shoreline access including photos but are too voluminous to include in printed copies.)

Contra Costa County, Division N - Access Names



Legend

- Access Names
- Division Lines

Source: C. Haffner - DFG-OSPR

0 0.5 1 2 Miles

Operational Divisions and Access Points in GRA 5

CC Division N **County** Contra Costa

Division Boundaries

North	Carquinez Bridge	**Latitude: N**	38.05622	**Longitude: W**	122.22481
South	Pinole Point	**Latitude: N**	38.01164	**Longitude: W**	122.36482

Division Description

Division makes up most of the southwestern portion of the San Pablo Bay shoreline. Access to shoreline [by land] may be difficult. Private industrial areas line the shore (in and around Rodeo and Pinole).

Cultural Information

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison (916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College (707) 664-0880) for specific information on historic or cultural resources in this area.

Sensitive Sites Within Division: 2-504-A Pinole Pt. Marshes - North
2-505-A Pinole Creek and Wetlands

Individual Access Points in: CC Division N

Access Point: CC - N - 1013 Lone Tree Point

Thomas Guide Page: 247 ***Grid:*** A3 ***City:*** Rodeo

GPS Coordinates: N 38.03819 W 122.26916 ***USGS Quad:*** Mare Island

Directions:

From Hwy 80 take San Pablo Ave. exit. Proceed south on San Pablo Ave. until it becomes Parker Ave. Lone Tree Point parking area will be on the right.

Site Description:

Shoreline consists of sheltered tidal mudflat. Vegetation near shore consists of stands of cordgrass, pickleweed, alkali bulrush, among others. The stands of vegetation are back by rip-rap. CAUTION: Heavily trafficed train tracks must be crossed to access shoreline. Site is adjacent to D&R Marina. Take Pacific Ave. over small bridge to access Marina and shoreline south of site.

Sensitive Sites:

Operational Divisions and Access Points in GRA 5

Access Point: CC - N - 2013 Bayfront Park (Pinole)

Thomas Guide Page: 247 ***Grid:*** A4 ***City:*** Pinole

GPS Coordinates: N 38.01344 W 122.29715 ***USGS Quad:*** Mare Island

Directions:

Exit Interstate 80 onto Appian Way and head north. Turn right onto San Pablo Avenue, then left onto Tennent. Follow over the railroad tracks into the park.

Site Description:

Tidal mudflats w/rip-rapped shoreline and small pocket coves. Stands of cordgrass, bulrush, pickleweed, etc. are present. Substrate ranges from coarse grained-sand/gravel mix to rip-rap. Paved trails run alongside large strecthes of shoreline. Pinole Creek is located on the northern border of the waste water treatment plant.

Sensitive Sites: 2-505-A

CC-N-1016 Lone Tree Point. Looking north.

CC-N-1016 Lone Tree Point. Looking south.

CC-N-1016 Lone Tree Point. Access to shoreline.

CC-N-1016 Lone Tree Point. Parking area.

