Final Supplement to *Cosco Busan Oil Spill Final Damage Assessment and Restoration Plan/Environmental Assessment, dated March 14, 2025*

1.0 Introduction

The United States Fish and Wildlife Service (USFWS), the National Park Service (NPS), the Bureau of Land Management (BLM), the National Oceanic and Atmospheric Administration (NOAA), the California Department of Fish and Wildlife (CDFW), and the California State Lands Commission (CSLC) are the designated natural resource trustees (Trustees) for the November 7, 2007, Cosco Busan oil spill in San Francisco Bay. In September 2011, the Trustees released a Cosco Busan Oil Spill Draft Damage Assessment and Restoration Plan/Environmental Assessment (DARP/EA) and, after consideration of public comments, released a Final DARP/EA in February, 2012. The Trustees supplemented the Final DARP/EA in 2013 and 2019. The Trustees, with this document, are supplementing the Final DARP/EA again to select as preferred alternatives for implementation three projects previously considered in the Final DARP/EA. One of these projects would address injuries to Large Diving Ducks and Loons and two of these projects would address injuries to Brown Pelicans, Cormorants, and Gulls. This Supplement to the Final DARP/EA (2025) selects 3 projects as preferred alternatives: (1) extending implementation of the Eelgrass restoration in San Francisco Bay project; and replacing the Berkeley Pier Project with (2) the Alcatraz Island human disturbance reduction project, and (3) the Seabird habitat restoration on Southeast Farallon Island project. This document includes an Environmental Assessment (EA) of the Alcatraz Island human disturbance reduction project and the Seabird habitat restoration on Southeast Farallon Island project to satisfy the Federal Trustees' requirement to evaluate the environmental impacts of the projects under the National Environmental Policy Act (NEPA; 42 U.S.C. § 4321 *et seq.*).

The discussion below is intended to amend the "Restoration Alternatives" discussions in Section 4.3.1.3 of the Supplement to the Final DARP/EA (2013) and Section 4.3.1.6 of the Final DARP/EA. This discussion also supplements the "No Action Alternative" and "Cumulative Impacts" sections.

The Trustees incorporate by reference the Final DARP/EA and Supplement to the Final DARP/EA (2013), which are available at:

https://wildlife.ca.gov/OSPR/NRDA/cosco-busan.

2.0 Public Involvement

The Trustees invited public review and comment on a draft version of this document from 6/27/2024 through 7/31/2024. The Draft Supplement was posted to the California Department of Fish and Wildlife's website for the Cosco Busan spill https://www.wildlife.ca.gov/OSPR/NRDA/cosco-busan The Trustees received no comments.

3.0 Changes to Restoration Alternatives and Evaluation

Revised Section 4.3.1.3, Large Diving Ducks, Loons

Restoration Alternatives

Section 4.3.1.3 of the Final DARP/EA addressed injuries to and restoration of large diving ducks and

loons. As outlined in the Final DARP/EA, based on a lack of readily identifiable projects, the Trustees elected to release a request for proposals (RFP) for restoration concepts to address these injuries. In the Supplement to the Final DARP/EA (2013), the Trustees subsequently identified and implemented two preferred projects based on the RFP: Enhancing prey availability for wintering and migrating Surf Scoters in San Francisco Bay and Removal of derelict fishing nets in the Salish Sea. Rather than extending these projects with the remaining unspent funds for Large Diving Ducks and Loons, the Trustees have selected as a more cost-effective alternative, to extend implementation of the Eelgrass restoration in San Francisco Bay project. Eelgrass restoration, selected as a preferred alternative in the Final DARP/EA to address injuries to Fish and other Aquatic Organisms and Eelgrass habitat, is currently being implemented. Monitoring has shown that when herring spawned in the area of restored beds, they used the restored eelgrass as a spawning substrate. Herring roe is an important lipid and nutrient-rich prey item for wintering Surf Scoters, a large diving duck and the bird species most impacted by the spill. The presence of herring roe, as well as eelgrass, are strong predictors of locations for Surf Scoters wintering in San Francisco Bay (De La Cruz et al. 2014). Increasing eelgrass, which can serve as a spawning substrate for herring, can increase the availability of herring roe, which can benefit Surf Scoters.

