

# TECHNICAL MEMORANDUM

---



Date: February 16, 2022  
To: City of Anacortes  
From: Alex Capron, Environmental Planner; Mike Thai, Environmental Scientist  
Project Name: Anacortes 2020 SMP Update  
Project Number: 180755

## Subject: Anacortes Restoration Plan Addendum

The purpose of this memorandum is to update the previous Shoreline Restoration Plan adopted by the City of Anacortes in 2010. The Shoreline Restoration Plan is meant to help identify and prioritize restoration or enhancement projects and areas of the shoreline for improvement. Generally, uses and developments within shorelines cannot always be fully mitigated, which may result in incremental and unavoidable degradation to the baseline conditions of the shoreline. This document aims to counter these incremental degradations by identifying areas and projects for enhancement and restoration which can improve degraded baseline conditions along the shoreline over time.

This addendum references tables from the 2010 Shoreline Restoration Plan containing enhancement and restoration project proposals and updates them based on information received by stakeholder organizations and agencies. These stakeholders include the City of Anacortes, Skagit Conservation District, Skagit MRC, the Port of Anacortes, and the Friends of the Forest. New projects presented by the aforementioned organizations and agencies, as well as projects that were not completed and/or updated in Tables B-7 – B-16 are then organized into a new table (B-17) and prioritized based on a rudimentary cost benefit analysis. This high-level analysis grades projects on anticipated cost and overall ecological benefit as it relates to no net loss of shoreline ecological functions.

**Table B-7. Projects with environmental restoration components to be implemented per the City of Anacortes Capital Facilities Plan.**

<b>Project/Location</b>	<b>Environmental component(s)</b>	<b>Implementation status (2010)</b>	<b>Status Update (2022)</b>
Ship Harbor wetland interpretive trail	An interpretive trail through the Ship Harbor wetlands will provide educational opportunities and access to wetlands. The trail will be environmentally sensitive.	Pending	Completed
Depot area improvements	Landscaping will be improved in conjunction with an expanded plaza area; wetlands and a madrone grove will be preserved and/or enhanced.	Pending	Restrooms were constructed in 2021. Remaining project removed from CFP.
H Avenue Park stream restoration	Stream restoration in the park will include wetland enhancement, an interpretive trail, and native plantings. New project added to replace restrooms, seating, and improve the parking lot.	Planning stages	Planning stages, added new project components
Waterfront Trail (Guemes Channel Trail)	Design and construct a bicycle and pedestrian trail to enhance physical and visual access to the water and provide a nonmotorized connection between Washington Park and the Tommy Thompson Trail.	Planning stages	Phases 1 & 7 completed (July 2015); Phases II, III, IV, and VI in planning stages
Clyde Creek water quality enhancement	Existing stormwater discharges to Clyde Creek will be evaluated to identify opportunities for water quality improvement. Possibilities include replacing catch basins with mechanical water quality devices and constructing bioswales. Habitat value of the creek will increase and water quality will improve.	Funding/ permits not yet secured	Project removed from CFP.
Cap Sante sewer extension	A project providing gravity sewer collection to nine homes on Cap Sante will replace old systems; new systems will prevent leaching of incompletely treated wastewater to Fidalgo Bay.	Planning stages	Planning Stages; In years 7-20 CFP
Shannon Point Road signage and fence	Environmental signage and fencing will limit dumping in the wetland and access from surrounding areas and improve habitat function.	Planning stages	Project removed from CFP.
Creosote Pile Replacement	Creosote pile removal and replacement at the City owned travel lift float and dock.	n/a	New proposal
SHIP Wetland Interpretive Trail	Complete trail and lookout on the south end of the boardwalk and connection to ferry landing. Environmental education opportunity and address noxious weeds.	n/a	New proposal
Heart Lake Improvements	Improvements will include better access to the water, stormwater management infrastructure	n/a	New proposal

Project/Location	Environmental component(s)	Implementation status (2010)	Status Update (2022)
	for the parking lot, reducing impervious surfaces, and adding day use amenities such as a picnic shelter and walking paths.		
Tommy Thompson Trestle and Causeway	Removal and replacement of the trestle and causeway of the Tommy Thompson Trail. Including replacement of creosote piles, and design to enhance the water flow and water quality in Fidalgo Bay.	n/a	New proposal: Grant received in 2021 to conduct a feasibility study (to occur in 2022).

