



empowering the lasting conservation of fish and wildlife and citizen enjoyment of our natural resources

Grant Application Cover Sheet

Please complete the following coversheet. See the grant application guidelines on our website www.myowf.org/grants to complete your application. Volunteer organizations without nonprofit status must have a tax-exempt fiscal sponsor. You may scan and email this cover sheet and your application.

About You

- 1 Project Title: Yaquina Tidal Wetland Restoration
- 2 Organization: MidCoast Watersheds Council
- 3 volunteer organizations without nonprofit status, list your fiscal sponsor:
- 4 Tax id number (not required for governmental applicants): 93-1247465
- 5 Project Manager Name: Evan Hayduk Title: Council Coordinator
- 6 City: Newport, OR Address: 411 NE Avery Street, Suite B Zip Code: 97365
- 7 Phone (office): (541)-265-9195 Phone (mobile): (206)-714-5546 email: evan@midcoastwc.org
- 8 Tell us about yourself (brief biographical statement): I have been with the MCWC for four years, starting as the Restoration Specialist, and more recently as the Council Coordinator. Prior to working for the MCWC, I spent a decade in the restoration field focused on restoration in various ecotones throughout Oregon and Washington. I received a Masters of Environmental Studies with a focus on Ecohydrology from The Evergreen State College in 2012.
- 9 Have you applied for a grant from Oregon Wildlife Foundation before? Yes No
- 10 If "yes", what was the name of the project? Lamprey and Freshwater Mussel eDNA Pilot Project

About Your Proposed Project

- 11 What type of project are you proposing? Fish Wildlife Other
- 12 Will it address an Oregon Conservation Strategy habitat or species? Yes No
If "yes", please name the habitat and/or species addressed: Estuaries; Chinook salmon, coho salmon, steelhead, coastal cutthroat trout, green sturgeon, shiner perch , Pacific herring
- 13 Proposed start date: July 1st, 2020 Anticipated end date: September 15th, 2020
- 14 Project Location (attach map): 44.594003,-123.910939 Nearest town or city: Toledo County: Lincoln
- 15 Has a local, state, or federal biologist reviewed this project? Yes No
If "yes", what is their name? Derek Wilson Phone: (541)-270-9374 email: derek.r.wilson@state.or.us
- 16 If "no", what is your plan for an external review of the project?
- 17 Estimated project cost: \$635,756 Funding you are requesting: \$5,000
- 18 How will you use the requested funds?
Proposed funds from the Oregon Wildlife Foundation would go towards contracted services to pay for project implementation by the selected contractor.
- 19 What will you accomplish (ex.,stream miles enhanced, acres planted)?
45% of the perimeter dike that currently prevents natural tidal inundation across the 55-acre site, called Y27, will be removed, and the materials will be thinly distributed across key areas to jumpstart the development of forested and scrub-shrub wetland vegetation. Linear drainage ditches will be filled to move water into 240 feet of newly initiated, sinuous primary tidal channels and 1,925 feet of secondary tidal channels. 200 pieces of large wood in multiple types of habitat structures will be placed to create habitat diversity, cover for fish, nurse logs for the establishment of trees and shrubs, and structure to help trap sediment on site after increased tidal inundation is restored.
- 20 Check the following box to be added to our email distribution list:


empowering the lasting conservation of fish and wildlife and citizen enjoyment of our natural resources

Project Abstract/Summary

21 Limited to 750 characters. *Do not begin your narrative here or link to other pages:*

This implementation-ready project addresses the limiting factor of estuary habitat loss for the recovery of federally listed Oregon Coast Coho salmon, as noted in NOAA's 2016 Recovery Plan. The project restores a 55-acre tidal wetland site along the Yaquina River, where 67.4% of the estuary's vegetated tidal wetland habitat has been lost due to diking. Restoring the hydrologic connectivity of this former agricultural site will increase and improve salmonid rearing habitat and assure the resiliency of such habitat in the face of sea level rise by restoring natural ecosystem processes, including sediment capture and accretion. Further, conservation ownership by The Wetlands Conservancy will support these actions in perpetuity.