Preferred Alternative	**SPECIES BENEFITS**
Eelgrass restoration in San Francisco Bay	**Eelgrass, herring, Surf Scoters**

Preferred Alternative

Eelgrass Restoration in San Francisco Bay

Specifics of the eelgrass restoration project are discussed in the fish section in the Final DARP/EA (Section 4.3.3) and are summarized here. The original goal of the project was to create 70 new acres of eelgrass over nine years. Thirty-six of those acres were to be directly planted (four acres per year for nine years), while the remainder was expected to expand naturally from the planted acres. Criteria for site selection include local conditions, such as depth profile, sediment type, waves and currents, salinity patterns, and turbidity. In addition, sites were chosen because they were nearest the spill zone and are in locations particularly suitable for use by spawning herring, as they are adjacent to deepwater habitat and near known herring spawning areas.

This restoration project will restore an additional 4 acres of eelgrass over 3 years using the methods employed previously (transplants and seed buoys). Eelgrass will be transplanted from approved existing eelgrass beds to restoration sites. Restoration sites may be identified from modeling results and parcel research, as well as pilot plot performance results. Richardson Bay sites will be prioritized for restoration based on herring spawning and Surf Scoter abundance, although sites in Corte Madera Bay, San Rafael Bay, and San Pablo Bay, where herring are also known to spawn, may be considered.

Performance Criteria and Monitoring

Eelgrass monitoring will include acoustic mapping (sidescan and singlebeam surveys) and tracking of plantings and gains from self-propagation following restoration as well as *in situ* field monitoring to evaluate evidence of plant damage and/or stressors such as herbivory, disease, etc.

Evaluation

Eelgrass restoration provides benefits to multiple resources in addition to Surf Scoter and other diving ducks. The duration of project benefits continues after beds are established, which is cost-effective as there is no on-going maintenance necessary. The likelihood of success is high, as the Trustees are proposing to extend an existing, successful project. The Trustees have evaluated this project using the threshold and additional screening criteria developed (see Section 4.2 in the Final DARP/EA) to select restoration projects and concluded that this project is consistent with and meets the objectives of these selection factors. They believe that this type of project will provide benefits to Surf Scoters injured as a result of the spill and have selected this project as a preferred alternative.

Affected Environment

The affected environment of central San Francisco Bay is described in section 2.0 of the Final DARP/EA. That information remains valid and is incorporated here by reference.[1]

Environmental Consequences (Beneficial and Adverse)

The environmental impacts of eelgrass restoration were not analyzed in the Final DARP/EA; however, the Trustees have determined that it is appropriate to use an existing NOAA programmatic NEPA document to cover the eelgrass restoration efforts in San Francisco Bay--the Restoration Center's Programmatic Environmental Impact Statement for coastal habitat restoration activities (RC PEIS 2015). The RC PEIS provides a program-level environmental analysis of NOAA's habitat restoration activities throughout the coastal and marine United States. Specifically, it evaluates typical impacts related to a large suite of projects undertaken frequently by NOAA and its co-trustees, including restoration of submerged aquatic vegetation (SAV), such as eelgrass.[1]

For the eelgrass restoration in this Supplement, the Trustees made the determination that the RC PEIS fully covers the scope of the proposed action and all environmental impacts, and the Trustees incorporate that analysis by reference here. The RC PEIS also determined that none of the potential impacts associated with restoration of SAV would be significant. With this approach, no further NEPA analysis would be necessary. The public was invited to provide feedback on this approach in the Draft Supplement; no comments were received during the public comment period. The analysis of impacts associated with SAV/eelgrass plantings is summarized below (Table 1). Refer to Section 4.5.2.9.1 of the RC PEIS for the complete analysis.

[1] The Trustees for the Cosco Busan oil spill have similarly used the RC PEIS to cover eelgrass plantings for the Living Shorelines at Giant Marsh project in Richmond, California.