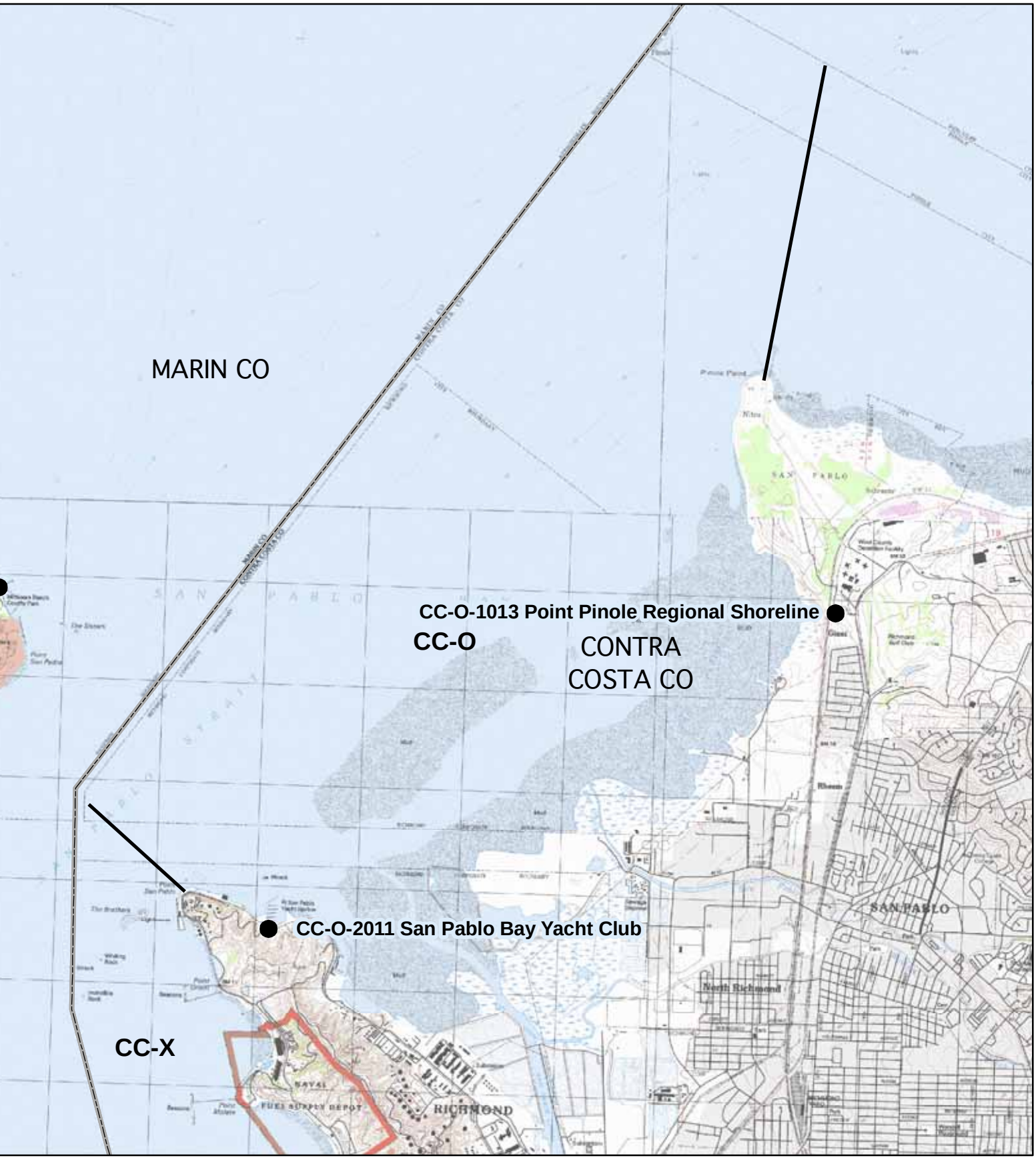
CC-N-2010 Bayfront Park. Looking north.

CC-N-2010 Bayfront Park. Looking south.

CC-N-2010 Bayfront Park. Path that runs along shoreline.

CC-N-2010 Bayfront Park. Parking area.

Contra Costa County, Division O - Access Names



Legend

- Access Names
- Division Lines

Source: C. Haffner - DFG-OSPR

0 0.5 1 2 Miles

Operational Divisions and Access Points in GRA 5

CC Division O **County** Contra Costa

Division Boundaries

North	Pinole Point	**Latitude: N**	38.01164	**Longitude: W**	122.36482
South	Point San Pablo	**Latitude: N**	37.96526	**Longitude: W**	122.42871

Division Description

Division lies at the southern end of San Pablo Bay. Much of the shoreline in this division is made up of wetland and mudflat areas.

Cultural Information

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison (916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College (707) 664-0880) for specific information on historic or cultural resources in this area.

Sensitive Sites Within Division:

2-501-A	Castro Creek Marshes
2-502-A	San Pablo Creek Marshes
2-503-A	Pinole Pt. Marshes- South
2-506-A	San Pablo Eelgrass Bed

Individual Access Points in: CC Division O

Access Point: CC - O - 1013 Point Pinole Regional Shoreline

Thomas Guide Page: 246 ***Grid:*** D4 ***City:*** San Pablo

GPS Coordinates: N 37.9915 W 122.35597 ***USGS Quad:*** Mare Island

Directions:

From Hwy 80 take Richmond Parkway Exit. Right on Giant Hwy. Follow signs to shoreline parking area.

Site Description:

Many tidal inlets along northern portion of shoreline. Wetland/marsh areas line shoreline; large stands of wetland vegetation (i.e. cordgrass and pickleweed). Large parking area with 30+ spaces. Paved access runs toward shoreline. Contact East Bay Regional Parks District (510) 635-0135 for vehicle access.

Sensitive Sites: 2-503-A 2-504-A

Operational Divisions and Access Points in GRA 5

Access Point: CC - O - 2011 San Pablo Bay Yacht Club

Thomas Guide Page: 246 ***Grid:*** C5 ***City:*** Richmond

GPS Coordinates: N 37.9621 W 122.41915 ***USGS Quad:*** San Quentin

Directions:

From westbound Hwy 580 Richmond/San Rafael Bridge. Take the Point Molate exit just before the toll plaza. Stay left at the fork in the road. Then follow sign to the yacht harbor.