Certifications

- 22 Check here to certify that you have already or will obtain necessary permits from all requisite agencies *as applicable to the proposed project.*
- 23 I have included pre-project pictures or video as well as a picture or video entry of myself.
- 24 I understand that I'm required to submit a Project Completion Report, copies of any publications or social media posts crediting the Foundation's support, and post-project pictures at the completion of my project.
- 25 I warrant that I am the legal owner of all pictures and video submitted in application and grant permission for the Foundation to reproduce, exhibit, or publish them for all general purposes in relation to Oregon Wildlife Foundation's work.
- 26 Signature of Applicant or Authorizing Official: _____ 

Yaquina Tidal Wetland Restoration
Oregon Wildlife Foundation Grant Application Narrative
MidCoast Watersheds Council

Describe your organization and the work that it does.

The MidCoast Watersheds Council (MCWC) is a local non-profit organization dedicated to improving the health of streams and watersheds of Oregon's Central Coast so they produce clean water, rebuild healthy salmon populations, and support a healthy ecosystem and economy. To fulfill this mission, we are governed by the consensus of a Board of Directors representing diverse stakeholder groups, are coordinated by full-time staff, and employ contractors to assist with watershed assessments, project designs, and restoration implementation. MCWC's operation is not completely unique, as one of 59 watershed councils across the state of Oregon that receive capacity funding support through the Oregon Watershed Enhancement Board and apply for competitive state, federal, and private grants. While each watershed council differs in their specific missions and makeup, all follow a community-based model to restore the land and waters in our working areas.

Many watershed councils formed during the 1990's, when returns of salmonids—especially Oregon Coast Coho (OCC)—were extremely low and habitat restoration was recognized as a solution for recovery. With this in mind, MCWC initially formed in 1994 and in 1998 was incorporated as a 501(c)3 non-profit organization, with its work lying in an area of nearly one million acres, including the major river basins of the Salmon, Siletz, Yaquina, Alsea, and Yachats, as well as 28 smaller ocean tributaries. From the beginning, MCWC initiated strategic, basin-wide biologic assessment processes, alongside more singular aquatic and riparian restoration projects. The first rapid bioassessment took place in 1998, a tidal wetland assessment was conducted the following year, and in 2001, a full watersheds assessment was completed, all with the goal of prioritizing restoration actions in our working area. Meanwhile, restoration projects throughout these formative years included culvert replacements, livestock fencing, large wood placements, dike alterations, and riparian planting on private and public lands. As time has gone on, much has been learned in terms of what restoration techniques are the most effective for coho recovery, as well as for other, more comprehensive habitat goals, how to get new landowners on board, and how to combine local expertise and knowledge in both of these realms in order to strategically plan future watershed-scale restoration projects.

Identify the need for the proposed project; an outline of it; and the anticipated benefits upon completion.

The Yaquina Estuary is located on Oregon's Central Coast, with its ocean terminus in the town of Newport. The estuary is approximately 6,650-acres in size, and drains a watershed of approximately 253 square miles. It is a drowned river mouth estuary with expansive mudflats and eelgrass algal beds near its mouth, and with emergent tidal wetlands and remnants of shrub-scrub and forested tidal wetlands at higher elevations. The estuary is a hub for deep water shipping, commercial fishing and aquaculture, oceanographic and fisheries research, and tourist-related commercial activities, as well as recreational boating, fishing, clamming, scenic enjoyment, kayaking and bird watching. These activities are supported by the habitat the estuary provides to five species of salmonids, and many other fish and wildlife species.

However, the Yaquina has lost 67.4% of its historic vegetated tidal wetlands due to diking, ditching, and other impacts (Brophy, 2019). This loss has been recognized as a contributor to the decline of OCC, which are federally listed as threatened, earning the Yaquina estuary designation as critical habitat. Tidal marsh habitat restoration in the Yaquina estuary is one of the necessary actions listed in NOAA's 2016 OCC Recovery Plan. Such work restores salmonid life history diversity, allowing juvenile fish to remain and grow in these protected and productive habitats for longer periods of time, resulting in higher survival rates and higher rates of return as adults.