Table 1. RC PEIS summary of impacts from SAV/eelgrass planting activities.

Resource	Type of Impact	Duration of Impact	Geographic Extent	Magnitude / Intensity	Quality
Geology and Soils	Direct	Short-term	Localized	Minor	Adverse
	Indirect	Long-term	Localized	Minor	Beneficial
Water	Direct	Short-term	Localized	Minor	Adverse
	Indirect	Long-term	Localized	Minor	Beneficial
Air	No Effect				
Living Coastal and Marine Resources and EFH	Direct	Short-term	Beyond Project Site	Minor & Moderate	Adverse
	Indirect	Long-term	Beyond Project Site	Minor & Moderate	Beneficial
Threatened and Endangered Species	Direct	Short-term	Beyond Project Site	Minor & Moderate	Adverse
	Indirect	Long-term	Beyond Project Site	Minor & Moderate	Beneficial
Cultural and Historic Resources	Direct	Long term	Localized	Minor	Adverse
Land Use and Recreation	Direct	Long-term	Localized	Minor & Moderate	Beneficial
Socioeconomics	Indirect	Long-term	Localized	Minor	Beneficial

Revised Section <u>4.3.1.6, Brown Pelicans, Cormorants, and Gulls</u>

Restoration Alternatives

The Final DARP/EA identified the Berkeley Pier enhancement project as the preferred alternative to benefit pelicans, cormorants, and gulls (Section 4.3.1.6). The Trustees began negotiations with the City of Berkeley (City) in 2012. In 2013 CDFW received a draft license agreement from the City to construct and maintain bird nesting and roosting platforms at two locations above remnant portions of the derelict Berkeley Pier. A final draft of the license agreement was completed in 2017. However, in 2019 the City informed CDFW that a new ferry terminal would be constructed at the base of the existing Berkeley Pier and the restoration project would not be possible until sometime after 2026 when the ferry terminal is constructed.

One of the selection criteria the Trustees consider (see Section 4.2 of the DARP/EA) is Time to Provide Benefits. A proposed project that provides benefits to the target resource sooner is preferred over a project that would provide those benefits later. Due to the significant delay in constructing the Berkeley Pier enhancement project, the Trustees selected as preferred alternatives two seabird restoration projects that were originally considered, but not selected as preferred alternatives, in the Final DARP/EA:1) the Alcatraz Island human disturbance reduction project and 2) the Seabird habitat restoration on Southeast Farallon Island project.[2]

Preferred Alternative

Proposed Action: The Trustees' Proposed Action is to reduce human disturbance on Alcatraz Island through education and outreach and to restore seabird breeding habitat by greatly reducing invasive plant cover and restoring the native plant community of Southeast Farallon Island. The Trustees expect that the projects will benefit cormorants, gulls, pelicans, alcids, and other waterbirds.

[2] As non-preferred alternatives in the Final DARP/EA these projects were not analyzed for NEPA in that document; therefore, the environmental impacts are provided in this Supplement (*Environmental Consequences*).

Purpose: The purpose of the Proposed Action is to restore pelicans, cormorants, and gulls to compensate the public for natural resources, including ecological services, injured, lost, or destroyed due to the Cosco Busan Oil Spill.

Need: In order to achieve this purpose, the Trustees must evaluate alternative restoration measures that will adequately compensate the public for the injured resources and the services they provide.

Preferred Alternative	**SPECIES BENEFITS**
Alcatraz Island human disturbance reduction project	**Pelicans, cormorants, gulls,**
Seabird habitat restoration on Southeast Farallon Island	**Cormorants, gulls, alcids**

Alcatraz Island Human Disturbance Reduction Project

Alcatraz Island in central San Francisco Bay is a breeding site for numerous waterbird species, including many affected by the *Cosco Busan* oil spill such as Brandt's Cormorants, Western Gulls, and California Gulls. While large portions of Alcatraz Island are closed to the public and utilized by waterbirds for breeding, roosting and foraging, the rate of waterbird disturbance on Alcatraz in recent years has been one of the highest levels observed since monitoring began in the 1990s (Post et al. 2022). One ill-timed disturbance can potentially cause colony failure (Post et al. 2022, Acosta et al. 2007a). Nesting colonial waterbirds often flush from nests when disturbed by humans, exposing eggs and chicks to predation or exposure to the elements (Anderson and Keith 1980, Burger 1982, Carney and Sydeman 1999, Culik et al. 1990, Kure and Gochfeld 1975, Thayer et al. 1999). Cumulative effects of unpredictable types of disturbance may cause increased stress and behavioral sensitivity, specifically in Brandt's Cormorants (Acosta et al. 2007a, Thayer et al. 1998, Acosta et al. 2007b).