Site Description:

Mostly rip-raped shoreline. Several pocket beaches made up from gravel/cobble substrate. Pilings, rip-rap, and floating residences are located inside harbor.

Sensitive Sites:

CC-O-1016 Pinole Point Regional Shoreline. Pocket beach on the south of Pt. Pinole.

CC-O-1016 Pinole Point Regional Shoreline. Looking south.

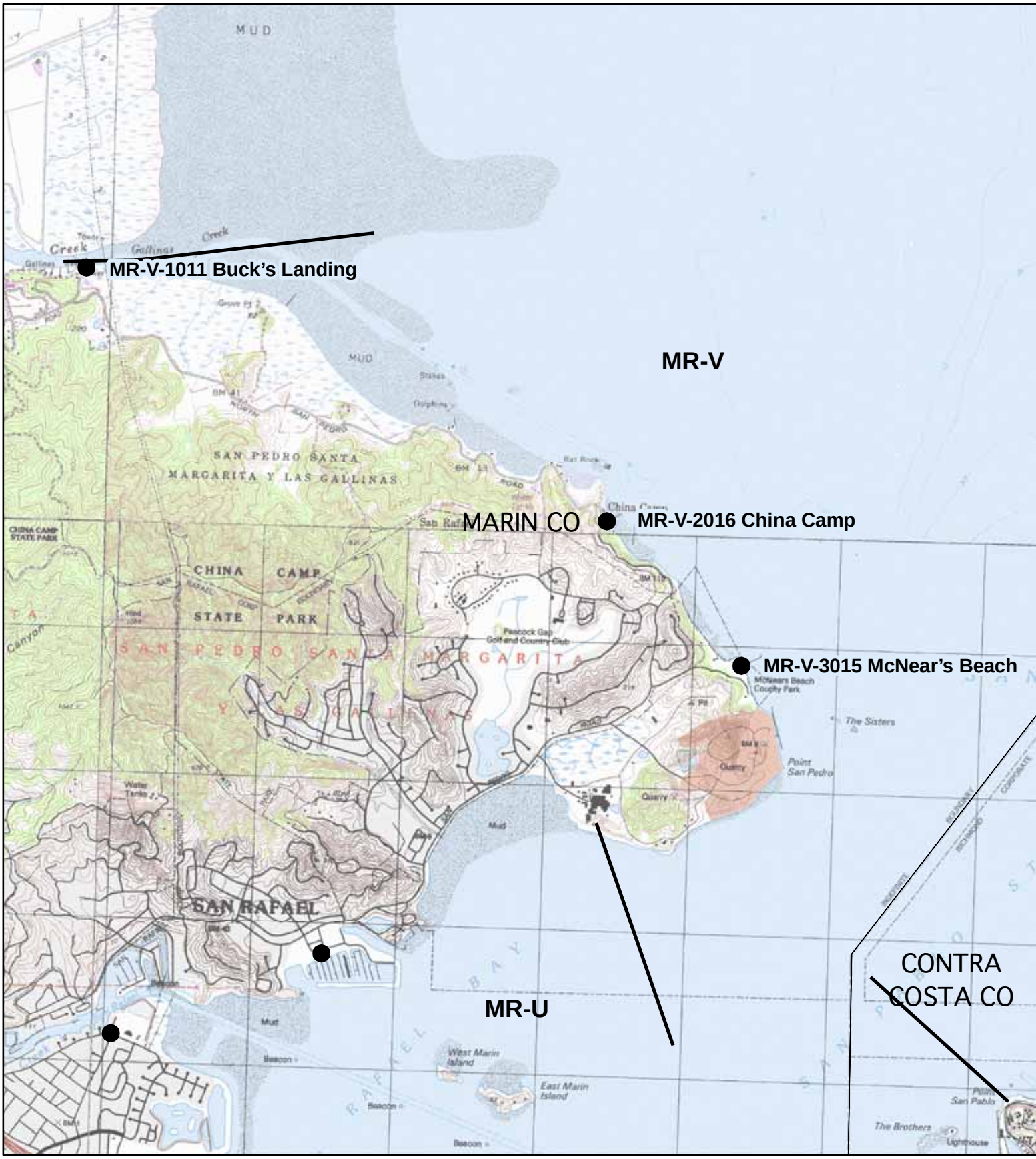
CC-O-1016 Pinole Point Regional Shoreline. Parking area.

CC-O-2011 San Pablo Bay Yacht Harbor. Looking west.

CC-O-2011 San Pablo Bay Yacht Harbor. Looking north.

CC-O-2011 San Pablo Bay Yacht Harbor. Parking area.

