Appendix G: Potential Caspian Tern Nesting Sites in the Pacific Coast Region: Selection Process and Proposed Management Actions

The process used to identify the seven sites in this DEIS consisted of an initial review (feasibility assessment) of Caspian tern nesting habitat that was conducted by the Service in 2002 (see Seto et al. 2003 for full report). A total of 77 individual historic, current, and potential nesting sites (sites with appropriate habitat) in Washington, Oregon, California, Idaho, and Nevada were evaluated in this study (including site visits) to determine their management potential for Caspian terns (Seto et al. 2003). Sites in or near the Columbia River, such as Crescent Island, were eliminated from consideration because specific activities to enhance Caspian tern colonies in these locations would not contribute to the goal of reducing impacts to ESA-listed Columbia River salmonids. During the feasibility assessment, a site was determined to have management potential for Caspian terns if the following conditions were met (Seto et al. 2003, Table G.1):

1. Suitable nesting habitat is present or habitat enhancement requirements are minimal,
2. Site is available or could be managed for nesting terns every year,
3. Site can support a substantial number of breeding terns (350 to 2,000 nesting pairs),
4. Prey is available in most or all years,
5. Potential predators (mammalian and avian) are absent or controllable, and
6. Levels of natural or human disturbance are absent, minimal, or controllable.

Sites determined to have management potential for Caspian terns were also ranked to identify those sites which had the best potential to serve as alternate nesting habitat for terns displaced from East Sand Island (Tables G.2 and G.3). Based on this initial review, further investigation of sites, public scoping, and comments received by the states of Washington, Oregon, and California, the list of potential nesting sites for displaced Caspian terns was refined for analysis in this DEIS. A few sites not discussed in the feasibility assessment (e.g. Dungeness National Wildlife Refuge (NWR), Yolo Bypass Wildlife Area, and City of Davis Wetlands) were identified during scoping.

Although these sites were identified as having potential for Caspian tern management, some sites were eliminated from further consideration in this EIS (See Table G.4 for a summary of nesting sites that were not selected and the reason for elimination). These included socio-political and biological concerns expressed by Washington Department of Fish and Wildlife (WDFW), Oregon Department of Fish and Wildlife (ODFW), California Fish and Game (CDFG), and the Service's California/Nevada Operations office. For example, several sites in coastal Washington (e.g., Grays Harbor and Padilla Bay) were identified in the feasibility assessment (Seto et al. 2003, Table G.1) as having high management potential for development of tern nesting habitat, but have been eliminated from further consideration because WDFW does not support or would not facilitate the managed relocation of Caspian terns within Washington. Since Caspian terns established a colony at Dungeness NWR in 2003 on their own accord, this site remained in our analysis.

ODFW will not support managed relocation of Caspian terns to non-historic nesting sites in Oregon. Since terns have not been documented to nest on the Oregon Coast, sites on the coast that were identified in the feasibility assessment were eliminated from further consideration (Seto et al. 2003, Table G.1). Crump and Summer lakes, although identified as having no management potential in the feasibility assessment, are included in the DEIS at the request of ODFW because they are historic or current nesting sites. Although Fern Ridge Lake is not a historic tern nesting site in Oregon, we included Fern Ridge Lake in our analysis. The Willamette and McKenzie rivers are about 15 miles from the area and since a variety of resident fish species are present in the lake, we do not expect ESA-listed salmonids to serve as a primary food resource for the terns. Thus, although this is not a historic tern nesting site, relocation of terns to this site may not result in high levels of predation on other salmonid stocks.

Similarly, CDFG will support Caspian tern management in California only at historic colonies. Therefore, although the scoping process of this EIS identified development of tern nesting habitat at the Yolo Bypass Wildlife Area and City of Davis Wetlands in the Sacramento Valley, these sites were removed from further analysis because they are not historical Caspian tern nesting sites. Additionally, although Humboldt Bay is a historic tern nesting site, Teal Island in the Humboldt Bay National Wildlife Refuge (NWR) was eliminated from further consideration in this EIS because of concerns

expressed by CDFG and the Service's California/ Nevada Operations office about the potential impact of tern predation on ESA-listed salmonids and partnership efforts associated with salmon recovery. Although management actions associated with this EIS are not proposed for these sites, displaced Caspian terns may select to nest on these sites or any other sites in the region by their own accord.

Final criteria used to identify potential nesting sites listed in Table 2.1 included:

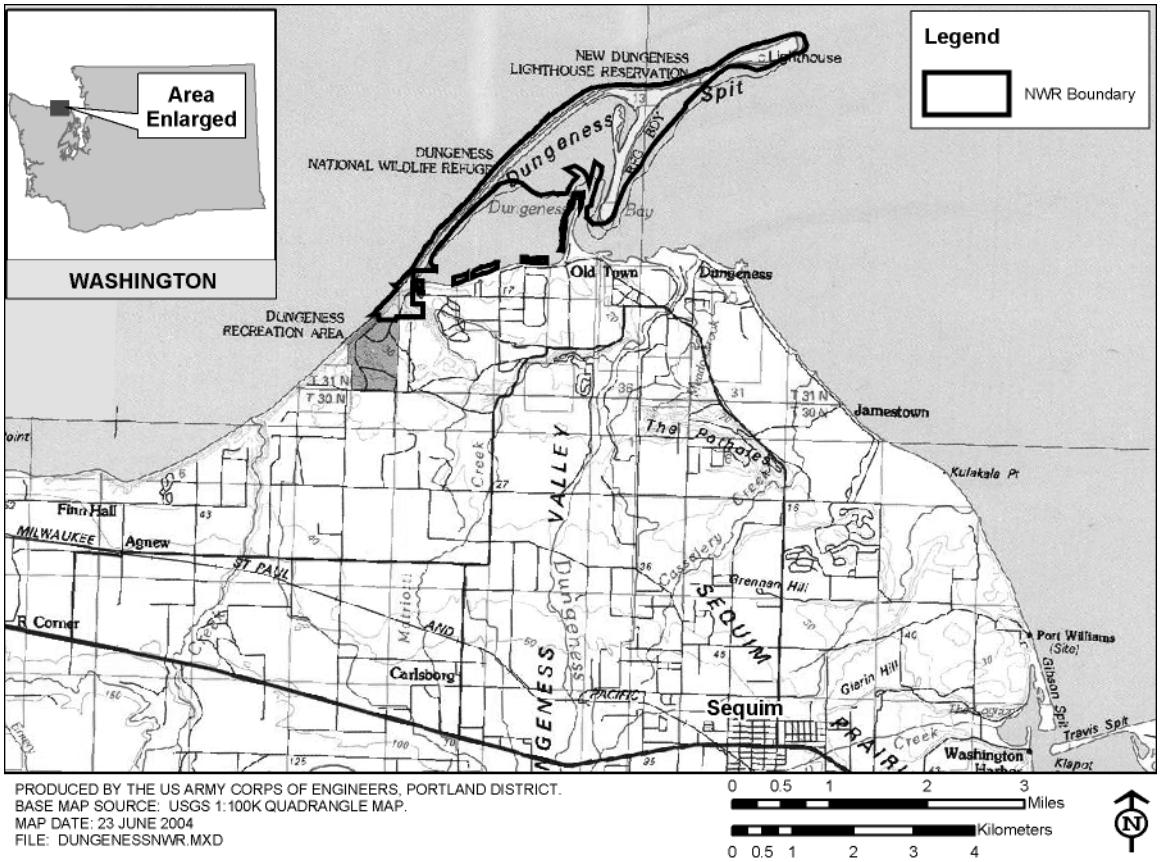
1. Relative stability and abundance of suitable prey (i.e., prey are heavily dependent on annual water levels at interior sites vs. sites with more stable water/prey resources),
2. Availability of or capability to improve/develop Caspian tern nesting habitat in the near future (2005 to 2008),
3. Ability to attract nesting terns from East Sand Island (using distance from East Sand Island as an indicator), and,
4. Minimal conflict with ESA-listed species.

