

22-1345, Plan, Rest, Fish & Wildlife Dept of McNeil Island - Floyds Cove P1, RCO Grant Request: \$502,750

BASICS

FUNDING

Costs

RCO	\$502,750	44%
Sponsor Match	\$634,000	56%
Total	\$1,136,750	100%

Sponsor Match Breakdown

Donated Services	\$1,500
Grant - RCO ESRP	\$632,500

Worksite map

Minimum match required
15.00%

DESCRIPTION

McNeil Island offers a unique opportunity to protect and restore habitat in a large setting within South Puget Sound. Much of the 12 miles of marine shoreline is in a natural state, retaining high quality due to limited access by the public. However, development related to the historic use for a federal/state penitentiary (closed in 2011) resulted in some locations being highly impacted and relict debris along the shorelines. Washington Department of Fish and Wildlife and Department of Natural Resources are working with the Department of Corrections to restore as much of the shoreline to natural state as possible, while retaining the function of the perimeter road essential for safety and security related to island operations of the Special Commitment Center. The roadway bisects two estuarine sites at Bodley Creek and Floyds Cove, disconnecting impounded wetlands from tidal influence by undersized culverts, which are now failing. Building on a successful tidal reconnection project at Milewa Creek estuary, we propose to replace the culverts at Bodley Creek and Floyds Cove with fish passable culverts/bridges to reconnect these former tidal wetlands, benefitting Chinook and other estuarine fish and wildlife. With this proposal, we will complete final design and permitting and have sufficient construction funding to replace the undersized culvert at Floyds Cove with a 60' bridge to restore full tidal exchange and remove the standpipe at Bodley Creek & install beaver dam analogs.

[Project Application](#)

LOCATION

Related PRISM Projects

PRISM Number	Project Name	Current Status	Relationship Type	Notes
21-1456 C	McNeil Island - Floyds Cove & Bodley Cr P1	Application Submitted	Matching Grant	ESRP portfolio grant
18-2072 C	McNeil Island Estuary Restoration Project	Active	Earlier Phase	ESRP grant to complete construction at Milewa Creek estuary on McNeil Island

Project Location Questions

Project Factsheet

#1: Project location. Describe the geographic location, water bodies, and the location of the project in the watershed, i.e. nearshore, tributary, main-stem, off-channel, etc.

McNeil Island is in South Puget Sound, 5.5 miles from the Nisqually delta. The proposed work is in former estuarine sites, restoring tidal exchange by addressing undersized culverts and standpipe that impound freshwater. The work is in the nearshore.

#2: How does this project fit within your regional recovery plan and/or local lead entity's strategy to restore or protect salmonid habitat? Cite section and page number.

Restoration of pocket estuaries is included in the Puget Sound Chinook recovery plan and the WSPER strategy. The Puget Sound Chinook plan notes that "Four planning areas (South Sound, East Kitsap, Whidbey/Camano, and San Juan) without independent spawning populations focus primarily on land use and fresh and salt-water issues related to the nearshore and marine waters surrounding their shores. Restoration of estuarine connectivity is the first action listed to recover Chinook salmon (Exec Summary pg X).

The South Sound Chinook recovery plan also identifies restoring tidal connectivity as a key action (pg. III-4). The plan references actions identified in the Key Peninsula, Gig Harbor, and Islands Watershed Nearshore Salmon Habitat Assessment (2003) for McNeil Island indicating that "four small creeks have been impounded, which restricts flow and fish access, and greatly impacts the establishment of marsh habitat". Bodley Creek and Floyds Cove are two of these sites (App A, pg 38).

The Nearshore chapter of the Puget Sound Chinook plan indicated that marine shorelines of the Carr-Nisqually subbasin (pg 6-82) were important for juvenile Chinook because:

- Juvenile Chinook salmon of all four life history types from the Nisqually natal population utilize this sub-basin for feeding and growth, refuge, physiological transition and as a migratory corridor (juvenile salmon functions).
- This sub-basin provides direct support to meeting the Chinook ESU criteria by supporting rearing of juveniles of many populations from almost all geographic regions of origin.
- Populations from south Puget Sound, particularly fish from the central Puget Sound subbasin where most delta functions have been lost, also utilize this sub-basin for feeding and growth, refuge, physiological transition and as a migratory corridor."

A more local assessment, the KGI Strategic ID of Nearshore Restoration Projects in 2011, identified Bodley Creek as Site 50 (App A, pg 75). While Floyds Cove was not recognized as a potential project, the shoreline was included in the highest category for salmonids benefits.

#3: Is this project part of a larger overall project?

Yes

Project Factsheet

#3a: How does this project fit into the sequencing of the larger project?