Marin County, Division V - Access Names



Legend

- Access Names
- Division Lines

Source: C. Haffner - DFG-OSPR

0 0.25 0.5 1 Miles

Operational Divisions and Access Points in GRA 5

MR Division V **County** Marin

Division Boundaries

North	Gallinas Creek	**Latitude: N**	38.01609	**Longitude: W**	122.5064
South	Mudflat interface	**Latitude: N**	37.98236	**Longitude: W**	122.46351

Division Description

Division's shoreline varies from bayfront marshes and mudflats to rocky shores. China Camp State Park makes up the majority of this division's shoreline.

Cultural Information

There are cultural resources present. Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison (916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College (707) 664-0880) for specific information on historic or cultural resources in this area.

Sensitive Sites Within Division: 2-552-A China Camp Marsh
2-553-A Gallinas Creek Marshes

Individual Access Points in: MR Division V

Access Point: MR - V - 1011 Buck's Landing

Thomas Guide Page: 324 ***Grid:*** G1 ***City:*** San Rafael

GPS Coordinates: N 38.01568 W 122.50313 ***USGS Quad:*** Novato

Directions:

From Highway 101, take N. San Pedro Rd. exit. Address is 665 San Pedro Rd. Look for a homemade wooden sign, it is easily missed. High power lines transect area.

Site Description:

Site is at the mouth of Gallinas Creek. Shoreline is lined by tidally influenced wetland habitat. Area may be utilized by migratory waterfowl and shorebirds.

Sensitive Sites: 2-553-A

Access Point: MR - V - 2016 China Camp

Thomas Guide Page: 246 ***Grid:*** C4 ***City:*** San Rafael

GPS Coordinates: N 38.0007 W 122.46154 ***USGS Quad:*** Petaluma Point

Directions:

From Highway 101 take San Pedro Road exit. Continue until you reach China Camp Village (w/in China Camp State Park).

Site Description:

Historical site characterized by its gravel shoreline. State Parks maintains site. Shoreline bordered by steep heavily vegetated cliffs.

Sensitive Sites: 2-552-A

Access Point: MR - V - 3015 McNear's Beach

Thomas Guide Page: 246 ***Grid:*** C4 ***City:*** San Rafael

GPS Coordinates: N 37.99195 W 122.45062 ***USGS Quad:*** San Quentin

Directions:

From Highway 101 take San Pedro Road exit. Proceed to Cantera Way. Continue to entrance of McNear's Beach.

Site Description:

Shoreline varies from medium grain sand to rip-rap. Public fishing pier on-site. Ample parking spaces with rest rooms, heavy equipment access, etc. Eelgrass beds lay just offshore.

Sensitive Sites:

MR-V-1011 Buck's Landing. Looking west.

MR-V-1011 Buck's Landing. Looking east.

MR-V-1011 Buck's Landing. Boat launch.

MR-V-1011 Buck's Landing. Parking area.

MR-V-2016 China Camp. Looking north.

MR-V-2016 China Camp. Looking south.

MR-V-2016 China Camp. Parking area.