Table B-8. Restoration projects and management recommendations from the Fidalgo Bay Environmental Aquatic Reserve Management Plan.

Project Type	Project/Program	Description	Status Update (2022)	Status/Funding
Shoreline restoration	March's Point shoreline restoration and pocket estuary enhancement	Cooperative effort between the DNR and Swinomish tribe. Removal of shoreline armoring and restoration of pocket estuaries to restore natural shoreline processes.	Completed	The Texaco Restoration Fund was presented a proposal for the project in 2007
	Weaverling Spit beach restoration and enhancement	Restored approximately 1,760 feet of shoreline at Weaverling Spit (Phases 1, 2, & 3).	Completed 2015, 2017	
	West March Point restoration and enhancement	Beach enhancement and forage fish habitat restoration at select locations on West March Point	Completed 2010, 2011, 2012	Skagit River System Cooperative, Tesoro, Skagit Marine Resources Committee (Skagit MRC), DNR
	Nearshore Surveys	Invasive plant and green crab surveys in Weaverling spit restoration site(s).		
	Eelgrass restoration	Eelgrass meadow planted and successfully established on the Scott paper mill remediation site, the meadow is expanding on tidelands adjacent to the reserve.	Completed	

Project Type	Project/Program	Description	Status Update (2022)	Status/Funding
	Fidalgo Bay Riparian Restoration	Removal of structures and riparian restoration, southwest side of Fidalgo Bay	Ongoing 2017-present	Skagit Land Trust
Feasibility study	Rail trestle at Weaverling Spit feasibility study	Samish Tribe is looking at the feasibility of reducing the trestle and causeway impacts in order to restore more natural tidal flow to the south bay, leaving the Thompson Trail intact.	Ongoing	Ecology is funding the Tribe through the Puget Sound Initiative
Water quality	Fidalgo Bay watershed assessment	Cooperative effort between the DNR and Samish tribe to conduct a watershed assessment to identify and address water quality issues in the Fidalgo Bay Aquatic Reserve.	Ongoing	Partially funded by Ecology through a Direct Implementation Fund grant to DNR
	Pollution reduction	Samish Indian Nation is using outfall pollution data to upgrade and address problems with pollution in cooperation with the City.	Ongoing	
	Fidalgo Bay water quality monitoring	Several water quality monitoring projects are ongoing in Fidalgo Bay by Samish Indian Nation, DNR, WDFW, and others.	Ongoing	
Structure removal	Removal of derelict treated structures	General effort to remove unused and creosote-treated structures from the Reserve.	Some projects have been completed and other are ongoing	Led by DNR, Skagit MRC, Samish Indian Nation
Sediment quality	Sediment cleanup in Fidalgo Bay Aquatic Reserve and the City of Anacortes	Joint effort by the DNR and Ecology to clean up contaminated sediments at several sites in the Reserve and further north in Anacortes.	No update	Funded by Ecology through the Puget Sound Initiative
Restoration and Education	Oyster restoration, shoreline restoration, and education in and near Fidalgo Bay Aquatic Reserve	Efforts include projects to restore native Olympia oysters, restoration of shoreline processes on east March's Point, and environmental education in and adjacent to the Reserve.	Ongoing	Led by the Skagit County MRC, Puget Sound Restoration Fund

**Table B-10. Restoration projects and their priority status from the Plan for Habitat Protection, Restoration, and Enhancement: Fidalgo Bay and Guemes Channel.**