DFW & DNR have been working in partnership with DOC since 2014 to identify marine shoreline habitat restoration opportunities. We've successfully implemented a feasibility study (2015), shoreline debris removal projects (2018-19) and construction of the Milewa Estuary restoration project (2021).

Bodley Creek and Floyds Cove were also identified in the feasibility study. Work with stakeholders for analysis of alternatives and preliminary design & permitting is underway using existing funding through DOE Asarco settlement funds and ESRP grants 18-2072 and 21-1456.

With this grant, we will have complete funding for construction of Floyds Cove culvert replacement. With match funds from ESRP, we will finish design & permitting, and also remove the standpipe at Bodley Creek & install beaver dam analogs.

We are applying for additional funds to complete construction at Bodley Creek, with a target date of summer 2023/24. DNR is also moving forward with Still Harbor restoration.

METRICS/COSTS

OVERALL PROJECT METRICS

PLANNING/RESTORATION METRICS

Worksite: Floyds Cove, McNeil Island (#1)

COSTS

Category	Work Type	Estimated Cost	Note
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Project Factsheet

Cultural Resources	Cultural resources	\$5,000	Initial cultural resource assessment is complete. The project will need monitoring during construction and coordination with DAHP and local tribes to complete cultural resource work. WDFW staff archaeologists will assist with Section 106 and Executive Order work.
Design for Salmon restoration	Final design and permitting (B.1.b.11.a RCO)	\$42,750	\$7250 from DOE grant associated with ESRP match (not part of this grant)
Estuarine / Nearshore Project	Beach nourishment (C.9.l.1)	\$25,000	
	Culvert modification / removal (C.9.f.1)	\$5,000	
	Estuarine planting or native plant establishment (C.9.r.1)	\$10,000	
Fish Passage Improvement	Shoreline armor removal or modification (C.9.k.1)	\$65,000	
	Bridge installed or improved (C.2.g.1)	\$799,100	\$510,450 from ESRP 21-1456 match
Permits	Obtain permits	\$3,800	\$3700 from DOE grant associated with ESRP match (not part of this grant)
Admin, Architecture, and Engineering	Subtotal:	\$955,650	
		\$110,600	
	Total Estimate For Worksite:	\$1,066,250	

METRICS

Area Encompassed (acres) (B.0.b.1)	6.7
Miles of Stream and/or Shoreline Affected (B.0.b.2)	0.07
Miles of Stream and/or Shoreline Treated or Protected (C.0.b)	0.07

Project Factsheet

ESTUARINE / NEARSHORE PROJECT

Total Amount Of Estuarine / Nearshore Acres Treated (C.9.b)	6.7
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Beach nourishment (C.9.l.1)

Miles of Shoreline Treated for beach nourishment (C.9.l.3)	0.07
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Acres Treated for beach nourishment (C.9.l.4)	0.1
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Culvert modification / removal (C.9.f.1)

Number of Culverts Modified/Removed To Allow Fish Passage (C.9.f.2)	1
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Acres Opened To Fish Passage through culvert modification/removal (C.9.f.3)	6.7
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Estuarine planting or native plant establishment (C.9.r.1)

Acres of Estuarine planting or native plant establishment (C.9.r.3)	0.1
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Species (scientific) name(s) of plants. (C.9.r.2)	native plants suitable for estuarine perimeter, et.g. willow, alder, cottonwood, maple. Match nearby plant community.
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Shoreline armor removal or modification (C.9.k.1)

Miles of Shoreline Treated for armor modification/removal (C.9.k.2)	0.07
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Acres of Shoreline Treated for armor modification/removal (C.9.k.3)	0.1
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FISH PASSAGE IMPROVEMENT

Miles Of Stream Made Accessible (SRFB) (C.2.b.1)	0
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Habitat made accessible (2489)	6.7
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Additional barriers (2490)	no additional barriers to fish passage or tidal exchange
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Type Of Barrier (C.2.b.3)	Culvert Diversion Dam
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Number of blockages / impediments / barriers impeding passage (C.2.b.4)	1
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Describe the current barrier (2486)	24" concrete culvert in poor condition. Sections on the beach and may have had tidegate in the past. Culvert is currently blocked with debris such that there is flow over the roadway (in the last year).
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Passage problem (2487)	Water surface drop Velocity Slope Debris Other
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Passability (2488)	0% (Complete)
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Bridge installed or improved (C.2.g.1)

Miles of stream made accessible by bridge installation/repair (C.2.g.3)	0
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Number of bridges (C.2.g.2)	1
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CULTURAL RESOURCES

Cultural resources

Project Factsheet

Acres surveyed for cultural resources

6.70

Worksite: Bodley Creek Estuary, McNeil Island (#2)

COSTS

Category	Work Type	Estimated Cost	Note
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Project Factsheet