Of the 1,042 hectares that made up the Yaquina's historic tidal wetlands, 39.5%, were composed of forested and scrub-shrub vegetation. Today, only 10% of the tidal wetland area consists of these vegetation types (Brophy, 2019). In addition to the benefits tidal wetlands provide to fish and wildlife, in terms of carbon storage and climate change mitigation, restoring this specific tidal wetland type is especially valuable, as they contain the greatest amount of carbon stocks of all Pacific Northwest tidal wetland types, and even more than Pacific Northwest old growth forests on a per acre basis (Kauffman et al, 2020)

In addition, without restoration, habitat in the remaining tidal wetland acreage of the Yaquina is further threatened by inundation from sea level rise because of natural topography characteristics and human alterations that limit landward migration zones (LMZ). With the 4.7 feet of sea level rise that might be expected to occur by 2100, the Yaquina Estuary will lose about a third of its current tidal wetlands (Brophy and Ewald, 2017).

The support of The Wetlands Conservancy, The City of Toledo, Oregon Department of Fish and Wildlife, the Lincoln County Planning Department, and other member organizations and agencies of the Oregon Central Coast Estuary Collaborative for this project will allow valuable

ecosystem functions to be restored in the Yaquina Estuary before such losses incur, providing resiliency to both ecological and human communities in the face of climate change.

Previously diked and ditched, but no longer in agricultural use, Y27—the 55-acre site this project will take place at—currently consists of a disturbed, tidal wetland. The interruption of tidal influence by diking at Y27 curtailed sediment accretion, led to the oxidation of organic materials in the soil, and caused subsidence. Soils dried out in the absence of tidal exchange, leading to compaction that was likely furthered by heavy grazing of cattle and the use of farming equipment, as well as by log stacking (Brophy, 1999).

By replacing tidal wetland species with pasture grasses, natural processes that would ordinarily raise the elevation were also halted. Vegetation in undisturbed tidal wetlands grows quickly, senesces, and dies back on an annual basis, adding large quantities of organic material to the surface, as well as below the surface via roots and rhizomes. The cumulating impact of the past land uses at Y27 is that it sits at an elevation 2-3 feet lower than a nearby reference wetland.

In 2001, initial restoration was conducted, and this project will enhance and extend those benefits (see attached Y27 Project Map). At that time, five dike breaches took place, linear drainage ditches were filled, and sinuous channels were initiated on a 38-acre portion of Y27. The dike breaches have increased tidal exchange and allowed for fish to access rearing habitat. Just one month after the project took place, fish surveys in the widest section of a newly formed tidal channel recorded a school of thousands of juvenile Pacific herring foraging during a moderate high tide of 7.5 feet. In surveys taking place between 2003 and 2006, shiner perch, stickleback, and coho salmon were all observed. In addition to these more immediate results, native tidal wetland vegetation has re-seeded at the site, replacing the invasive species formerly dominating (see Image 4 & 7). After the restoration activities took place, The Wetlands Conservancy gained ownership of the property, to assure land management activities will support estuary processes and functions in perpetuity (Bauer et al. 2011).

While much success was seen after the 2001 restoration activities took place in terms of increased fish access, native plant establishment, and long-term legal protection at the site, parts of the area behind the remnant dike remain subsided, ditch fillings have eroded, and tidal channels haven't expanded. These results may be due to more severely compacted soils than initially realized. With improved understanding of site characteristics and restoration techniques necessary to address their nuances, this project will enhance what has already been initiated at Y27, as well as to restore an additional 17 adjacent acres directly downstream.