Disturbance to waterbirds on Alcatraz stems from many sources, including the over 1.4 million visitors that tour the island annually, and historic preservation and safety construction projects. There are also disturbances due to special events, as well as frequent aircraft overflights, and marine-based disturbance due to the island's location in the center of the Bay's recreational waters, fisheries, commuter ferry routes and international shipping lanes. New disturbance threats include unoccupied aerial vehicles (UAVs) or drones.

This project will include measures to reduce human disturbance on Alcatraz Island, including education and outreach, to benefit cormorants, gulls, pelicans, and other waterbirds. The project will develop signage and targeted outreach to Bay user groups, conduct public outreach, and support dedicated staff to better manage on-island access away from waterbird breeding and roosting sites. Identifying repeated causes of waterbird disturbance and then aiming outreach efforts towards repeat offenders shows promise for reducing marine and air-based disturbance. Additional management such as placement of on-island barricades, visual barriers and signage may be enacted to protect new Brandt's Cormorant nesting areas from human disturbance. Disturbance monitoring on Alcatraz will take place during the waterbird breeding season, between February and August. Overall, improved signage and outreach, increased staff and volunteer training and support, on-island management, and continued monitoring, will help to reduce human disturbance to benefit Alcatraz waterbirds.

Affected Environment
Alcatraz is a part of the Golden Gate National Recreation Area (GGNRA), a unit of the National Park Service (NPS). This area is described in section 2.0 of the Final DARP/EA, and that information remains valid and is incorporated here by reference. The Brandt's Cormorant breeding colony was established on Alcatraz in the early 1990s. The colony continues to grow, and a record number of Brandt's Cormorants (over 9,100) utilized Alcatraz in the spring of 2023.

Environmental Consequences (Beneficial and Adverse)
Overall, this project is anticipated to have beneficial impacts. In reaching this conclusion, the Trustees evaluated several types of potential impacts, as described below.

1. **Biological Impacts** – The actions implemented by this project will increase public awareness of waterbirds and educate the public about the potential impacts of human interactions on waterbirds at Alcatraz Island. By educating the public in ways to safely observe seabirds while engaged in recreation, this project will have beneficial biological impacts on roosting and breeding waterbirds on Alcatraz Island by reducing human disturbance, an anthropomorphic stressor. Protecting new nesting areas by installation of on-island barricades, visual barriers, and signage to reduce visitor disturbance, including better management of areas that are already closed to access during the seabird nesting season will benefit nesting Brandt's cormorants.
2. **Physical Impacts** - The Trustees do not anticipate that there will be any impacts from this project to the physical environment, such as water, air, sediments, etc.
3. **Human Impacts** - This proposed action is not expected to result in any significant adverse impacts. Some seasonal restrictions of recreational activities around sensitive areas may be implemented. However, given the limited nesting season, the actual size and time of any restrictions is expected to be minimal and offset by the additional opportunities the project will provide for visitors to observe and not disturb waterbirds on Alcatraz. Signs will be carefully designed and placed so as not to detract from the natural aesthetics of any area. The Trustees do not anticipate that there will be any impacts from this project on socio-economics, aesthetics, health and safety, historical properties, etc.

Probability of Success
The probability of success for this project is high. The Trustees expect this project will mirror the success of similar disturbance reduction projects to protect nesting seabirds in Oregon and California.