Cultural Resources	Cultural resources		
		\$1,000	We previously completed a cultural resource assessment. A monitor will be needed during ground disturbance associated with the beaver dam analog placement and culvert placement. Staff will also need to complete consultation with DAHP and local tribes. Additional cultural resource monitoring to be funded through future grants.
Design for Salmon restoration	Final design and permitting (B.1.b.11.a RCO)	\$40,000	\$40,000 funded through ESRP 21-1456 and \$10,000 from DOE grant associated with ESRP match (not part of this grant)
Estuarine / Nearshore Project	Culvert modification / removal (C.9.f.1)	\$20,000	includes standpipe removal, BDA placement & beaver deceiver funded through ESRP grant match (21-1456)
Permits	Obtain permits	\$4,500	plus \$3000 from DOE

Project Factsheet

Category	Work Type	Estimated Cost	Note from DOE grant associated with ESRP match (not part of this grant)
	Subtotal:	\$65,500	
Admin, Architecture, and Engineering		\$5,000	
	Total Estimate For Worksite:	\$70,500	

METRICS

Area Encompassed (acres) (B.0.b.1)	30.6
Miles of Stream and/or Shoreline Affected (B.0.b.2)	0.02
Miles of Stream and/or Shoreline Treated or Protected (C.0.b)	0.02

ESTUARINE / NEARSHORE PROJECT

Total Amount Of Estuarine / Nearshore Acres Treated (C.9.b)	30.6
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Culvert modification / removal (C.9.f.1)

Number of Culverts Modified/Removed To Allow Fish Passage (C.9.f.2)	1
Acres Opened To Fish Passage through culvert modification/removal (C.9.f.3)	27.3

FISH PASSAGE IMPROVEMENT

Miles Of Stream Made Accessible (SRFB) (C.2.b.1)	0.02
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Habitat made accessible (2489)

The primary benefit of this fish passage project is to restore tidal connectivity to tidal habitats. This barrier is identified as a dam in FPDSI as Site 981757. Inventory from 2003 states that two small streams enter the reservoir that are small with silt substrate. Priority Index is 5.17 but the value is mostly dependent on stream miles and does not consider the value of tidal habitat for juvenile salmonid rearing. This project provides transition from salt marsh to upper wetlands for 27.3a

Additional barriers (2490)	no additional barriers
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Type Of Barrier (C.2.b.3)	Culvert Diversion Dam
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Number of blockages / impediments / barriers impeding passage (C.2.b.4)	1
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Describe the current barrier (2486)	Roadway with 36" CMP culvert. Culvert has a 10' standpipe to intentionally impound water. Likely constructed in 70's.
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Passage problem (2487)	Water surface drop Other
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Passability (2488)	0% (Complete)
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Project Factsheet

CULTURAL RESOURCES

Cultural resources

Acres surveyed for cultural resources

5.00

Total Planning/Restoration Cost

\$1,136,750

PROJECT PROPOSAL

Targeted ESU Species

Worksites	Species by ESU	Egg Present	Juvenile Present	Adult Present	Population Trend
1	Chinook-Puget Sound, Threatened		✓		Declining
1	Chum-Puget Sound/Strait of Georgia, Not Warranted		✓		Unknown
1	Coho-Puget Sound/Strait of Georgia, Species of Concern		✓		Declining
1	Pink-Odd Year, Not Warranted		✓		Unknown
1	Steelhead-Puget Sound, Threatened		✓		Declining
2	Chinook-Puget Sound, Threatened		✓		Declining
2	Chum-Puget Sound/Strait of Georgia, Not Warranted		✓		Unknown
2	Coho-Puget Sound/Strait of Georgia, Species of Concern		✓		Declining
2	Pink-Odd Year, Not Warranted		✓		Unknown
2	Steelhead-Puget Sound, Threatened		✓		Declining

Reference or source used

Juvenile salmonids were collected during beach seines by the Nisqually Tribe (Hodgson et al. 2016). Juvenile Chinook, chum and pink salmon were present in samples. Based on similar studies, we would expect the nearshore to also support juvenile coho and steelhead.

Targeted Non-ESU Species

Worksites	Species by Non-ESU	Notes
1	Cutthroat	Cutthroat trout are likely present along the nearshore at Floyds Cove. After culvert replacement, it is possible that cutthroat could use the small streams primarily for rearing. Spawning habitat is limited in the small streams. WDFW barrier inventory identified the stream for cutthroat potential (see attachment).
1	Forage fish	While forage fish spawning has not been documented along the shoreline at Floyds Cove, juvenile forage fish are likely to use the pocket estuary and marine shoreline when restored.