Potential Caspian Tern Nesting Sites and Possible Management Actions

Management actions that would be required at each potential site if selected for implementation are described below and summarized in Table 2.1.

Dungeness NWR. Since the completion of the feasibility assessment report, a new site, Dungeness NWR (Figure G.1), in northwestern Washington, became available for consideration because terns established a new nesting colony there in 2003. The current Caspian tern nesting site at Dungeness NWR could accommodate an increased number of nesting terns and thus, does not require any habitat enhancement. However, protecting this newly established Caspian tern colony to decrease possible human disturbance and predator access would provide a secure nesting site less susceptible to factors that would otherwise lead to site failure or abandonment. This includes adding educational signs to notify visiting public of the existing closed area, enforcing closures, and monitoring predator activity. If predators, primarily mammalian, become

FIGURE G.1 Dungeness National Wildlife Refuge (NWR), Washington



a problem, a predator management program may be considered to ensure successful tern nesting. However, the control or elimination of predators may not be feasible because this site is connected to the mainland, unlike an island site which has limited predator access.

Estimated costs: $ 65,000.00 (first year costs, including monitoring)

Crump Lake. Management actions proposed at Crump Lake (Figure G.2), in south-central Oregon, are extensive. Since the reconstructed nesting island (Crump Island) lies below full lake water levels and is subject to erosion, we propose to build up the island to an elevation that would remain above high water levels. This would be achieved by using a "mudcat" hydraulic dredge to place material from the lakebed to form the island. An interlocking, plastic sheet pile wall would be used around the island to hold the dredged material in place. These activities would occur during the month of June when water levels would be at their highest. To stabilize the surface of the constructed island (1.5 acres) and to reduce the risk of dense vegetation encroachment, the island would be capped with gravel and fines. This material would need to be placed on site via helicopter. Social attraction techniques using decoys and vocalization recordings would be used to attract terns to nest at the new island site.

Estimated costs: $ 1,192,413.00 (first year costs, including construction and monitoring)

Summer Lake. The historic Caspian tern nesting island in Summer Lake (Figure G.3), also in south-central Oregon, is connected to the mainland during low water years, resulting in increased vulnerability to predators. Since it would be difficult to ensure that this island remains isolated during low water level years, we propose to build new islands in wetland impoundments north of Summer Lake within the ODFW Wildlife Management Area. Proposed management actions for the Summer Lake Wildlife Management Area would occur at the East Link impoundment, and adjacent to the Windbreak and Gold Dike locations. ODFW personnel have better control of the water in these impoundments. Thus, they would serve as higher quality and more predictable habitat for Caspian terns. The East Link location is a diked, rectangular impoundment that would need to be allowed to dry in late November-early December to allow for a late July to September construction period. A 0.5 acre island would be constructed at this site, centered in the unit. Material for the island will come from either of two methods. If site conditions are suitable,