Priority	Project/Program	Description	Update (2022)
High	Railroad trestle and Thompson Trail Causeway improvements at Weaverling Spit	Approximately 1,500-foot causeway beneath trestle constricts water exchange to south Fidalgo Bay. Berm could be reduced in area or breaks installed. Exposed creosote-treated wood leaches into the bay. Obsolete pilings could be removed; treated wood pilings could be replaced with pilings constructed of non-contaminating materials; retrofitting should be explored to determine if eelgrass habitat could reestablish. Possibly purchase headland for public ownership.	No update
High	Weaverling Spit North/Stockwell Beach protection	Acquisition or protection of 0.5 miles of high-quality upper-intertidal sand-gravel beach. Used year-round by spawning smelt. Log raft remains on beach could be removed.	No update
High	Custom Plywood Mill	Remove deteriorated pier and industrial debris from beach. Remove fill (possibly slag burner waste fragments) from upper beach potential superfund site that could extend to sub/intertidal areas. Remove wood debris from subtidal habitat.	Phases I and II are complete, Phase III is ongoing
High	Trident Seafoods	Replace deteriorating pier with a modified structure that improves conditions for eelgrass, including minimizing shading from overhead cover.	No update
Moderate	Seafarer's Memorial Park/Scott Paper Mill	Remove wood and brick debris from intertidal zone; replace riprap that has migrated downbeach with more stable material; enhance surf smelt habitat by restoring marine riparian vegetation.	Completed 2012
Moderate	Anacortes Marina	Replace treated wood ring wall with concrete or other non-contaminating material as part of current ongoing improvements.	Underway
Moderate	SW Shore of Fidalgo Bay (2), old mill site	Remove berm to open a small mill pond and restore the natural shoreline.	No update
Moderate	Nearshore fill between 27 <sup>th</sup> and 30 <sup>th</sup> Streets	Excavate nearshore fill from the 1970s from approximately 15 acres to restore intertidal habitat.	No update
Moderate	Dike relocation at SE corner of South Fidalgo Bay	Increase marsh and mudflat habitat by relocating dike at corner of March's Point Road and State Highway 20 closer to intersection.	Completed 2011
Moderate	Rock quarry at Sharpe's Corner	Wooded headland could be purchased for wildlife habitat and public ownership.	No update
Moderate	Curtis Beach	Remove fill at shore west of Port of Anacortes Office Building and Pier 1.	Complete

Priority	Project/Program	Description	Update (2022)
Moderate	Guemes ferry terminal	Replace treated wood pilings with concrete or other non-contaminating material.	Ongoing
Moderate	Lovric's Boatyard	The shoreline has been extensively modified with a riprap dike and docks, boat ramps, and nearshore fill. Could remove modified shoreline features, replace treated wood pilings with concrete or other non-contaminating material, and investigate contamination issues associated with boat-building and maintenance activities.	No update
Moderate	Bay-wide <i>Spartina</i> protection	Expansive mudflats should be protected from <i>Spartina</i> invasion. Guidance provided by WSDA on ongoing spartina control is provided here: <a href="https://agr.wa.gov/departments/insects-pests-and-weeds/weeds/spartina">https://agr.wa.gov/departments/insects-pests-and-weeds/weeds/spartina</a>	No update
Low	Anchor Cove Marina	Replace treated wood pilings with concrete or other non-contaminating material.	Completed
Low	Dakota Creek Industries	Preserve or mitigate for small eelgrass bed between two areas of nearshore fill.	Completed
Low	SW shore of Fidalgo Bay (1)	Remove or reposition shoreline armoring, which may be impacting sediment supply to Weaverling Spit, to minimize intertidal habitat impacts	No update
Low	Curtis Beach, North end of N Avenue	Clean up sources of oil seep and contaminated sediment on beach.	Feasibility study underway

Table B-11. Restoration projects and their ecological function rankings from the Northern Skagit County Bays and Shoreline Habitat Conservation and Restoration Blueprint 2005.

Project/Location	Description	Ranking	Update (2022)
Guemes Channel/East Ship Harbor conservation	Conservation easement recommended for shorebird, forage fish, juvenile salmon, and sediment supply conservation functions.	Top and second tier	In 2010, the Conservancy shoreline environment designation was applied to the shoreline lanward within 100' of the OHWM