Project Factsheet

Worksites	Species by Non-ESU	Notes
2	Cutthroat	Cutthroat trout are likely present along the nearshore at Bodley Creek. After culvert replacement, it is possible that cutthroat could use the small streams and wetland complex/beaver ponds for rearing. Spawning habitat is limited in the small streams. WDFW barrier inventory identified the stream for cutthroat potential (see attachment).
2	Forage fish	Forage fish spawning is documented in the nearshore about 1500' from Bodley Creek shoreline. Juvenile forage fish are likely to be present in tidal habitats.

PROPOSAL QUESTIONS

#1: Problem statement. What are the problems your project seeks to address? Include the source and scale of each problem. Describe the site, reach, and watershed conditions. Describe how those conditions impact salmon populations. Include current and historic factors important to understand the problems.

Tidal connectivity:

Historic development at McNeil Island impacted small estuaries which were intentionally impounded as part of the water supply system and for fire suppression. Floyds Cove was a former embayment partially enclosed by a spit. A road was constructed in the 50's or 60's to restrict tidal exchange using a perched undersized culvert (possibly with a tide gate), resulting in an impoundment of the small streams and springs that supply this area. Similarly, road construction at Bodley Creek, estimated in the 70's, impounded the small stream and springs resulting in an abrupt transition from salt marsh/estuarine habitat to ponded freshwater habitat. The undersized culvert was fitted with a 10' standpipe to further impound and create a full fish blockage.

Our project will reconnect these habitats, restoring former estuarine habitat and providing transition from nearshore habitats to upper freshwater wetlands and stream habitats.

Fish passage:

At Bodley Creek and Floyds Cove, fish passage is blocked by the undersized culverts. In this project, we will restore full fish access to upper watershed habitats by replacing the structures with larger fish passable structures.

At Floyds Cove, we will cap the existing undersized and damaged 24" culvert and create an opening at the opposite end of the impoundment to install a 60' x 16' bridge. This will allow full tidal exchange and access to tidal habitat.

In addition to final design and permitting, we will begin construction to gradually remove the standpipe attached to the undersized culvert at Bodley Creek to lower the level of the impounded water on the upstream side. After the pond level has receded, we will install beaver dam analogs to retain freshwater wetlands and beaver habitats. We have been planting willow and cottonwood around the pond and will continue to augment this throughout the project duration, along with removal of reed canarygrass and blackberry to the greatest extent possible. A beaver deceiver may be needed until the culvert can be replaced with a larger structure. As funding becomes available, we will replace the undersized 24" culvert at Bodley Creek with a 40' x 17' countersunk box culvert to restore fish access.

Marine shoreline sediment process restoration:

Project Factsheet

At Floyds Cove, the spit around the former embayment has been hardened to facilitate road placement. Materials used vary from rock rip rap to concrete chunks, creosote logs and bundled submarine cable. This project will remove the existing shoreline armor and replace it with rock rip rap (where needed) faced with beach nourishment materials. At Still Harbor, DNR is leading restoration projects to remove unnecessary marine shoreline armor and impediments as part of the overall McNeil Island restoration project. This project is match for the ESRP project (21-1456) and not part of this application. Work in this phase includes final design & permitting for removal of a concrete-encased pipe that extends about 200' into the intertidal at Lowery Point and an alternative analysis, 30% design and permitting for shoreline armor removal at the upper end of Still Harbor, as identified in the feasibility report.

Marine riparian improvement:

Historic development for operation of the penitentiary has impacted the marine shoreline riparian area in places. At Bodley Creek, we will continue planting native willows, cottonwoods and other native species to improve the site for beaver habitat and reduce the reed canarygrass and blackberry. Plant maintenance will continue throughout the project duration.

Reduced maintenance:

The marine shoreline restoration projects are designed to reduce need for infrastructure maintenance by removal where possible or restoring to natural processes. This meets the needs of the WDFW wildlife area and Department of Corrections objectives.

Project Factsheet

#2: Describe the limiting factors, and/or ecological concerns, and limiting life stages (by fish species) that your project expects to address.

McNeil Island offers a unique opportunity to protect and restore habitat in a large setting within South Puget Sound. Much of the 12 miles of marine shoreline is in a natural state, retaining high quality due to limited access by the public. However, development related to historic use for a federal/state penitentiary has left a legacy of impacted sites and shoreline debris. In addition, a roadway was constructed around the perimeter of the island for safety and security. The federal/state penitentiary was in use from 1875 – 2011 with an island population of up to 1500 inmates and operational staff at times. However, with the closure of the penitentiary, the island population is vastly reduced and limited to the Special Commitment Center and staff working in shifts, i.e., no longer residing on the island. As such, the need for infrastructure (water systems, schools, maintenance operations) is also reduced. The penitentiary is unlikely to re-open, as the costs to maintain the aging structure was too high (BERK report to state Office of Financial Management 2012).