FIGURE G.2 Crump Lake, Oregon

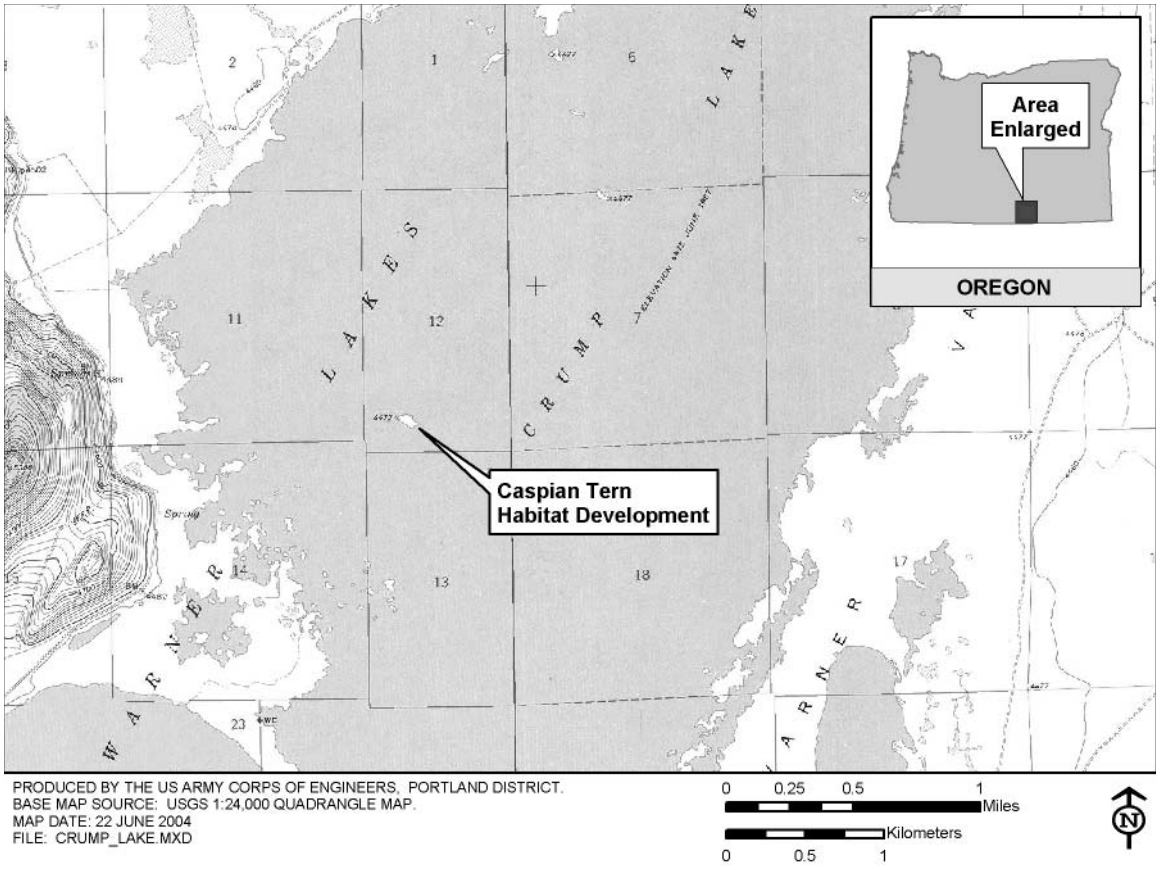


FIGURE G.3 Summer Lake, Oregon

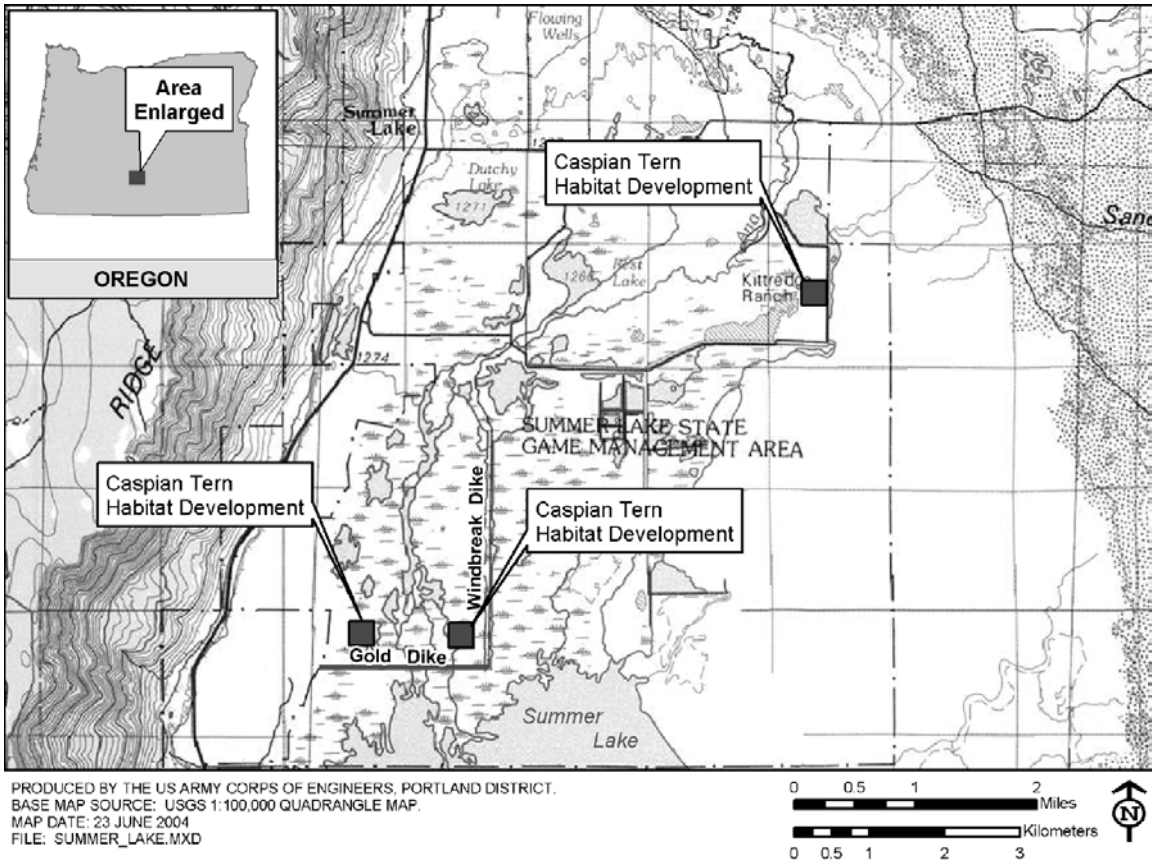
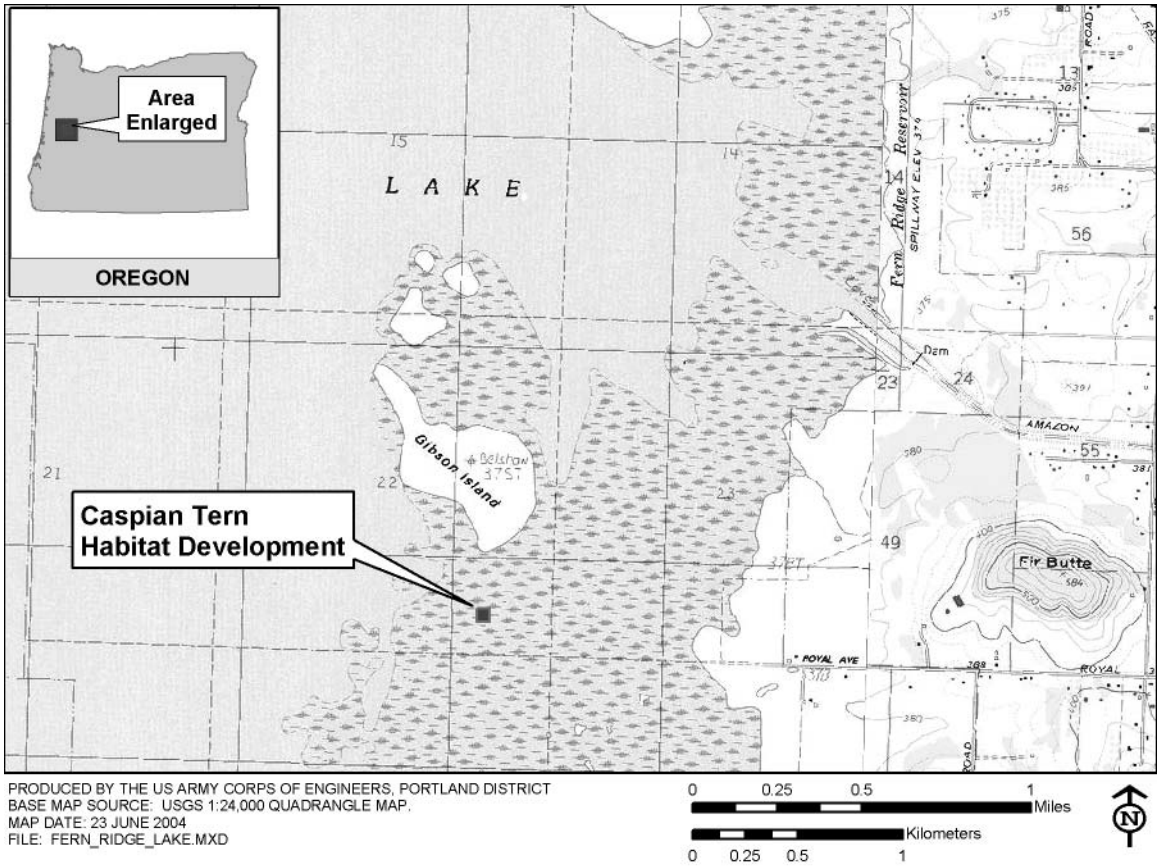


FIGURE G.4 Fern Ridge Lake, Oregon



excavators would be used to push material to the island from adjacent land. The second construction method would obtain the necessary borrow material from dry soil formerly sidecast from the maintenance excavation of the East Link canal. This material would need to be trucked into the site. Once the island is completed, a top dressing of relatively fine gravels (approximately pea-size or smaller) obtained from an ODFW quarry would be placed on the island. This material would provide a suitable nesting substrate for terns. A construction access road would be constructed for gravel trucks to reach the constructed island. Upon completion of the project, the road would be sidecast back into the borrow pits from which it was constructed.