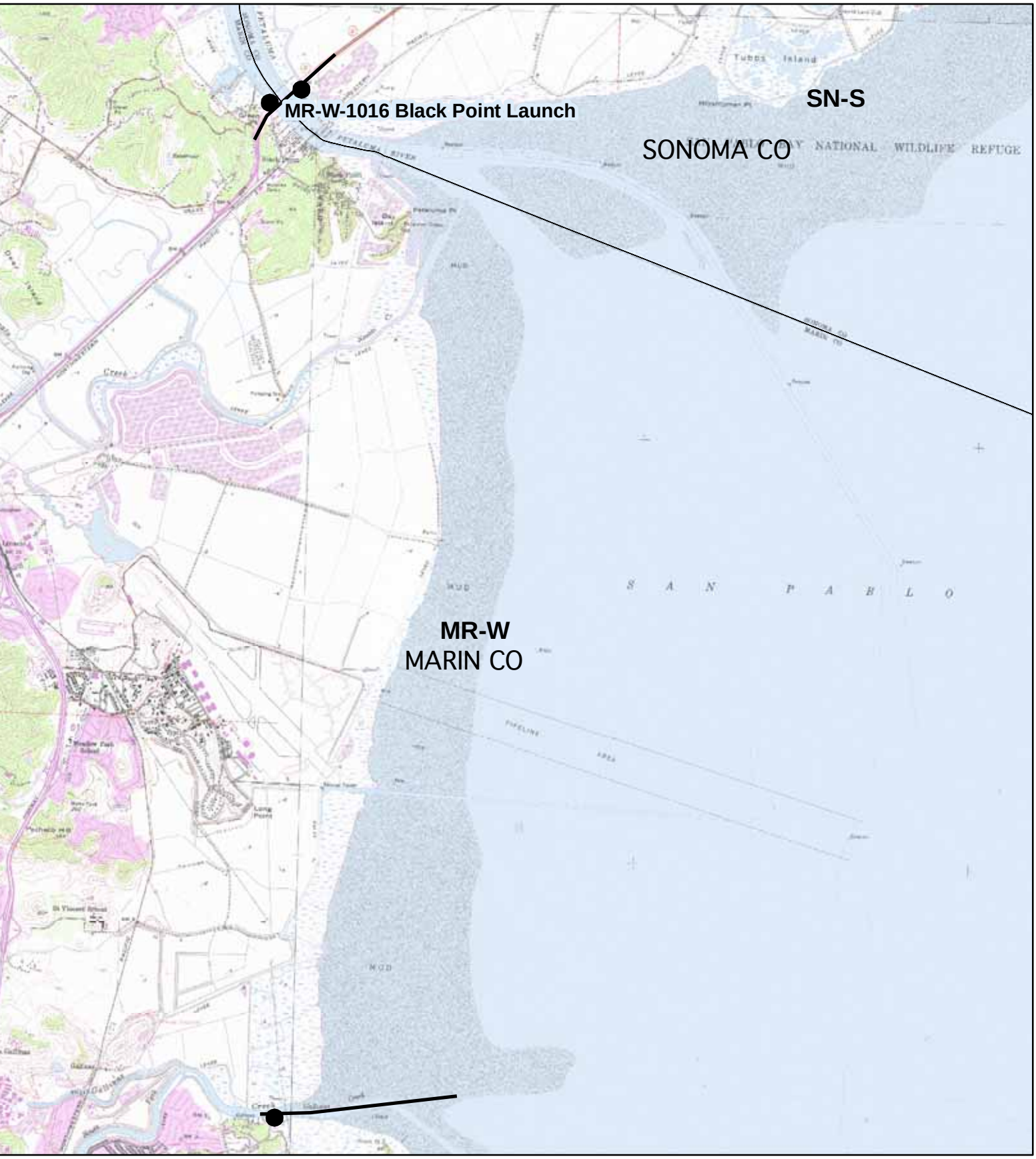
MR-V-3015 McNear's Beach. Looking north.

MR-V-3015 McNear's Beach. Looking south.

MR-V-3015 McNear's Beach. View of shoreline south of fishing pier.

MR-V-3015 McNear's Beach. Parking area.

Marin County, Division W - Access Names



Legend

- Access Names
- Division Lines

Source: C. Haffner - DFG-OSPR

0 0.5 1 2 Miles

Operational Divisions and Access Points in GRA 5

MR Division W **County** Marin

Division Boundaries

North	Marin/Sonoma County line	**Latitude: N**	38.11292	**Longitude: W**	122.50238
South	Gallinas Creek	**Latitude: N**	38.01609	**Longitude: W**	122.5064

Division Description

Tidal marsh and mudflats line shoreline in this division, making access difficult. Several Special Status Species occur in these marshes: the endangered California clapper rail and the threatened black rail. These marshes and the adjacent tidal flats are heavily used my migratory shorebirds and waterfowl from September through April.

Cultural Information

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison (916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College (707) 664-0880) for specific information on historic or cultural resources in this area.

Sensitive Sites Within Division:

2-554-A Novato Creek Marshes

2-571-A Petaluma River Marshes

Individual Access Points in: MR Division W

Access Point: MR - W - 1016 Black Point Launch

Thomas Guide Page: 246 ***Grid:*** C2 ***City:*** Novato

GPS Coordinates: N 38.1153 W 122.50705 ***USGS Quad:*** Novato

Directions:

From Highway 37 take Harbor Avenue exit. Continue along Harbor Ave. under Highway 37 to the boat launch area.

Site Description:

Shoreline consists of tidal wetland habitat (e.g. Spartina, tules). Site is near the mouth of the Petaluma River. Parking is limited (~ 20 spaces; with additional 20 spaces located across Harbor Ave.).