In this phase of the restoration, 45% of the perimeter dike that currently prevents natural tidal inundation and sediment inputs will be lowered. Other parts of the dike with established Sitka spruce trees will be retained to provide natural wood inputs over time and to be a seed source for development of forested tidal wetland on the site and throughout the estuary (see Image 3). In addition, thin layers of sediment will be distributed over the areas behind retained parts of the dike. These actions will immediately restore current subsidence, promote increased sediment input and the continued buildup of the wetland as organic materials accumulate in the soils and on the marsh surface. Further, linear drainage ditches will be filled to force water into 240 linear feet of newly initiated, sinuous primary tidal channels and 1,925 linear feet of secondary tidal channels, excavated in areas that currently have restricted tidal influence (see Image 1, 5, & 6). This restoration work will be accomplished around the City of Toledo's water line, with high performance, turf reinforcing matting placed to control erosion surrounding the line to assure no further exposure of the infrastructure (see Image 2). Lastly, roughly 200 pieces of large woody debris will be placed in wood habitat structures to create habitat and topographic diversity, cover for fish, nurse logs for the establishment of trees and shrubs, and structure to help trap sediment on site.

As a result of these restoration activities, more complete tidal flow will be restored, native wetland vegetative productivity will be enhanced, habitat for rearing salmonids and other fish and wildlife species will be expanded, and resiliency of wetland habitat to future sea level rise will be realized.

Quantify your outcomes (i.e., acres planted, stream miles enhanced, etc.)

This project will result in increased accessibility of coho salmon and other fish species to 0.41 miles of new tidal channels and will allow for foraging over the fully inundated 55-acre wetland surface at the highest of tide events. 2.4 acres of forested tidal wetland vegetation—especially Sitka spruce and crabapple trees—will be planted on top of soil materials excavated from these new tidal channels and the portions of the dike removed. Five acres of emergent marsh habitat will be seeded after construction.

Identify who or what entity will manage or operate the project once it's completed.

The property is owned and managed for conservation by the Wetlands Conservancy (TWC). As a part of planning this project, TWC worked with MCWC to review all designs, set up photo monitoring points, and developed a baseline conditions report. After the project is implemented, TWC will continue long term photo monitoring and site stewardship in perpetuity.

Describe how the Foundation will be recognized for its funding support.

If funded, the MCWC plans to fully recognize the contribution to this project by the Oregon Wildlife Foundation (OWF). For the duration of the project, updates will be shared at our

regular monthly board and community meetings through our ongoing restoration reporting process. The most notable of these updates will also be provided on the MCWC website, and press releases will be prepared to share the progress and results of the project. In all of these outreach efforts, OWF will be recognized for its funding support. OWF will also be listed as a funder and partner in the MCWC 2020 Annual Report, a written document that is presented to local, state and federal officials, as well as interested community members.

References:

Bauer et al. 2011. Yaquina Estuary Conservation Plan. The Wetlands Conservancy. Tualatin, Oregon, USA.

Brophy, L.S. 1999. Final Report: Yaquina and Alsea River Basins Estuarine Wetland Site Prioritization Project. Prepared for the MidCoast Watersheds Council. Green Point Consulting, Corvallis, Oregon, USA.

Brophy, L.S. 2019. Comparing historical losses of forested, scrub-shrub, and emergent tidal wetlands on the Oregon coast, USA: A paradigm shift for estuary restoration and conservation. Prepared for the Pacific States Marine Fisheries Commission and the Pacific Marine and Estuarine Fish Habitat Partnership. Estuary Technical Group, Institute for Applied Ecology, Corvallis, Oregon, USA.

Brophy, L.S. and Ewald, M.J. 2017. Modeling sea level rise impacts to Oregon's tidal wetlands: Maps and prioritization tools to help plan for habitat conservation into the future. Prepared for the MidCoast Watersheds Council. Estuary Technical Group, Institute for Applied Ecology, Corvallis, Oregon, USA.

Kauffman et al. 2020. Carbon stocks in least-disturbed tidal wetlands. Pacific Northwest Coastal Blue Carbon Working Group.