South Puget Sound marine shorelines are generally heavily developed from a legacy of commercial use and railroad, along with highly desirable waterfront for residential use. Protecting and restoring marine shorelines at McNeil Island are important for use by juvenile salmonids in early marine life, including listed Chinook.

McNeil Island is within the tidal habitat associated with the Nisqually delta. The Nisqually Tribe beach seine work in 2010 – 2015 captured twenty species of nearshore fish, including juvenile Chinook, pink and chum Salmon (Hodgson et al. 2016). Steelhead and bull trout are likely to be present along the shoreline but have not been documented. Both Pacific sand lance and surf smelt are documented to spawn along McNeil Island shorelines near the project sites. Improvement of beach profile and substrate may extend spawning areas to these locations.

Project Factsheet

#3: What are the project goals? The goal of the project should be to solve identified problems by addressing the root causes. Then clearly state the desired future condition. Include which species and life stages will benefit from the outcome, and the time of year the benefits will be realized. **Example Goals and Objectives**

Project goal & objectives:

- Provide quality estuarine habitat along McNeil Island marine shorelines to support juvenile salmonids, waterfowl, forage fish and shellfish.
 - o Restore tidal exchange to Floyds Cove
 - o Restore natural processes that maintain estuarine habitat at Floyds Cove
 - o Restore tidal exchange to Bodley Creek estuary
 - o Restore natural processes that maintain estuarine habitat at Bodley Creek estuary
 - o Encourage use by beaver, including installation of beaver dam analogs and plantings at Bodley Creek
- Provide access for fish to tidal habitats, streams and wetlands
 - o Restore unrestricted fish passage in a continuum from marine shoreline to upper watershed at Floyds Cove
 - o Restore unrestricted fish passage in a continuum from marine shoreline to upper watershed at Bodley Creek estuary
- Restore marine shorelines to support forage fish and juvenile salmonid migration corridors
 - o At Floyds Cove, remove 350 LF of creosote timbers, concrete pieces, submarine cable and poorly constructed rock rip rap shoreline armor. Replace using vertical stacked rock rip rap where necessary, faced with beach nourishment as a more fish-friendly shore armor.

Project Factsheet

#4: What are the project objectives? Objectives support and refine biological goals, breaking them down into smaller steps. Objectives are specific, quantifiable actions the project will complete to achieve the stated goal. Each objective should be SMART (Specific, Measurable, Achievable, Relevant, and Time-bound). **Example Goals and Objectives**

Project goal & objectives:

- Provide quality estuarine habitat along McNeil Island marine shorelines to support juvenile salmonids, waterfowl, forage fish and shellfish.
 - o Restore tidal exchange to Floyds Cove
 - o Restore natural processes that maintain estuarine habitat at Floyds Cove
 - o Restore tidal exchange to Bodley Creek estuary
 - o Restore natural processes that maintain estuarine habitat at Bodley Creek estuary
 - o Encourage use by beaver, including installation of beaver dam analogs and plantings at Bodley Creek
- Provide access for fish to tidal habitats, streams and wetlands
 - o Restore unrestricted fish passage in a continuum from marine shoreline to upper watershed at Floyds Cove
 - o Restore unrestricted fish passage in a continuum from marine shoreline to upper watershed at Bodley Creek estuary
- Restore marine shorelines to support forage fish and juvenile salmonid migration corridors
 - o At Floyds Cove, remove 350 LF of creosote timbers, concrete pieces, submarine cable and poorly constructed rock rip rap shoreline armor. Replace using vertical stacked rock rip rap where necessary, faced with beach nourishment as a more fish-friendly shore armor.

Project Factsheet

#5: Scope of work and deliverables. Provide a detailed description of each project task/element. With each task/element, identify who will be responsible for each, what the deliverables will be, and the schedule for completion.

Task 1: Complete final design of restoration projects at Bodley Creek and Floyds Cove (6/30/2023)

WDFW will complete engineering work to provide final design documentation suitable for construction in the next phase of the two restoration projects. Both sites currently are at 30% design. Additional site investigation, including survey work as needed, site reviews and discussions with specialists will continue throughout the design development. Once a preliminary design is developed, improved drawings can be used to gain permits and approvals in Task 2 and move into final design engineering work. Final design work uses additional site investigations and engineering calculations to define quantities and details of construction, along with a final cost estimate. The documents associated with final design are suitable to go to bid if a construction contractor is hired or to build the project with WDFW construction crews. Deliverables include final design plans and basis of design reports.