Two additional 0.5 acre-islands would also be constructed off the Windbreak and Gold dikes. Both of these dikes are located within a diked impoundment. As with the East Link location, the impoundment would need to be allowed to dry before construction, again preceded by a drawdown initiated in late November to early December. Construction at these sites would occur as described above for the East Link site. As with Crump Lake, social attraction techniques would also be used to attract terns to all three islands that would be constructed at this site.

Estimated costs: $ 600,873.00 (first year costs, including construction and monitoring)

Fern Ridge Lake. Fern Ridge Lake (Figure G.4), in the southern Willamette Valley of Oregon, currently contains no appropriate nesting habitat for Caspian terns. The Corps has prepared a conceptual draft for the construction of a 1-acre island in the reservoir to serve as nesting habitat for terns (U.S. Army Corps of Engineers 1998). We propose to implement this project and attract terns to the site with social attraction techniques. A 1-acre island would be constructed off Royal Avenue within the full pool boundary.

Estimated costs: $ 428,807.00 (first year costs, including construction and monitoring)

San Francisco Bay. Brooks Island. In San Francisco Bay, California (Figure G.5), there are several sites that could be enhanced for Caspian terns. On Brooks Island (Figure G.6), we propose to assist the East Bay Regional Parks Department in removing vegetation adjacent to the current tern nesting area to create more open habitat for nesting terns. Open habitat at higher elevations would help eliminate the possibility of nest loss due to flooding at high tide. Increased enforcement of area closures would also protect the tern nesting colony. Rats have been documented on the island and may need to be controlled or eliminated to ensure long-term nesting success for the terns. Predator control (avian and mammalian), may also be necessary. In addition, we would explore various methods to prevent erosion of the spit at Brooks Island that is currently occurring. Estimated costs: $ 56,000.00 (first year costs, including habitat management and monitoring)

Ponds N1/N9. Ponds N1/N9 in the Don Edwards San Francisco Bay NWR (Figure G.7) are active salt ponds with numerous internal levees that are closed to visiting public. Although nesting terns have used nearby areas, no nesting activity has been documented at this site. Nesting habitat could be created for terns by enhancing nesting substrate and increasing predator control. Gravel or oyster shells would be deposited on the site via helicopter. Social attraction techniques would also be used.

Estimated costs: $ 174,000.00 (first year costs, including construction and monitoring)

Hayward Regional Shoreline. Hayward Regional Shoreline (Figure G.8) is also managed by East Bay Regional Parks. This site contains a number of inactive salt ponds that are now managed for various wildlife species. Numerous islands are found throughout the former salt ponds. A single pair of Caspian terns has nested at this site in recent years. Nesting habitat can be enhanced on Islands 2, 6, and 7 and include removing existing vegetation, installing a weed barrier fabric, saturating the site with salt to prevent vegetation growth, and improving the substrate with sand or oyster shells (via helicopter). Social attraction techniques would also be used.

Estimated costs: $ 174,000.00 (first year costs, including construction and monitoring)