Project/Location	Description	Ranking	Update (2022)
Cap Sante structure removal	Remove unused pilings and overwater structure in former marina site; employ ecologically sensitive redevelopment	Top and median tier	Completed 2013
Custom Plywood Mill site clean-up	Extensive clean-up tied to site redevelopment should include removal of creosote and other contaminants, removal of sunken tugboat, and ecologically sensitive site redevelopment	Top tier	Complete
34 <sup>th</sup> Street to Weaverling Spit lagoon restoration	Recommendation is to negotiate an ecologically friendly option with the landowner to remove or redesign shoreline armoring to make lagoon navigable.	Lowest tier	No update
Thompson Trail vegetation restoration and management	Recommends planting supplemental vegetation along the trail; plant vegetation on shore side of proposed trail on top of armoring; prune existing vegetation in environmentally sensitive manner; encourage City to leave fallen armor rocks in place and keep paving away from edge of armor.	Lowest tier	No update
Weaverling Spit railroad trestle removal or redesign	Remove railroad trestle or unneeded creosote pilings, or redesign causeway to a more overwater structure to increase flow to south end of Bay.	Top tier	No update
SE side of March's Point conservation easement	Conservation easement recommended to protect forage fish and shorebird habitat (top-ranking function) and juvenile salmon (second-tier-ranking function)	Top and second tier	No update

Table B-13. Port of Anacortes projects involving restoration or other environmental components.

Project	Environmental/restoration component(s)	Update (2022)
Cap Sante Boat Haven redevelopment	The Port is concluding year 10 of post project monitoring, which included environmental clean-up, shoreline restoration, installation of a wave-break and reef habitat to provide long-term beach stability. Clean-up included removing wood debris and sediment from Fidalgo bay, including an existing timber breakwater.	Complete
Scott Paper Mill environmental clean-up project	The Port is working in partnership with Ecology and Kimberly Clark, former owners of the site. Further opportunity to restore the	Complete

Project	Environmental/restoration component(s)	Update (2022)
	area as part of the clean-up is along the shoreline, where revegetation would enhance low shoreline ecological function.	
Custom Plywood/Fidalgo Marinas	Remediation and enhancement of nearshore and riparian habitat that included removing wood waste and toxics from the uplands and nearshore, and the construction of a pocket estuary at the Custom Plywood site.	Complete
Padilla Bay former mill site	Also in private ownership, the site's redevelopment will likely require mitigation for environmental impacts.	No update
Guemes Channel: Curtis Wharf improvements	An opportunity for environmental clean-up and creation of a buffer for industrial uses exists if the Port acquires two blocks of property between N Avenue and Commercial Avenue and between 2 <sup>nd</sup> Street and 3 <sup>rd</sup> Street. The Port is actively working on restoration at O Avenue. A macroalgae/kelp mitigation plan was implemented to mitigate for the impacts of dredging. Although dredging is not yet planned, a subtidal rock reef mound was constructed in February 2001 to provide habitat for kelp and algae.	Complete
Guemes Channel: Pier 1 replacement	There is an opportunity to replace the wood piling and deck with non-contaminating materials during comprehensive repairs. Recommended actions would remove creosote pilings and contaminated sediment and soils in the ship basin and adjoining uplands.	No update
Fidalgo Bay Eelgrass advanced mitigation	The Port was awarded a \$400,000 grant in 2005 from Skagit County's Distressed County Public Facilities Fund. This grant was awarded for Phase 1 of Project Pier 1, which involves construction of an advance eelgrass mitigation site in Fidalgo Bay. The Port will construct a 6-acre eelgrass habitat site in an otherwise un-vegetated portion of Fidalgo Bay that is currently too deep to support eelgrass, but with clean fill, will be suitable for eelgrass establishment. The mitigation will offset the loss of existing eelgrass that will result from dredging and construction during shipyard redevelopment.	Complete
Ship Harbor land use improvements	Plans include creating an environmental reserve within the Ship Harbor wetlands and possibly building a boardwalk system and interpretive center. Ongoing improvements to the wetlands are expected to be part of future plans.	Partial completion
Anacortes Port Log Yard	Contamination is present from past commercial use, concluding log operations in 2004. As part of an Agreed Order executed with Ecology in 2014, a Remedial Investigation/Feasibility Study (RI/FS) is being prepared by the Port and Ecology to clean up the site. Remediation will most likely involve the removal of contaminated sediment and improvements to nearshore habitat.	Planning
Quiet Cove	Hydrocarbon and heavy metal contamination detected in soil and groundwater from the site's previous use as a fueling station. Remediation will most likely include sediment removal and nearshore habitat enhancement.	Demolition began August 2021, ongoing