Task 2 – Obtain permits and approvals for Bodley Creek and Floyds Cove restoration project (6/30/2023)

WDFW will obtain permits and approvals for project construction and provide these as deliverables. WDFW will also lead the consultation for cultural and historical resources with local Tribes and DAHP. A Memorandum of Agreement for project construction will be developed to assure coordination between WDFW and DOC/SCC during construction, identifying construction transportation, operating areas, communication and conditions for temporary road closures. At the conclusion of this task, all permits, agreements and approvals will be “in hand”, allowing the project to move to construction as funding allows.

Task 3: Implement Phase 1 construction at Bodley Creek (start 6/30/2022 if permits available or summer 2023 if delayed)

In this phase, WDFW will remove the standpipe on the culvert in stages, allowing the level of the impoundment to drop gradually. After the pond has receded, we will install 550' of beaver dam analogs and plant the exposed areas with native plants (e.g., willows) and install a beaver deceiver at the culvert. When full funding becomes available, WDFW will replace the culvert.

Task 4: Construct Floyds Cove restoration project (start 6/30/2023 if permits available or 6/30/2024 if delayed)

This grant award, matched with ESRP grant 21-1456, provides full funding for construction at Floyds Cove. We will replace the 24" culvert with a 60' span bridge (see attached plans). We will also remove shore armor (creosote, concrete pieces, rock, submarine cable) with rock rip rap faced with beach nourishment.

Project Factsheet

#6: What are the assumptions and physical constraints that could impact whether you achieve your objectives? Assumptions and constraints are external conditions that are not under the direct control of the project, but directly impact the outcome of the project. These may include ecological and geomorphic factors, land use constraints, public acceptance of the project, delays, or other factors. How will you address these issues if they arise?

Uncertainties for these projects include construction logistics and operational support. DOC is extremely supportive of this work and other work to reduce infrastructure maintenance needs, as the maintenance of the failing roadway and undersized culverts is problematic with limited funds. We expect this support to continue but changing priorities can always impact restoration project development. Potential uncertainties for the project include:

1) Cultural Resources

WDFW and DNR archeologists are part of the project team and have completed preliminary review of the sites and cultural resource assessments. Geotech borings at Floyds Cove suggest potential cultural resources in the vicinity but monitoring during construction will be needed.

2) Addressing water supply and fire suppression for the island

The impoundments at Floyds Cove and Bodley Creek were created to provide water supply and fire suppression by pumping to Butterworth reservoir. With the closure of the penitentiary and the completion of groundwater wells in 2020, DOC is no longer pumping water to Butterworth. Fire suppression on McNeil Island is a high priority due to the remote location and the security issues involving relocation of Special Commitment Center personnel in an emergency. The groundwater wells should be active by December 2022 (E. Heinetz, pers. comm.). However, if this is delayed, it may impact implementation of the restoration projects at Bodley Creek and Floyds Cove.

3) Funding delayed and the roadway fails

At this time, Floyds Cove culvert is damaged and non-functional such that the road is flooding. An emergency temporary project has temporarily alleviated the immediate issue, but it is not a permanent fix. If the roadway fails, the Coastal Road will be closed until the bridge can be funded and installed. A roadway failure will involve sediment release to the nearshore and unanticipated impact to potential cultural resources.

Project Factsheet

#7: How have lessons learned from completed projects or monitoring studies informed this project?

WDFW and DNR completed a feasibility study of potential marine shoreline restoration projects in 2015, working with DOC. Since 2018, WDFW and DNR have completed four marine shoreline habitat restoration projects on McNeil Island. A strong partnership with Department of Corrections and the Special Commitment Center (SCC – DSHS) staff has developed as we work through these projects and investigate feasibility of additional restoration projects. This collaboration is vital to the success of restoration work on McNeil Island.

By implementation of these projects, we are familiar with the logistical challenges of working on an island with limited access (and no hardware stores). Transportation to and from the island is limited and moving equipment and materials (e.g. gravel) is a particular challenge since the island operations are priority for the limited barge transportation. Our working relationship with DOC and SCC assists in overcoming these challenges.

We will be applying lessons learned from other projects and sponsors for beaver dam analogs at Bodley Creek. We expect to collaborate with South Puget Sound Salmon Enhancement Group and staff associated with Chehalis floodplain restoration work to improve our design.

#8: Describe the alternatives considered and why the preferred was chosen.

WDFW and DNR staff worked in collaboration with DOC to develop the initial feasibility study (2015 - see attached). Since that time, we have worked together to continue development of restoration alternatives in line with operation & maintenance objectives for DOC and the WDFW wildlife area. We have successfully collaborated to evaluate alternatives and implement restoration projects in three locations, including Milewa Creek estuary which included a road removal component. As a result, development and evaluation of alternatives at Floyds Cove and Bodley Creek went smoothly.