FIGURE G.5 Caspian Tern Management Sites in San Francisco Bay, California

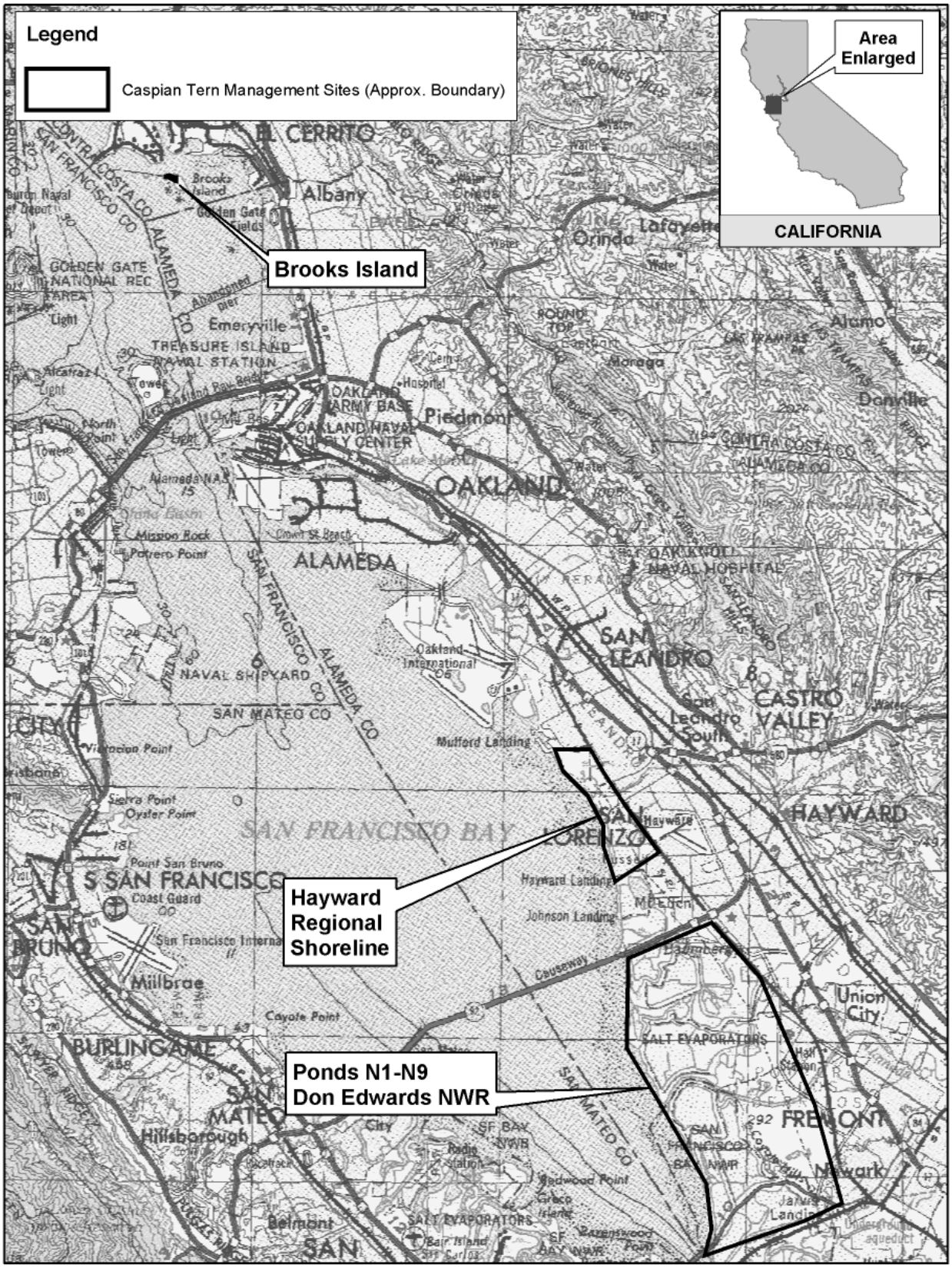


FIGURE G.6 Brooks Island, San Francisco Bay, California

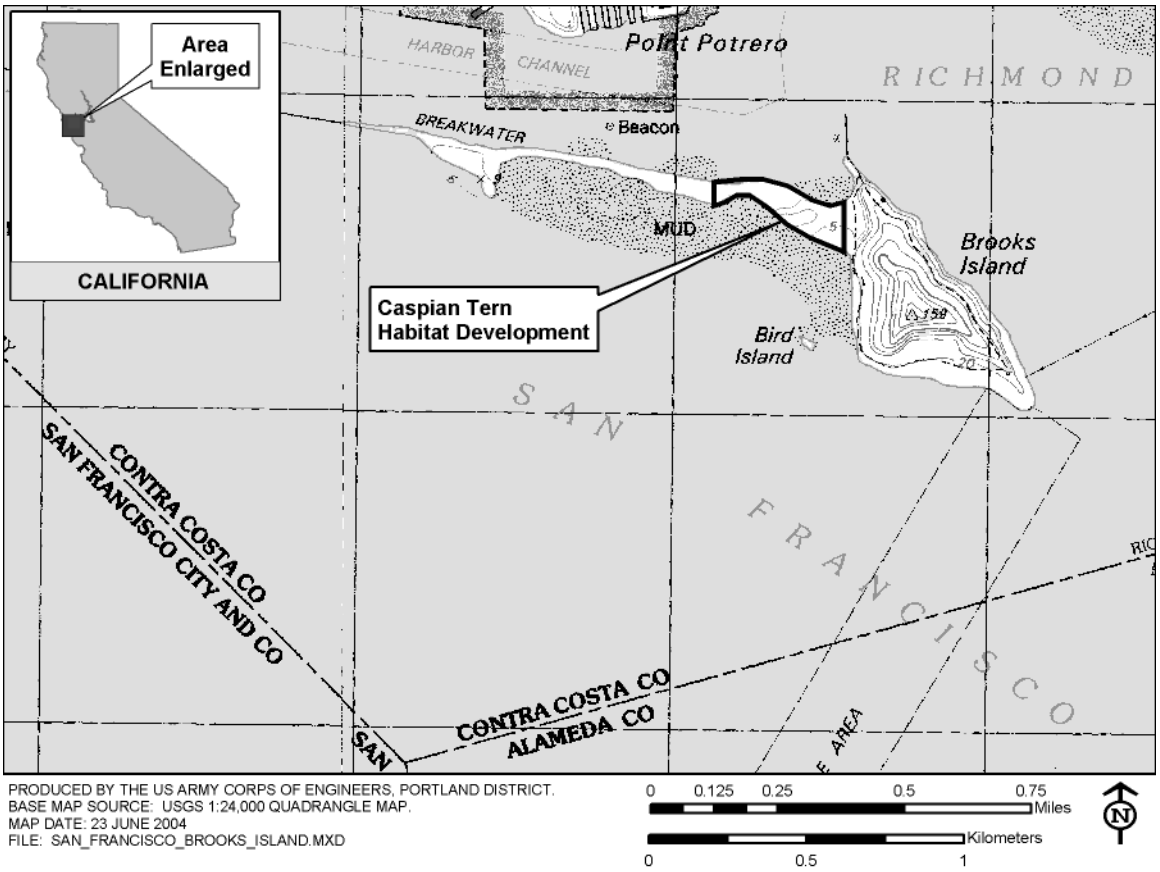


FIGURE G.7 Ponds N1/N9 in the Don Edwards San Francisco Bay NWR, California

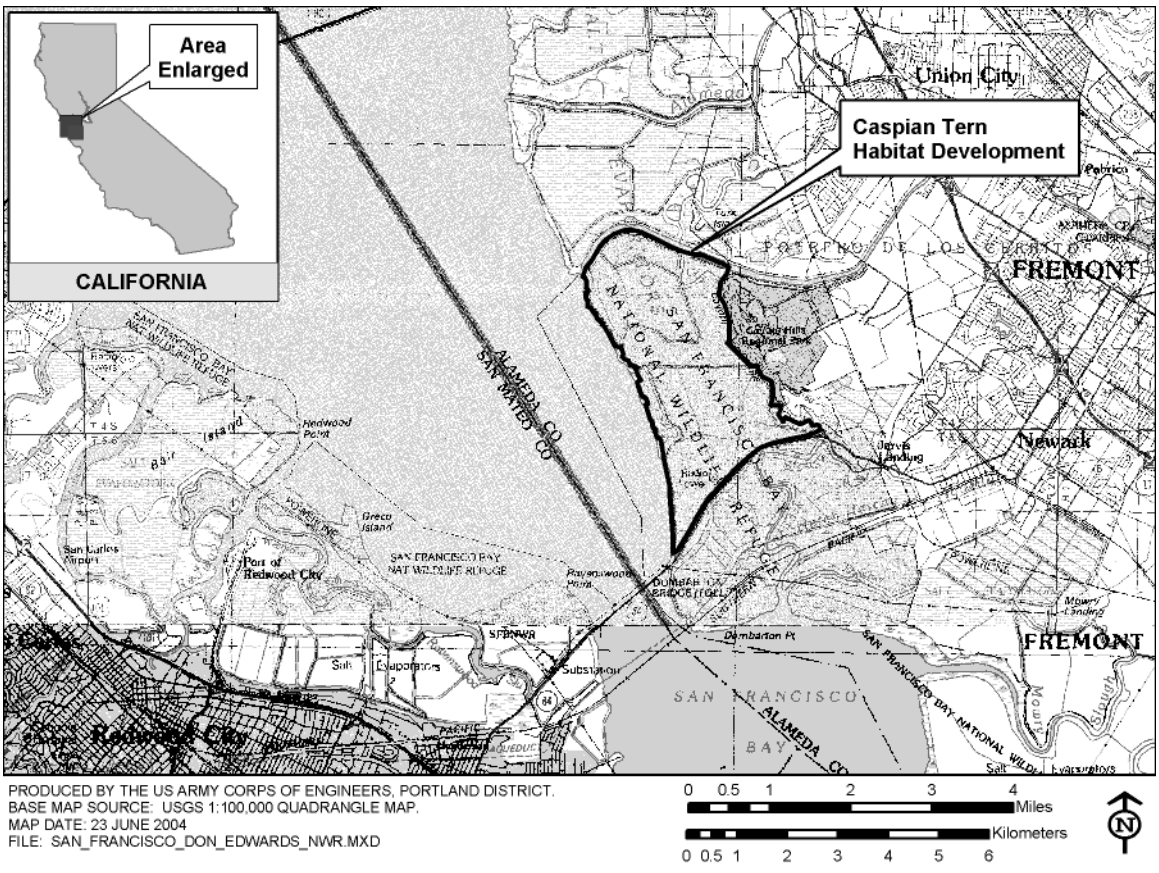


FIGURE G.8 Hayward Regional Shoreline, California

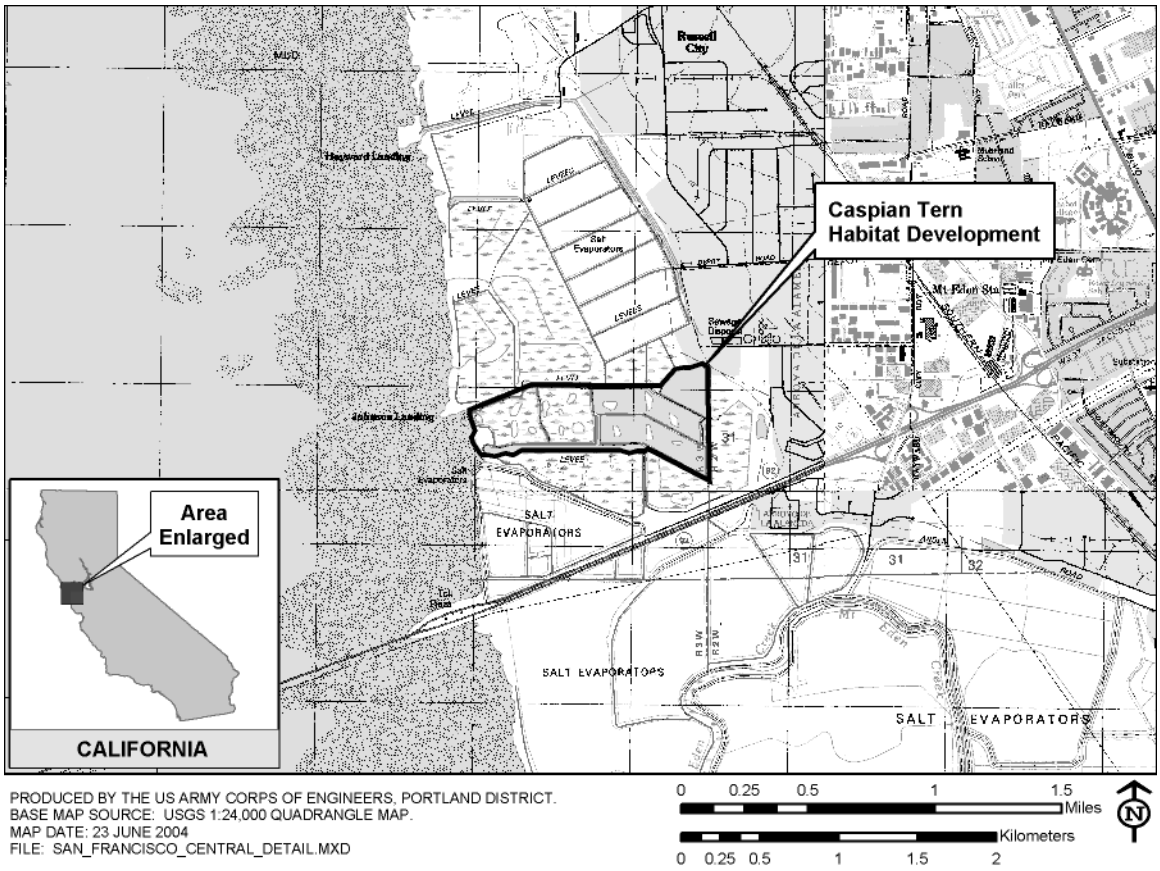


Table G.1 Assessment of Caspian tern habitat management potential at 77 sites in the Pacific Coast/Western Region. [a]

	Management Potential		
Site Name	**Yes**	**No**	**Factors limiting Management Potential**
COASTAL WASHINGTON			
Sand Island, Grays Harbor	x		
No Name Island, Grays Harbor	x		
Unnamed Island, Grays Harbor	x		
Cate Island, Grays Harbor	x		
Bldg 407, Commencement Bay		x	Landowner will discourage birds
McNeil Island, Puget Sound		x	No site available
Snag Islands, Willapa Bay		x	No stable nesting habitat
Unnamed Island, Padilla Bay	x		
Jetty Island, Puget Sound	x		
INTERIOR WASHINGTON			
Solstice Island, Potholes Reservoir		x	Fluctuating reservoir water levels
Unnamed Island, Potholes Reservoir		x	Fluctuating reservoir water levels
Harper Island, Sprague Lake		x	Poor nesting substrate
Unnamed Island # 1, Banks Reservoir		x	Fluctuating reservoir water levels
Unnamed Island #2, Banks Reservoir		x	Fluctuating reservoir water levels
Goose Island, Banks Reservoir		x	Fluctuating reservoir water levels
MID-COLUMBIA RIVER			
Crescent Island		x	Will not reduce Columbia River impacts
Straight Six Island, Umatilla		x	Will not reduce Columbia River impacts
No Name Island #1, Umatilla		x	Will not reduce Columbia River impacts
No Name Island # 2, Umatilla		x	Will not reduce Columbia River impacts
No Name Island #3, Umatilla		x	Will not reduce Columbia River impacts
"Test" Island, Umatilla		x	Will not reduce Columbia River impacts
Miller Rocks		x	No available habitat
Threemile Canyon Island		x	Will not reduce Columbia River impacts