Sensitive Sites: 2-571-A

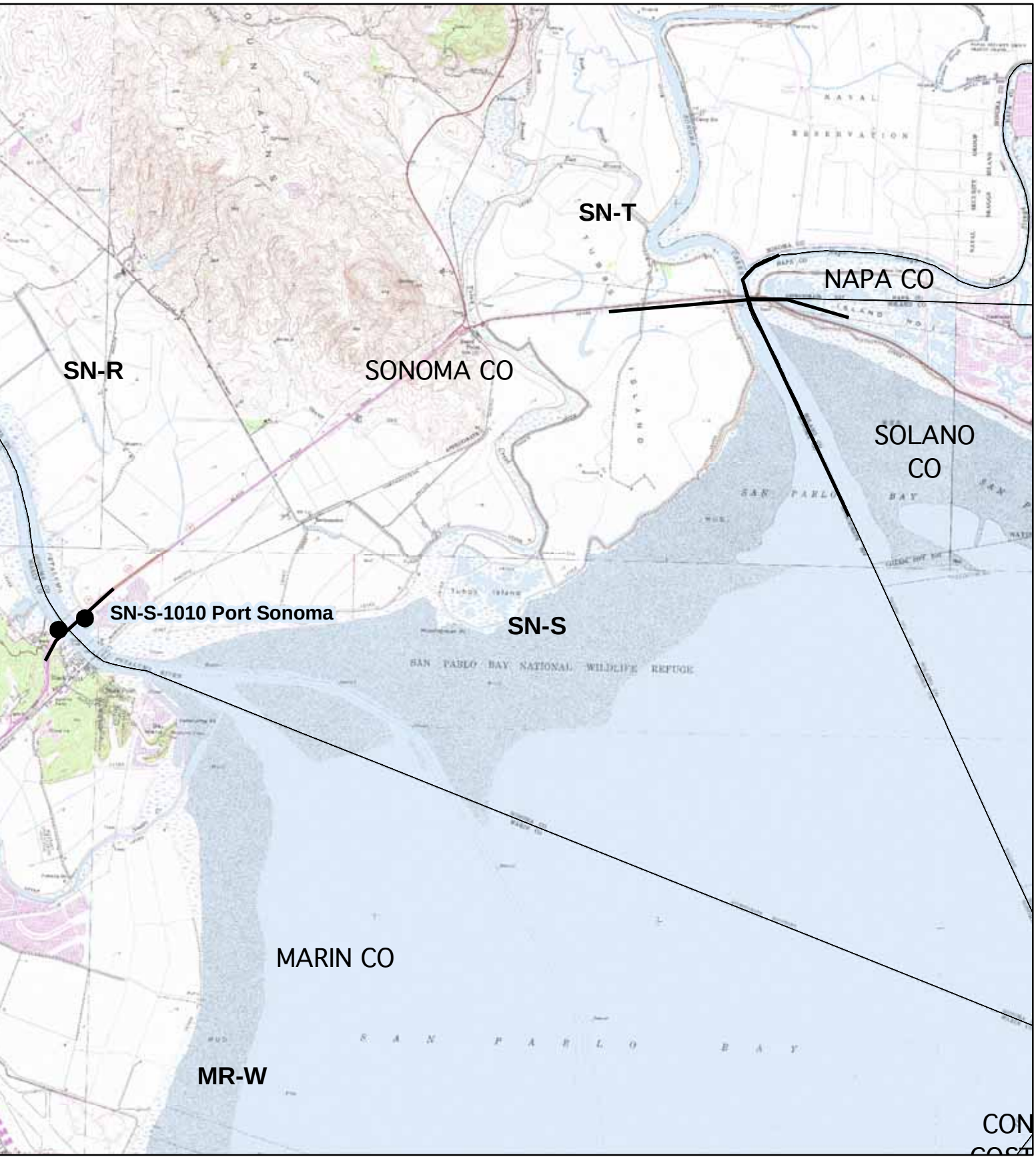
MR-W-1016 Black Point Launch. Looking northwest.

MR-W-1016 Black Point Launch. Looking southeast.

MR-W-1016 Black Point Launch. Boat launch area.

MR-W-1016 Black Point Launch. Parking area.

Sonoma County, Division S - Access Names



Legend

- Access Names
- Division Lines

Source: C. Haffner - DFG-OSPR

0 0.5 1 2 Miles

Operational Divisions and Access Points in GRA 5

SN Division S **County** Sonoma

Division Boundaries

North	Solano/Sonoma County line	**Latitude: N**	38.15529	**Longitude: W**	122.40685
South	Marin/Sonoma County line	**Latitude: N**	38.11292	**Longitude: W**	122.50238

Division Description

Shoreline in this division is fronted by mudflats making access by water difficult on all but the highest tides. The marshes between Petaluma River and Tolay Creek are prograding and shallow very gradually, supporting 100 to 200 meter wide continuum of biota from tidal flat to high marsh: unvegetated to cordgrass to pickleweed dominated. The San Pablo Bay National Wildlife Refuge abuts San Pablo Bay at Tolay Creek mouth with a mile of riprap dike frontage to the east and which has three additional openings exchanging directly with the Bay.