An alternative analysis is attached to this application. At each site, we considered alternatives that provided full tidal exchange and fish access. These included replacement of structures, bypass routes and road removal. Bypass routes opened additional habitat in the lower watershed but had high impacts to wetlands to construct the roadways. Road removal did not meet DOC operational requirements. As such, the preferred alternative at both Bodley Creek and Floyds Cove included removal of the existing structures and replacement with larger structures. Corey Morss, WDFW habitat engineer, designed the structures for full tidal exchange and fish access to tidal habitats.

Project Factsheet

#9: How were stakeholders consulted in the development of this project? Identify the stakeholders, their concerns or feedback, and how those concerns were addressed.

Stakeholders include the WDFW Wildlife Area staff, DNR aquatics restoration and aquatic steward staff, and Dept of Corrections staff. DOC leases land to the Special Commitment Center (SCC), run by DSHS. All of these stakeholders were included in discussions of potential projects from the feasibility stage through construction of restoration projects at McNeil Island.

While McNeil Island once hosted up to 1500 inmates & correctional staff, the penitentiary closed in 2011. The infrastructure related to this former use remains but funding for maintenance is very limited. As part of the deed transfer from USFWS to DFW/DOC in 1984, the primary objective of the island is as a wildlife refuge and infrastructure is supposed to be reduced when no longer needed for correctional or wildlife area management purposes. As such, our interests in restoration align well with the deed and maintenance objectives.

Prior to construction of the Milewa estuary restoration project, WDFW developed a MOA with DOC and SCC to assure coordination for operational needs & good communication throughout the project. We expect our ongoing discussions of the Floyds Cove and Bodley Creek restoration projects to result in a similar MOA prior to construction.

#10: Does your project address or accommodate the anticipated effects of climate change?

Yes

#10a: How will your project be climate resilient given future conditions?

Current infrastructure impounds drainage to create an artificial pond. By removing impediments to free tidal exchange at Floyds Cove and Bodley Creek, the site is better adapted to both current and future conditions. In the design of the replacement structures, WDFW used a safety factor based on climate model RCP 8.5 for sizing structures for continued full tidal exchange. Beach nourishment material selection in final designs will also consider future conditions and balance this with suitability of material as forage fish spawning material and frequency of beach material replenishment.

#10b: How will your project increase habitat and species adaptability?

Intentionally undersized culverts and drop structures currently create an abrupt break between tidal and freshwater conditions. Our project will restore a gradual transition between saltwater and freshwater headwaters. This allows habitat adaptation to changing conditions and species to access habitats supportive to life history diversity.

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#11: Describe the sponsor's experience managing this type of project. Describe other projects where the sponsor has successfully used a similar approach.

The core project team leading this work includes the WDFW nearshore habitat restoration coordinator, WDFW engineers specializing in habitat restoration, WDFW land manager with restoration project experience, DNR aquatic restoration specialists and WDFW/DNR archeologists. We are working in close collaboration with Department of Corrections staff to assure that we've considered operational needs and opportunities.

WDFW and DNR have completed four restoration projects on McNeil Island since 2015. Both private contractors and WDFW construction crews have undertaken these projects, adding to our experience implementing projects and familiarization with logistical challenges of construction work at McNeil Island.

We expect our team to grow as we continue development of this project. SPSSEG is joining the team and we expect increased participation from the Nisqually, Puyallup and Squaxin Tribal staff for design input and review.

#12: Will veterans (including the veterans conservation corps) be involved in the project? If yes, please describe.

No

PLANNING/RESTORATION SUPPLEMENTAL QUESTIONS

#1: Is the project an assessment / inventory?

No

#2: What level of design (per Appendix D) have you completed?
Please attach.

Preliminary

#2a: What level of design will be produced prior to construction?

Final

#3: Will (or did) a licensed professional engineer design the project?

Yes

#4: Is your project a Barrier / Screening Diversion Inventory Project?

No

Project Factsheet

#5: Does the project include measures to stabilize an eroding stream bank?

No

#6: Is this a fish passage design / screening design project?

Yes

#6a: List additional upstream and/or downstream fish passage barriers, if any. Identify current or future plans for correction.

No additional barriers.

#6b: Describe the amount and quality of habitat made accessible if the barrier is corrected. Include the Priority Index (PI), or Screening Priority Index (SPI), if applicable.

McNeil Island is small such that most of the habitat gain is intertidal habitat rather than stream miles. The Floyds Cove project will restore access to a former tidal embayment that has been impounded by the undersized culvert. While acreage will not change, the artificially impounded freshwater wetland will change to a tidally influenced pocket estuary with salt marsh fringe. Similarly, the Bodley Creek project will restore tidal exchange through culvert replacement to allow a gradual transition from marine to freshwater wetland habitats. This will restore natural processes at this site and allow access to the four small streams that drain to this site. We do not expect salmon spawning at these sites (although perhaps cutthroat trout might) but juvenile salmon rearing potential is good.