Total Project Expenses	\$635,756.00
<i>Balanced budget? This cell should read "\$0.00" →</i>	\$0.00

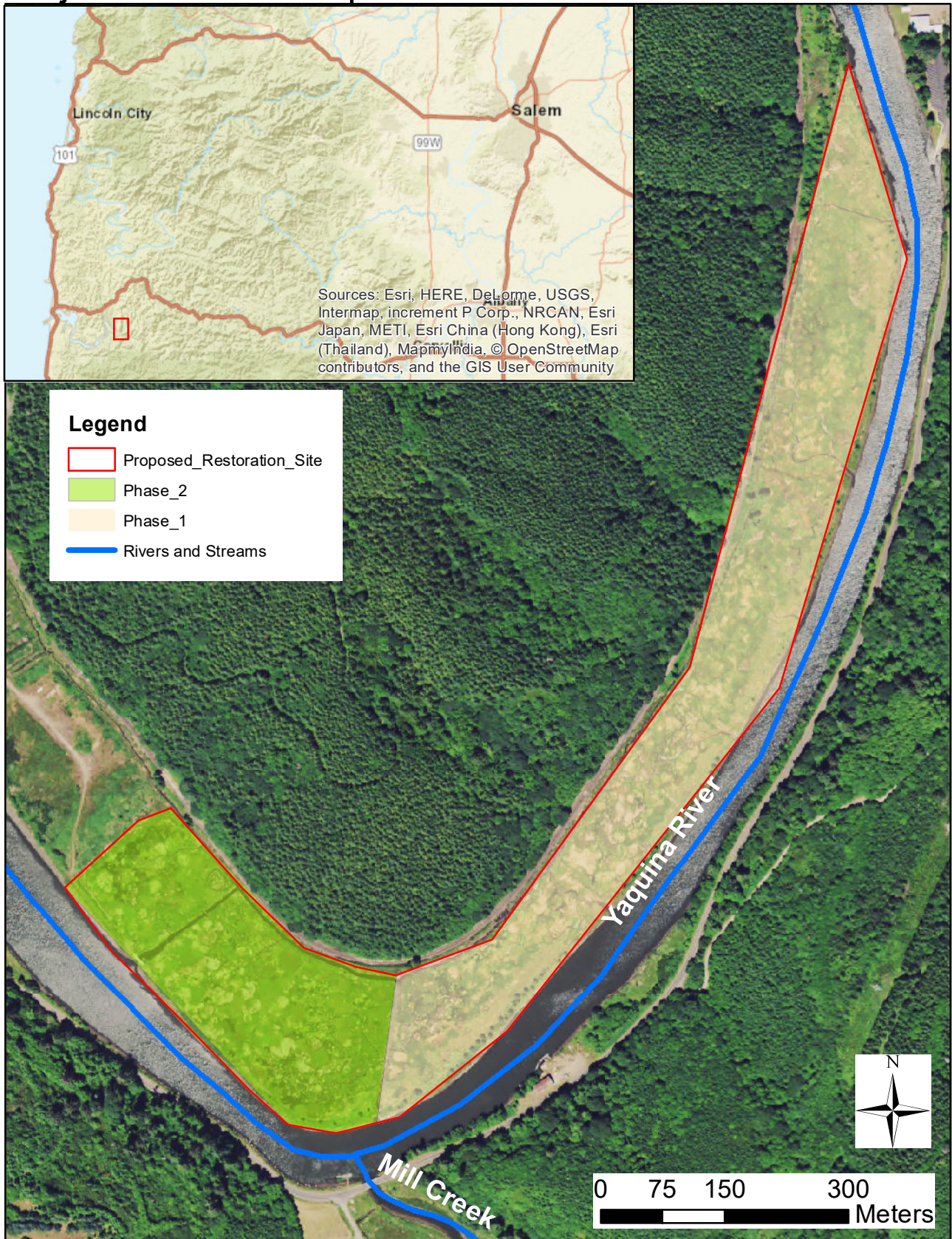


MidCoast Watersheds Council Yaquina Tidal Wetland Restoration Project Location Map

44.59438, -123.9124

1.2 miles south of Toledo

Yaquina River Mile 14.5



"Phase 1" refers to the 38-acres site with previous OWEB funded restoration work completed in 2001. "Phase 2" refers to the adjacent 17-acre site which is the primary focus of this phase of restoration. Dike lowering and other work will also take place in the Phase 1 portion of the site.