Performance Criteria and Monitoring
NPS will continue funding a monitoring program led by Farallon Institute to track seabird nesting abundance and locations, productivity, and disturbance. This monitoring program has been funded by NPS since 1997. Information from the monitoring program will be essential to identifying primary sources of seabird disturbance for targeted outreach, assessing disturbance levels, and determining whether project actions are leading to reductions in disturbance and increased nesting.

Evaluation
The Trustees have evaluated this project using the threshold and additional screening criteria developed to select restoration projects and concluded that this project is consistent with and meets the objectives of these selection factors. They believe that this type of project will provide tangible benefits to pelicans, cormorants and gulls injured because of the spill and have selected this project as a preferred alternative.

Seabird Habitat Restoration on Southeast Farallon Island Project

This project will help to restore seabird breeding habitat by greatly reducing invasive plant cover and restoring the native plant community of Southeast Farallon Island, part of the Farallon Islands National Wildlife Refuge. The South Farallon Islands sustain the largest seabird breeding colony in the United States south of Alaska including nearly 30% of California's nesting seabirds. Invasive weeds predominate nearly half of Southeast Farallon and are negatively affecting the quality of breeding seabird nesting habitat (Hawk 2015, Holzman et al. 2016). The project area includes nearly 60 acres of habitat that is highly infested with non-native plants and that historically provided high value seabird nesting habitat. Invasive plants impact breeding seabirds both by outcompeting native plants that are preferred by certain seabirds as nesting material and by physically excluding burrowing (i.e., Cassin's Auklet (*Ptychoramphus aleuticus*) and Rhinoceros Auklet (*Cerorhinca monocerata*) and crevice nesting seabirds (i.e., Ashy and Leach's (*H. leucorhous*) Storm-petrels) from potential nesting areas. In particular, Brandt's Cormorants, Double-crested Cormorants (*Nannopterum auritum*), and Western Gulls use the native maritime goldfields as preferred nesting material (Ainley and Boekelheide 1990).

Target species for control include New Zealand spinach (*Tetragonia tetragonioides*), *Malva* spp., nettle-leaved goosefoot (*Chenopodium murale*), buckhorn plantain (*Plantago coronopus*), erect veldtgrass (*Ehrharta erecta*), and several species of annual grasses. Control methods will follow the Farallon Islands weed management plan (USFWS 2016) and include primarily herbicide treatment combined with more limited hand pulling. As a precautionary measure given the distance to the marine environment and the presence of Farallon salamanders (*Aneidus lugubris farallonensis*), the aquatic version of Roundup Custom, a glyphosate-based herbicide approved for terrestrial and aquatic use will be used. Implementation will require up to four years of intensive effort. The project will include two major control efforts per year in order to maximize control effectiveness: 1) in spring when plant growth and flowering peaks (and prior to seeding) for most target species and prior to peak seabird nesting season, and 2) in late summer after peak seabird nesting to target summer germination and growth. Lower effort control will be conducted in-between to control invasive plants missed during the first effort and to prevent seed production. Treatment areas will include steep cliffs that have been inaccessible to date as some cliffs host extensive mats of spinach, which rain seeds on the slopes below. In addition, other methods of controlling invasive plants and of reducing the extensive invasive plant seed bank, which otherwise may take decades to exhaust, will be investigated.

Research has shown that the seed bank of native plants is extensive (Chasey 2016) and anecdotal observations indicate that where invasive plants are controlled, native plants like maritime goldfield and sand-spurry (*Spergularia* spp.) will germinate and thrive (G.J. McChesney, pers. obs.). Thus, native plant propagation appears unnecessary at this time. To monitor effectiveness of invasive plant control efforts and benefits to the native plant community (and, ultimately, seabirds), annual monitoring will be conducted following the Site-Specific Protocol for Monitoring Plants on Southeast Farallon Island (Holzman et al. 2021).

Affected Environment

This project will be located 27 miles west of San Francisco at Southeast Farallon Island, which is part of the Farallon Islands National Wildlife Refuge. The Farallon Islands are described in section 2.0 of the Final DARP/EA, and that information remains valid and is incorporated here by reference.