**Table B-16. Completed Projects not Included in the Previous Restoration Plan.**

<b>Project Location</b>	<b>Project Description</b>	<b>Lead Agency</b>	<b>Year of Completion</b>
Northeast March's Point	Groin removal along both sides of the boat ramp off E March's Point Rd and shoreline vegetation enhancement.	Skagit MRC	2010
Northwest March's Point	Angular rock removed from beach and restacked into revetment, 2,230 tons of beach nourishment material suitable for surf smelt spawning habitat added to the beach.	Skagit MRC, SRI, Northwest Straits Foundation	2014
Guemes Channel and Padilla Bay	Removed and disabled 480 derelict crab pots	Skagit MRC, NW Straits Foundation	2018
Fidalgo Bay Carstens Property	Conservation easement established, removal of invasive species along 1,000 feet of Fidalgo Bay.	Skagit Land Trust	2016
Fidalgo Bay Conservation Area	Conservation easement established over 15 acres including two streams and mature forest, removal of invasive species	Skagit Land Trust	2017

## Project Prioritization

The projects were prioritized in Table B-17 below using a rudimentary rating system that incorporates values for a project's overall cost and a project's overall ecological benefit as it relates to no net loss of shoreline ecological functions. The analysis was limited by the level of detail incorporated in the descriptions of the potential projects in the previous restoration report and given by agencies and organizations. Much of the project details, including overall project area size and volumes of sediment and other material removed and added to an area, are not determined until official project proposals or submittals, making a quantitative analysis extremely difficult. Therefore, the current ecological conditions of proposed project areas were assessed using aerial imagery (Google Earth and Island County Parcel Viewer Application) and the City's Cumulative Impacts Analysis (March 2010). The amount of ecological lift a proposed project would provide to the shoreline environment was assessed based on general knowledge of project outcomes, including type and volume of habitat potentially created relative to existing conditions and the possibility of reincorporating or enhancing shoreline functions within an area.

In Table B-17, projects are given an ecological value of High associated with a score of 3; Medium associated with a score of 2; and Low associated with a score of 1. A High ecological value is given to projects that show the greatest potential to provide the most ecological lift within their proposed areas. Projects were also valued and scored based on cost, with a value of Low associated with a score of 3; Medium associated with a score of 2; and High associated with a score of 1. Projects with a cost value of Low are given a higher score to help distinguish projects that allow the community to be the most efficient with available restoration funds. The list was then organized based on overall score (example a project with a High rating for ecological value and a Low rating for cost results in the highest score of 6), many projects had scores of 4 and 3 and were then prioritized based on ecological value.

Table B-17. Project Prioritization Accounting for Overall Ecological Benefit Potential and Cost.

Project Location	Project Description	Table of Origin	Ecological Value	Cost Value	Total Project Score
SE side of March's Point conservation easement	Conservation easement recommended to protect forage fish and shorebird habitat (top-ranking function) and juvenile salmon (second-tier-ranking function).	Table B-11	High	Low	6
SW Shore of Fidalgo Bay (2), old mill site	Remove berm to open a small mill pond and restore the natural shoreline.	Table B-10	Medium	High	5
Sediment cleanup in Fidalgo Bay Aquatic Reserve and the City of Anacortes	Joint effort by the DNR and Ecology to clean up contaminated sediments at several sites in the Reserve and further north in Anacortes.	Table B-8	High	High	4
Railroad trestle and Thompson Trail Causeway improvements at Weaverling Spit	Approximately 1,500-foot causeway beneath trestle constricts water exchange to south Fidalgo Bay. Berm could be reduced in area or breaks installed. Exposed creosote-treated wood leaches into the bay. Obsolete pilings could be removed; treated wood pilings could be replaced with pilings constructed of non-contaminating materials; retrofitting should be explored to determine if eelgrass habitat could reestablish. Possibly purchase headland for public ownership.	Table B-10	High	High	4