Pacific States Marine Fisheries Commission
Habitat Program
P.O. Box 221
Depoe Bay, OR 97341
541-765-2229

Oregon Wildlife Foundation
901 SE Oak St. #103
Portland, OR 97214

May 1, 2020

Dear OWF Grant Review Team Members,

I am writing in support of the MidCoast Watersheds Council's (MCWC) Yaquina Tidal Wetland Restoration project application for the spring 2020 Oregon Wildlife Foundation grant cycle. This funding request would provide a necessary contribution to finalize the funding needs for this summer's project.

As a founding Board Member of the MCWC, I was involved in an earlier phase of restoration work on the site in 2001. In that project, MCWC and partners created four breaches on a perimeter dike to restore tidal flow to a portion of the 55-acre site. The project also filled linear drainage ditches and initiated new tidal channels to restore wetland function on the site. That project, the first estuary restoration project funded by the Oregon Watershed Enhancement Board, provided good ecological results. But, we learned we didn't do enough. This project builds on the previous restoration effort by removing nearly 50% of the remaining dike, initiating tidal channels where they are currently lacking on the marsh surface, create a new dike breach, and fill portions of a major drainage ditch on site.

The design work for this project has been an extensive effort. I have worked with MCWC, contract engineers, funders from US Fish and Wildlife Service, Derek Wilson from ODFW, and other stakeholders to design a restoration project that will provide habitat for salmonids, including Chinook, Chum and ESA threatened Oregon Coast coho salmon and other species that rely on tidal wetland habitat. Further, this project addresses actions identified in the MCWC's 2017 Landward Migration Zone (LMZ) study that highlighted the importance of restoring tidal flow and sediment delivery back to such subsided sites to build resilience to sea level rise. I have also been involved with the fundraising for both this and the earlier engineering design phase for this project, and the permitting and contractor selection for this on-the-ground phase.

The Yaquina Tidal Restoration project is also forward looking- using some of the removed dike soil to build up higher elevation areas within the site. This work will help restore not only tidal marsh habitats, but the tidal spruce swamps and scrub/shrub habitats that, though once abundant, have been nearly eliminated from the Yaquina estuary.

I thank you for your consideration of this application, please don't hesitate to contact me if you have any questions.

Sincerely,

Fran Recht

Fran Recht
Habitat Program Manager



Image 1: The railroad ditch (RR ditch) on the Y27 site. The City of Toledo's water pipe is visible on the upstream end of the ditch.

Image 2: The City of Toledo's water pipe within the RR ditch.



Image 3: Current condition of mature Sitka spruce on perimeter dike planted during previous restoration work completed in 2001. Portions of the dike with larger trees will remain, and smaller trees on portions of the dike to be removed will be utilized on the site for habitat structures.





Image 4: MCWC Board Chair Paul Engelmeyer gives scale to the native vegetation that exists on a majority of the proposed project site as a result of changes in salinity and other conditions after dike breaching during the phase 1 portion of the project in 2001.



Image 5: A large ditch splits the project site into the phase 1 and phase 2 sections (see attached project map). There is a failed, collapsed culvert at the far end of this ditch to be removed in the project. Sections of the main ditch will also be filled, and a new breach will be created to reduce flow through the RR ditch and increase tidal channels in this portion of the project area. (Photo: Laura Brophy)



Image 6: Linear tidal channel on the Y27 site. The remnant of a failed culvert or tide gate in the photo is an example of debris to be removed as proposed in this project. (Photo: Laura Brophy)



Image 7: The most upstream portion of the Y27 project site exhibits good native vegetation cover due to previous dike breaching in 2001. (Photo: Laura Brophy)