COASTAL OREGON			
Unnamed Island, Coos Bay	x		
"South" Island, Coos Bay		x	Heavily vegetated, heavy boat traffic
"Middle" Island, Coos Bay		x	Heavily vegetated, heavy boat traffic

Table G.1 (Cont.) Assessment of Caspian tern habitat management potential at 77 sites in the Pacific Coast/Western Region. [a]

	Management Potential		
Site Name	**Yes**	**No**	**Factors limiting Management Potential**
"North" Island, Coos Bay		x	Heavily vegetated, heavy boat traffic
Unnamed Island, Umpqua River Estuary	x		
Steamboat Island, Umpqua River Estuary	x		
Fern Ridge Reservoir, Oregon	x		
INTERIOR OREGON/NEVADA			
Pelican/Crump Lake, Oregon		x	Site availability varies annually
Summer Lake, Oregon		x	Site availability varies annually
Tern Island, Malheur Lake		x	Site availability varies annually
Anaho Island, Pyramid Lake		x	Inadequate prey base
Stillwater National Wildlife Refuge		x	Site availability varies annually
Carson Sink, Nevada		x	Site availability varies annually
SOUTHERN IDAHO			
Unnamed Island, Mormon Reservoir		x	Site availability varies annually
Tern Island, Minidoka NWR		x	Site availability varies annually
Gull Island, American Falls Reservoir		x	Site availability varies annually
Gull Island, Blackfoot Reservoir		x	Site availability varies annually
Unnamed Island, Bear Lake NWR		x	Site availability varies annually
NORTHERN COASTAL CALIFORNIA			
Sand Island, Humboldt Bay	x		
Knight Island, San Pablo Bay	x		
Brooks Island, San Francisco Bay	x		
Runway wetland, Alameda NWR	x		
West wetland, Alameda NWR	x		
Pond A7, South San Francisco Bay	x		
Pond A16, South San Francisco Bay	x		
Pond 10, Baumberg Tract, San Francisco Bay	x		
Elkhorn Slough, Monterey Bay	x		
Salinas River, Monterey Bay		x	Incompatible with management for snowy plovers
SOUTHERN COASTAL CALIFORNIA			
Terminal Island, Los Angeles Harbor		x	Limited habitat

Table G.1 (Cont.) Assessment of Caspian tern habitat management potential at 77 sites in the Pacific Coast/Western Region. [a]