Project Location	Project Description	Table of Origin	Ecological Value	Cost Value	Total Project Score
Weaverling Spit North/Stockwell Beach protection	Acquisition or protection of 0.5 miles of high-quality upper-intertidal sand-gravel beach. Used year-round by spawning smelt. Log raft remains on beach could be removed.	Table B-10	High	High	4
Nearshore fill between 27th and 30th Streets	Excavate nearshore fill from the 1970s (approximately 15 acres) to restore intertidal habitat.	Table B-10	High	High	4
Bay-wide Spartina protection	Protect Expansive mudflats from Spartina grass invasion.	Table B-10	Medium	Medium	4
Depot area improvements	Improve landscaping in conjunction with an expanded plaza area; wetlands and a madrone grove will be preserved and/or enhanced.	Table B-7	Low	Low	4
Shannon Point Road signage and fence	Environmental signage and fencing will limit dumping in the wetland and access from surrounding areas and improve habitat function.	Table B-7	Low	Low	4
Creosote Pile Replacement	Creosote pile removal and replacement at the City owned travel lift float and dock.	Table B-7	Low	Low	4
SHIP Wetland Interpretive Trail	Construct a teaching station and improve a connection to the WA State ferry terminal.	Table B-7	Low	Low	4
SW shore of Fidalgo Bay (1)	Remove or reposition shoreline armoring, which may be impacting sediment supply to	Table B-10	Low	Low	4

Project Location	Project Description	Table of Origin	Ecological Value	Cost Value	Total Project Score
	Weaverling Spit, to minimize intertidal habitat impacts				
434th Street to Weaverling Spit lagoon restoration	Negotiate an ecologically friendly option with the landowner to remove or redesign shoreline armoring to make lagoon navigable.	Table B-11	Low	Low	4
Thompson Trail vegetation restoration and management	Plant supplemental vegetation along the trail; plant vegetation on shore side of proposed trail on top of armoring; prune existing vegetation in environmentally sensitive manner; encourage City to leave fallen armor rocks in place and keep paving away from edge of armor.	Table B-11	Low	Low	4
Dakota Shipyards	Preserve or mitigate for small eelgrass bed between two areas of nearshore fill.	Table B-10	Low	Low	4
Trident Seafoods	Replace deteriorating pier with a modified structure that improves conditions for eelgrass, including minimizing shading from overhead cover.	Table B-10	Medium	High	3
Rock quarry at Sharpe's Corner	Wooded headland purchase for wildlife habitat and public ownership.	Table B-10	Medium	High	3
Padilla Bay former mill site	Also in private ownership, the site's redevelopment will likely require mitigation for environmental impacts. Potential ecological benefit to the marine environment is minimized by existing railroad blocking off direct tidal influence to the site, if mitigation were performed.	Table B-13	Medium	High	3

Project Location	Project Description	Table of Origin	Ecological Value	Cost Value	Total Project Score
Lovric's Boatyard	The shoreline has been extensively modified with a riprap dike and docks, boat ramps, and nearshore fill. Remove modified shoreline features, replace treated wood pilings with concrete or other non-contaminating material, and investigate contamination issues associated with boat-building and maintenance activities.	Table B-10	Medium	High	3
Clyde Creek water quality enhancement	Existing stormwater discharges to Clyde Creek will be evaluated to identify opportunities for water quality and habitat improvement. Possibilities include replacing catch basins with mechanical water quality devices and constructing bioswales. Increased Habitat value of Clyde Creek and water quality improvements are expected to occur with improvements to neighboring stormwater infrastructure.	Table B-7	Low	Medium	3
Cap Sante sewer extension	A project providing gravity sewer collection to nine homes on Cap Sante will replace old systems; new systems will prevent leaching of incompletely treated wastewater to Fidalgo Bay.	Table B-7	Low	Medium	3
Heart Lake Improvements	Improvements include better access to the water, stormwater management infrastructure for the parking lot, and day	Table B-7	Low	Medium/High	2.5

Project Location	Project Description	Table of Origin	Ecological Value	Cost Value	Total Project Score
	use amenities such as a picnic shelter and walking paths.				
Cap Sante Marina	Replace treated wood ring wall with concrete or other non-contaminating material as part of current ongoing improvements.	Table B-10	Low	High	2
Curtis Beach	Remove fill at shore west of Port of Anacortes Office Building and Pier 1.	Table B-10	Low	High	2
Guemes Channel: Pier 1 replacement	There is an opportunity to replace the wood piling and deck with non-contaminating materials during comprehensive repairs. Recommended actions removing creosote pilings, contaminated sediment, and soils in the ship basin and adjoining uplands.	Table B-13	Low	High	2