#6c: If you will be designing a culvert or arch to resolve the fish passage problem, what crossing design option will you use?

Other

Since the sites are subject to tidal influence and restoring tidal habitat access, stream sim is not appropriate as a design option. The sites have been modeled for full tidal inundation without attenuation or scour of bed material to assist in sizing structures.

#7: Is the primary activity of the project invasive species removal?

No

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#8: Describe the steps you will take to minimize the introduction of invasive species during construction and restoration. Consider how you will use un-infested materials and clean equipment entering and leaving the project area.

We will work with construction contractors to avoid spread of invasive species. While Floyds Cove supports native vegetation predominantly, the artificial impoundment of Bodley Creek supports reed canarygrass, Phragmites and blackberry. We are currently working with WCC crew to establish native plants where we can to assist in shading and for beaver food sources. The construction work at Bodley Creek will be limited to the roadway for heavy equipment. However, hand work to install beaver dam analogs may require attention to avoid spreading invasive species. Floyds Cove construction will also be limited to the roadway for bridge construction but access to the beach may be required for shoreline armor removal and replacement. Though we will work with contractors to avoid additional invasive spreading, the shoreline is lined with blackberry at this time.

#9: Will the project develop a design?

Yes

#9a: Will a licensed professional engineer design of the project?

Yes

#9b: Will you apply for permits as part of the project scope?

Yes, we will apply for permits in this phase. We have discussed the project previously with Corps and DFW permitting staff such that they are familiar with the project. We've also discussed with USFWS staff for input on design.

#10: Describe the long-term stewardship and maintenance obligations for the project.

The project will be designed to be self-sustaining to the extent possible. Culvert/bridge maintenance will be occasionally required. Continued plantings and invasive management is desirable, but funding may be difficult to find.

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ATTACHMENTS

PHOTOS (JPG, GIF)



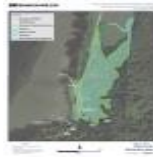
502649 Primary



502650 Secondary



502655



502656



503056





503058

RELEVANT DOCUMENTS

File Type	Attach Date	Attachment Type	Title
	03/03/2022	Visuals	McNeil Island Bodley Floyds SRFB ppt 2021.pdf
	03/03/2022	Project Application Report	Project Application Report, 22-1345C (sub 03/03/22 14:13:08)
	03/03/2022	Map: Restoration Worksite	McNeil basemap labeled Bodley-Floyds focus.jpg
	03/03/2022	Map: Planning Area	Puget Sound basemap labeled McNeil.jpg
	03/03/2022	Cost Estimate	McNeil Island - Floyds Cove P1 SRFB 22-1345 budget whole pro
	03/03/2022	Certification of Applicant Match	SPSSEG partner contribution SRFB Mar2022.pdf
	03/03/2022	Cost Estimate	Floyds Cove cost estimate Dec2021.pdf
	03/02/2022	Project Review Comments	Project Review Comments Report, 22-1345C (03/02/22 10:53:38)
	03/02/2022	Project Application Report	Project Application Report, 22-1345C (03/02/22 10:53:36)
	03/02/2022	Baseline Inventory	Floyds Cove Site 981753_Report.pdf
	03/02/2022	Baseline Inventory	Bodley Cr Site 981757_Report.pdf
	03/02/2022	Application Document	Nisqually fish studies 2016.pdf
	03/01/2022	Cost Estimate	Bodley Creek cost estimate Dec2021.pdf
	03/01/2022	Application Document	KGI Strategic ID of Nearshore Restoration Projects.pdf
	03/01/2022	Application Document	SPS WLA management plan wdfw02276.pdf
	03/01/2022	Visuals	Floyds Cove wetland figure Delineation Report 04132021-2.jpg
	03/01/2022	Visuals	Bodley wetlands figure Delineation Report 04132021.jpg
	03/01/2022	Design document	Bodley Cr permit drawing.pdf
	03/01/2022	Design document	Floyds Cove PERMIT DRAWINGS 128.2022.pdf
	03/01/2022	Photo	Bodley Creek.JPG
	03/01/2022	Photo	Floyds Cove.JPG
	03/01/2022	Preliminary design report	Bodley Creek Estuary and Floyds Cove Habitat Restoration Alt
	07/23/2020	Application Document	McNeil Island Estuary Restoration Portfolio_Project_Status_S

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File Type	Attach Date	Attachment Type	Title
	10/04/2019	Applicant Resolution/Authorizations	Revised wdfw Authorization Resolution for FY2020 18-2072
	07/18/2018	Letters of Support	Puyallup Tribe ESRP Support Letter 18-2072.pdf