	Management Potential		
Site Name	**Yes**	**No**	**Factors limiting Management Potential**
Upper Newport Bay Ecological Reserve, Newport	x		
Bolsa Chica Ecological Reserve, Huntington Beach	x		
South San Diego Bay NWR, Saltworks		x	Limited habitat
NORTHEASTERN CALIFORNIA			
Meiss Lake, Butte Valley Wildlife Area		x	Site availability varies with annual precipitation
Lower Klamath NWR	x		
Tule Lake NWR	x		
Clear Lake NWR		x	Site availability varies with annual precipitation
Goose Lake		x	Site availability varies with annual precipitation Site
Bird Island, Big Sage Reservoir		x	Site availability varies with annual precipitation Site
Honey Lake Wildlife Area		x	Site availability varies with annual precipitation Site
Mono Lake		x	Inadequate prey in close proximity
TULARE BASIN			
Lemoore Naval Air Station		x	Site availability varies with annual precipitation
Westlake Farms North Evaporation Basin		x	Site availability varies with annual precipitation
Tulare Lakebed		x	Site availability varies with annual precipitation
Westlake Mitigation Wetland, section 3		x	Site availability varies with annual precipitation
Westlake Farms South Evaporation Basin		x	Site availability varies with annual precipitation
South Wilbur Flood Area		x	Site availability varies with annual precipitation
Hacienda Ranch Flood Basin		x	Site availability varies with annual precipitation
Tulare Lake Drainage District, South Evaporation Basin		x	Site availability varies with annual precipitation
SOUTHERN INTERIOR CALIFORNIA			
Obsidian Butte, Salton Sea		x	Long-term availability of site uncertain
Morton Bay, Salton Sea		x	Long-term availability of site uncertain
Headquarters Unit "D," Salton Sea		x	Long-term availability of site uncertain
Mullet Island, Salton Sea		x	Long-term availability of site uncertain
Unit 1-B4, Salton Sea NWR		x	Long-term availability of site uncertain
Unit 1-A4, Salton Sea NWR		x	Long-term availability of site uncertain

[a] Table taken from Table 7 in Seto, N., J. Dillon, W.D. Shuford, and T. Zimmerman. 2003. A review of Caspian tern (*Sterna caspia*) nesting habitat: a feasibility assessment of management opportunities in the U.S. Fish and Wildlife Service Pacific Region.

TABLE G.2 Potential Caspian tern management sites ranked by Tier I criteria and Categorical Factor assignments.[a]

Sites with Management Potential	Ranking Criteria						Sum of Tier I Ranks	Categorical Factor
	Site Status [b]	Potential Conflict with Salmon [c]	Proximity to East Sand Island [d]	Site Capacity [e]	Conflicts with other listed species (non-salmonids) [f]	Site Availability [g]		
COASTAL WASHINGTON								
Sand Island, Grays Harbor	3	3	3	5	3	5	22	H
No Name Island, Grays Harbor	0	3	3	5	3	3	17	M
Unnamed Island, Grays Harbor	0	3	3	3	3	5	17	M
Cate Island, Grays Harbor	0	3	3	3	3	3	15	M
Whitcomb Island, Grays Harbor	3	3	3	5	3	0	17	M
Unnamed Island, Padilla Bay	3	3	1	1	5	3	16	M
Jetty Island, Puget Sound	0	3	1	5	5	3	17	M
COASTAL OREGON								
Unnamed Island, Coos Bay	0	3	2	1	3	3	12	L
Unnamed Island, Umpqua River Estuary	0	3	2	1	5	3	14	L
Steamboat Island, Umpqua River Estuary	0	3	2	1	5	3	14	L
Fern Ridge Reservoir	0	3	2	5	5	0	15	M
NORTHERN COASTAL CALIFORNIA								
Sand Island, Humboldt Bay	5	3	1	1	5	5	20	H
Knight Island, San Francisco Bay	5	3	1	3	5	3	20	H
Brooks Island, San Francisco Bay	5	3	1	5	5	5	24	H
Runway wetland, Alameda, San Francisco Bay	3	3	1	3	3	3	16	M
West Wetland, Alameda, San Francisco Bay	3	3	1	3	3	3	16	M

TABLE G.2 (cont.) Potential Caspian tern management sites ranked by Tier I criteria and Categorical Factor assignments.[a]

Sites with Management Potential	Ranking Criteria						Sum of Tier I Ranks	Categorical Factor
	Site Status[b]	Potential Conflict with Salmon[c]	Proximity to East Sand Island[d]	Site Capacity[e]	Conflicts with other listed species (non-salmonids)[f]	Site Availability[g]		
Salt Pond A7, South San Francisco Bay	5	3	1	3	3	3	18	H
Salt Pond A16, South San Francisco Bay	0	3	1	1	3	5	13	L
Baumberg Pond, San Francisco Bay	5	3	1	1	3	3	16	M
Elkhorn Slough, Monterey Bay	5	5	1	1	3	3	18	H
SOUTHERN COASTAL CALIFORNIA								
Bolsa Chica Ecological Reserve, Huntington Beach	5	5	1	3	3	0	17	M
Upper Newport Bay Ecological Reserve, Newport Beach	0	5	1	3	3	3	15	M
NORTHEASTERN INTERIOR								
Lower Klamath NWR	3	5	1	3	5	0	17	M
Tule Lake NWR	3	5	1	3	5	0	17	M

[b] Site Status: 5 = nesting colony currently active, 3 = historic nesting colony, 0 = no recorded Caspian tern nesting

[c] Conflict with salmonids: 5 = salmon not available as potential prey item, 3 = salmon present as potential prey but good abundance of non-salmonid prey items, 1 = salmon comprises primary prey base

[d] Proximity to East Sand Island: 3 = site less than 200 km from East Sand Island, 2 = site 200-500 km from East Sand Island, 1 = site greater than 500 km from East Sand Island

[e] Site Capacity: 5 = greater than 2000 nesting pairs, 3 = 350-1000 nesting pairs, 1 = less than 350 nesting pairs

[f] Conflicts with other listed species or species of concern (non-salmonids): 5 = no listed species present, 3 = listed species present but low likelihood of conflict, 1 = listed species present and relatively high potential for conflict

[g] Site Availability: 5 = site currently suitable or requires minimal habitat enhancement, 3 = site available after extensive manipulation, 0 = site needs to be constructed

[a] Table taken from Table 8.A in Seto, N., J. Dillon, W.D. Shuford, and T. Zimmerman. 2003. A review of Caspian tern (*Sterna caspia*) nesting habitat: a feasibility assessment of management opportunities in the U.S. Fish and Wildlife Service Pacific Region.