Environmental Consequences (Beneficial and Adverse)

This project has a high likelihood of success. Controlling invasive plants will allow native vegetation to grow and will benefit seabirds by enhancing the quality of nesting habitat. The primary project goal will be

to reduce cover of target invasive species in spring so that impacts to breeding seabirds are negligible, then further reduce cover to near zero in accessible areas by fall of each year prior to the start of the next rain year. This project sets the stage for success of longer-term management efforts aimed at ultimate eradication of the most problematic of Farallon invasive plants.

1. **Biological Impacts** – The project's multi-year approach will greatly reduce target invasive plant species cover and allow native vegetation to recover naturally. The decrease in invasive species cover and subsequent increase in native vegetation increases the availability and quality of nesting habitat, benefitting seabirds. The primary animals that could be impacted adversely by management activities are nesting seabirds and the Farallon salamander. The disturbance impact on seabirds of weed treatment activities will be minimal because most hand pulling and herbicide application will occur outside of the breeding season. The herbicide proposed for use is not harmful to vertebrate species. The most likely adverse impact on nesting seabirds will be the crushing of existing burrows. Habitat disturbance will be minimized through training of biologists and volunteers conducting weed control operations to recognize and avoid crushing burrows. Salamanders are underground at the time of herbicide application, but it is possible for exposure to occur within 12 hours of application. To reduce the possibility of exposure, herbicide will be applied using a spot spraying method instead of broadcasting.
2. **Physical Impacts** - The Trustees do not anticipate that there will be any impacts from this project to the physical environment, such as water, air, sediments, etc. The herbicide proposed for use is a post-emergent, systematic herbicide with no residual soil activity.
3. **Human Impacts** - This proposed action is not expected to result in any significant adverse impacts. The Trustees do not anticipate that there will be any impacts from this project on socio-economics, aesthetics, health and safety, historical properties, etc.

4.0 No Action Alternative

Under NEPA, the Trustees considered a "no action" alternative. Under this alternative, the Trustees would take no direct action to restore injured natural resources or to compensate for lost services. Instead, the Trustees would rely on natural processes for recovery of the injured natural resources. However, while natural recovery may occur over time for many of the injured resources, the interim losses suffered by those resources would not be compensated. Furthermore, technically feasible project alternatives exist to compensate for these losses.

NEPA mandates that federal agencies evaluate the environmental impacts of no action. By definition, the no action alternative lacks physical interaction with the environment. Accordingly, the no action alternative would cause no significant direct, indirect, or cumulative impacts to any of the elements of the environment listed above. However, if the Trustees undertook no action, the environment would not benefit from the ecological uplift created by active restoration. Thus, the Trustees reject the "no action" alternative and instead have identified the restoration projects, described above, as preferred alternatives.

5.0 Cumulative Impacts

The Trustees evaluated the Alcatraz Island human reduction project, the Seabird Habitat Restoration on Southeast Farallon Island project, and extending the Eelgrass restoration in San Francisco Bay project in conjunction with other known past, proposed or foreseeable closely related projects that could potentially add to or interact with these projects within the affected area to determine whether significant cumulative impacts may occur. All of the past and proposed eelgrass restoration efforts for this region are part of a

long-term strategy to recreate thriving subtidal habitats in the greater San Francisco Bay area. The projects described in this Supplement, considered along with other restoration projects, will result in cumulatively beneficial impacts to plants and wildlife and provide additional subtidal habitat to support recovery of this sensitive community and the fish and other wildlife that it supports, including the last commercially viable herring fishery. Overall, these cumulative impacts are expected to be mainly localized and would not be significant at a regional or larger scale.

6.0 Federal and State Laws, Regulations, and Policies

As described in the Final DARP/EA, the Oil Pollution Act and National Environmental Policy Act, and federal regulations implementing these laws, are the major federal laws and regulations guiding the restoration of injured resources and services resulting from the Cosco Busan oil spill. However, there are other federal and state laws, regulations or policies that may be pertinent to this Supplement and/or to implementation of the specific restoration actions proposed herein. Refer to Section 3.3.5 of the Final DARP/EA for potentially relevant laws, regulations, and policies.

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