Cultural Information

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison (916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College (707) 664-0880) for specific information on historic or cultural resources in this area.

Sensitive Sites Within Division: 2-572-A Tolay Creek Marsh
2-581-A Sonoma Creek/Napa Slough

Individual Access Points in: SN Division S

Access Point: SN - S - 1010 Port Sonoma

Thomas Guide Page: 246 ***Grid:*** C2 ***City:*** n/a

GPS Coordinates: N 38.1167 W 122.50319 ***USGS Quad:*** Petaluma Point

Directions:

Off of Highway 37 just east of the Petaluma River. Follow signs from highway.

Site Description:

Shoreline consists of tidal wetland habitat (e.g. Spartina, tules). Site iborders the Petaluma River. Directly across the river from Balck Point launch site. Approximately 25 vehicle parking spaces. Area contains moderate number of boat slips.

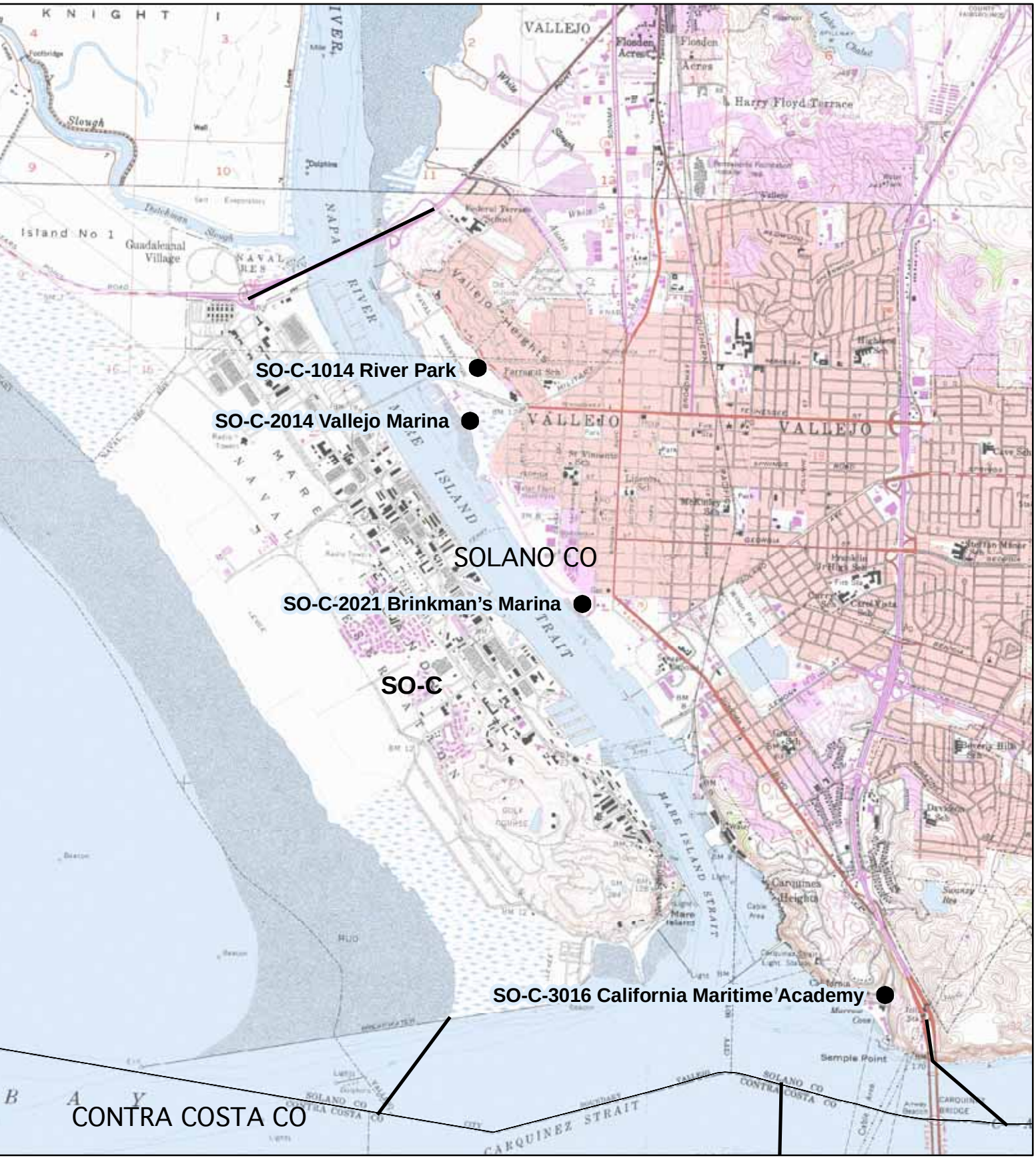
Sensitive Sites: 2-571-A

SN-S-1010 Port Sonoma. Looking north.