TABLE G.3 Potential Caspian tern management sites ranked by Tier II criteria and Total Site Scores.[a]

Sites	Ranking Criteria			Sum of Tier II Ranks	Total Site Score
	Habitat Management [b]	Human Disturbance [c]	Potential Predators [d]		
High Category (*5)					
Elkhorn Slough, Monterey Bay	2	3	1	6	30
Sand Island, Grays Harbor	2	5	3	10	50
Brooks Island, San Francisco Bay	2	3	5	10	50
Sand Island, Humboldt Bay	3	5	5	13	65
Knight Island, San Francisco Bay	3	5	5	13	39
Salt Pond A7, South San Francisco Bay	3	5	5	13	39
Medium Category (*3)					
Unnamed Island, Grays Harbor	3	5	5	13	39
No Name Island, Grays Harbor	2	5	3	10	30
Whitcomb Island, Grays Harbor	3	5	5	13	39
Cate Island, Grays Harbor	2	3	1	6	18
Unnamed Island, Padilla Bay	2	5	3	10	10
Jetty Island, Puget Sound	1	3	3	7	21
Fern Ridge Reservoir	2	5	5	12	12
Runway wetland Alameda NWR, San Francisco Bay	2	5	1	8	24
West Wetland, Alameda NWR, San Francisco Bay	2	5	1	8	24
Baumberg Pond, San Francisco Bay	3	5	5	13	13
Bolsa Chica Ecological Reserve, Huntington Beach	2	5	5	12	36
Upper Newport Bay Ecological Reserve, Newport Beach	2	5	3	10	30

TABLE G.3 (cont.) Potential Caspian tern management sites ranked by Tier II criteria and Total Site Scores.[a]

Sites	Ranking Criteria			Sum of Tier II Ranks	Total Site Score
	Habitat Management [b]	Human Disturbance [c]	Potential Predators [d]		
Lower Klamath NWR	1	5	5	11	33
Tule Lake NWR	1	5	5	11	33
Low Category (*1)					
Unnamed Island, Coos Bay	1	5	5	11	11
Unnamed Island, Umpqua River Estuary	1	5	5	11	11
Steamboat Island, Umpqua River Estuary	3	5	5	13	13
Salt Pond A16, South San Francisco Bay	3	5	5	13	13

[a] Table taken from Table 8.B in Seto, N., J. Dillon, W.D. Shuford, and T. Zimmerman. 2003. A review of Caspian tern (*Sterna caspia)* nesting habitat: a feasibility assessment of management opportunities in the U.S. Fish and Wildlife Service Pacific Region

[b] Habitat maintenance: 3 = short tern or infrequent management requirements, 2 = annual habitat maintenance but no heavy equipment required, 1 = annual maintenance and heavy equipment required

[c] Human disturbance: 5 = site is relatively inaccessible and no established human use, 3 = site is accessible with a history of human use; disturbance levels are manageable, 1 = site is readily accessible with regular human use and limited opportunities for managing use

[d] Predators: 5 = inaccessible to mammals and no known concentration of avian predators in close proximity, 3 = avian and/or mammalian predators on site, but potential impacts to tern colony are low or manageable, 1 = site accessible to mammals and high concentration of avian predators on-site or nearby

TABLE G.4. Sites eliminated from consideration for Caspian Tern Management under Alternatives C and D. Sites are listed in geographical order from north to south.

SITE NAME	REASON FOR ELIMINATION FROM CONSIDERATION
WASHINGTON	
Commencement Bay	Loss of site due to environmental clean-up activities
Padilla Bay	WDFW does not support site development
Jetty Island	WDFW does not support site development
Grays Harbor (4 islands)	WDFW does not support site development
Willapa Bay	Loss of site due to natural erosion
Banks Reservoir (3 islands)	Some nesting terns from this colony forage in the Columbia River, and thus, management of this site for Caspian terns does not support the reduction of tern predation on Columbia River salmon
Potholes Reservoir (2 islands)	Some nesting terns from this colony forage in the Columbia River, and thus, management of this site for Caspian terns does not support the reduction of tern predation on Columbia River salmon
Sprague Lake	Some nesting terns from this colony forage in the Columbia River, and thus, management of this site for Caspian terns does not support the reduction of tern predation on Columbia River salmon
Crescent Island	Location in the Columbia River, and thus, management of this site for Caspian terns does not support the reduction of tern predation on Columbia River salmon
Threemile Canyon Island	Location in the Columbia River, and thus, management of this site for Caspian terns does not support the reduction of tern predation on Columbia River salmon
Miller Rocks	Location in the Columbia River, and thus, management of this site for Caspian terns does not support the reduction of tern predation on Columbia River salmon
OREGON	
Rice Island	Location in the Columbia River, does not support reduction of tern predation on Columbia River salmon
Miller Sands Spit	Location in the Columbia River, does not support reduction of tern predation on Columbia River salmon
Coos Bay	ODFW does not support site development
Umpqua Estuary	ODFW does not support site development
CALIFORNIA	
Humboldt Bay NWR	CDFG and Service California/Nevada Office does not support site development
Knight Island, San Francisco Bay	Loss of nesting area to tidal restoration project by CDFG
Bair Island, San Francisco Bay	Loss of nesting area and restoration not feasible
Turk Island, San Francisco Bay	Loss of nesting area, restoration not feasible
Baumberg Tract, San Francisco Bay	Nesting habitat currently maximized, habitat enhancement not feasible
Alviso (Pond A7), San Francisco Bay	Nesting habitat currently maximized and concerns associated contaminant issues
Moss Landing salt ponds, Monterey Bay	Loss of site
Elkhorn Slough Ecological Reserve	Nesting habitat is not maximized, no habitat enhancement necessary
Pier 400, Terminal Island	Nesting habitat currently maximized, habitat enhancement not feasible
Clear Lake NWR	Nesting habitat is not lacking

TABLE G.4. Sites eliminated from consideration for Caspian Tern Management under Alternatives C and D. Sites are listed in geographical order from north to south.

SITE NAME	REASON FOR ELIMINATION FROM CONSIDERATION
CALIFORNIA (continued)	
Lower Klamath NWR	Loss of site; extremely small historic nesting colony (15-27 pairs), last nested in 1976
Tule Lake NWR	Loss of site; small historic nesting colony (3-80 pairs), last nested in 1962
Mono Lake	Extremely small nesting colony (6 -8 nesting pairs)
Lemoore NAS sewer ponds	Extremely small nesting colony (0-20 nesting pairs)
Yolo Bypass Wildlife Area	CDFG does not support site development
City of Davis Wetlands	CDFG does not support site development
Westlake Farms South Evaporation Basin	Extremely small nesting colony (0 -3 nesting pairs)
Tulare lakebed	Extremely small nesting colony (0 -20 nesting pairs)
South Wilbur Flood Area	Extremely small nesting colony (0-70 nesting pairs)
Tulare Lake Drainage District	Extremely small nesting colony (0-1 nesting pairs)
Tulare Lake Drainage District	Extremely small nesting colony (0-40 nesting pairs)
Lake Elsinore	Extremely small nesting colony (0 -14 nesting pairs); high potential for human disturbance
Salton Sea	Uncertainty of long term water management and prey availability due to potential water transfer from Imperial Irrigation District to San Diego
IDAHO	
Mormon Reservoir	Availability of nesting habitat varies from year to year because of reservoir water levels; large distance from East Sand Island colony
Magic Reservoir	Availability of nesting habitat varies from year to year because of reservoir water levels; large distance from East Sand Island colony
Blackfoot Reservoir	Availability of nesting habitat varies from year to year because of reservoir water levels; large distance from East Sand Island colony
Minidoka NWR	Lack of nesting habitat; large distance from East Sand Island colony
Deer Flat NWR (Snake River Island)	Lack of nesting habitat; large distance from East Sand Island
Bear Lake NWR	Lack of nesting habitat; large distance from East Sand Island
NEVADA	
Carson Sink	Nesting habitat only available during high water/flood years
Anaho Island NWR	Lack of prey base
Stillwater Point Reservoir	Nesting habitat only available during high water/flood years