SN-S-1010 Port Sonoma. Looking south.

SN-S-1010 Port Sonoma. Parking area.

Solano County, Division C - Access Names



Legend

- Access Names
- Division Lines

Source: C. Haffner - DFG-OSPR

0 0.25 0.5 1 1.5 Miles

Operational Divisions and Access Points in GRA 5

SO Division C **County** Solano

Division Boundaries

North	Breakwater	**Latitude: N**	38.06863	**Longitude: W**	122.25853
South	Carquinez Bridge	**Latitude: N**	38.06492	**Longitude: W**	122.22592

Division Description

This division encompasses the Napa River (from Hwy 37) south and extends west to the breakwater off of Mare Island (in San Pablo Bay) and east to the Carquinez Bridge. Mare Island Naval base makes up the western portion of this division and the Vallejo waterfront (with its marinas and boat launch) make up a large portion of the eastern shoreline.

Cultural Information

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison (916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College (707) 664-0880) for specific information on historic or cultural resources in this area.

Sensitive Sites Within Division: 2-583-A Napa River Marshes

Individual Access Points in: SO Division C

Access Point: SO - C - 1014 River Park

Thomas Guide Page: 247 ***Grid:*** A2 ***City:*** Vallejo

GPS Coordinates: N 38.11278 W 122.26757 ***USGS Quad:*** Mare Island

Directions:

From Highway 37 take Wilson Ave. exit and head southeast to River Park enterance.

Site Description:

Parking lot has ~50 spaces. Shoreline lined with tidal marsh vegetation (i.e. Spartina, pickleweed, etc.). Path extends ~300m along the Napa River. Area south of Tennessee St. overpass is backed by rip-rap and bordered to the south by boat slips encompassed in the Vallejo Marina.

Sensitive Sites: 2-583-A

Access Point: SO - C - 2014 Vallejo Marina

Thomas Guide Page: 247 ***Grid:*** A2 ***City:*** Vallejo

GPS Coordinates: N 38.10905 W 122.26813 ***USGS Quad:*** Mare Island

Directions:

From Highway 37 take Wilson Ave. exit and head south of Tennessee St. Take a right on to Harbor Way into marina.

Site Description:

Site adjacent to USCG's Vallejo Station. Large parking area with facilities and Harbor Master's office. The marina is lined with rip-rap and it's breakwater separates it from the Napa River. Boats can be launched at Brinkman's.

Sensitive Sites:

Operational Divisions and Access Points in GRA 5

Access Point: SO - C - 2021 Brinkman's Marina

Thomas Guide Page: 247 ***Grid:*** A2 ***City:*** Vallejo

GPS Coordinates: N 38.09644 W 122.25779 ***USGS Quad:*** Mare Island

Directions:

From Highway 37 take Wilson Ave. exit and head south of Vallejo Ferry Terminal. Brinkman's is on the right.

Site Description:

Site has large parking area with boat launch and bait/supply shop on-scene. Shoreline is heavily rip-rapped with sparse vegetation.

Sensitive Sites:

Access Point: SO - C - 3016 California Maritime Academy

Thomas Guide Page: 247 ***Grid:*** B3 ***City:*** Vallejo

GPS Coordinates: N 38.06962 W 122.23013 ***USGS Quad:*** Benicia

Directions:

From Interstate 80 (westbound), take Cal. Maritime Drive exit.

Site Description:

Large parking lot with many facilities. Shoreline dominated by rip-rap. Several boat docks on scene. Launching facilities at Brinkman's.

Sensitive Sites:

SO-C-1014 River Park. Looking north towards Highway 37.

SO-C-1014 River Park. Shoreline south of Tennessee Street overpass.

SO-C-1014 River Park. Path to shoreline.

SO-C-1014 River Park. Parking area.

SO-C-2014 Vallejo Marina. View of the southern portion of the marina's shoreline.

SO-C-2014 Vallejo Marina. Parking area.

SO-C-2021 Brinkman's Marina. Shoreline south of boat launch.

SO-C-2021 Brinkman's Marina. Boat launch.

SO-C-2021 Brinkman's Marina. Parking area.

SO-C-3016 California Maritime Academy. Looking east.

SO-C-3016 California Maritime Academy. Looking west.

SO-C-3016 California Maritime Academy. Parking area.

This Page Left Intentionally Blank