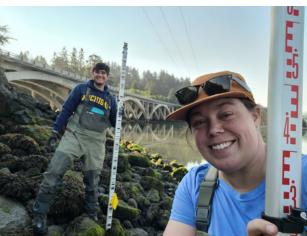


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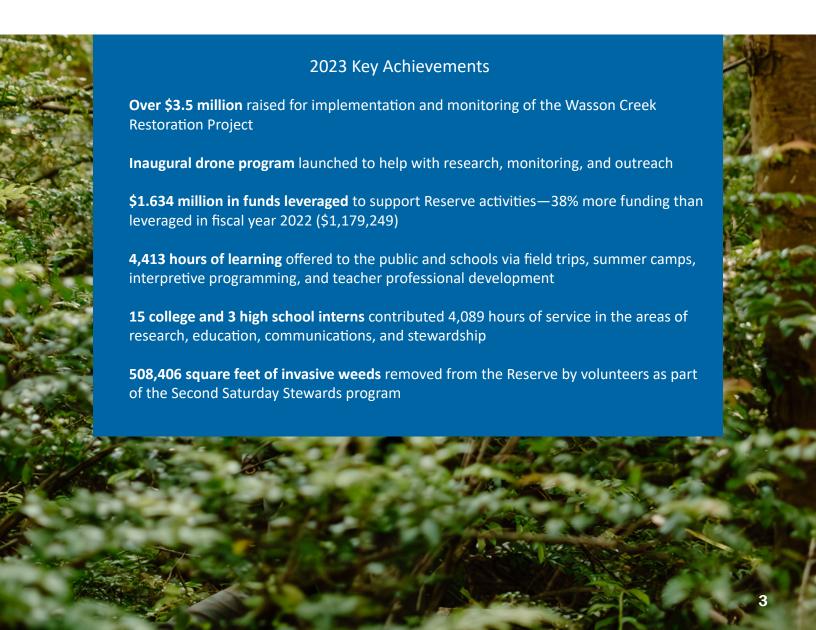
Appendix A: Reserve Partners



The Department of State Lands is the state partner for the South Slough National Estuarine Research Reserve on the southern Oregon coast. The Reserve manages nearly 7,000 acres of natural habitat which includes open water channels, tidal and freshwater wetlands, riparian areas, and forested lands.

South Slough Reserve is a cornerstone of recreation, education, science, and coastal training, providing rich opportunities for the local community and visitors alike to learn about and explore estuaries. Reserve lands and waters are used by visiting researchers, teachers and students, and other members of the public who come to the Reserve to hike or paddle, view wildlife, and participate in community classes. The Reserve Visitor Center offers interpretive exhibits as well as meeting spaces for the public.

This **South Slough National Estuarine Research Reserve 2023 Annual Report** highlights program accomplishments during the 2023 calendar year and reviews revenue and spending.



SOUTH SLOUGH RESERVE

OVERVIEW

South Slough Reserve was designated in 1974 as the first unit of the National Estuarine Research Reserve System, which has since grown to a network of 30 reserves that protect more than 1.3 million acres of coastal areas across the country for long-term research, education, stewardship, and recreation. Each reserve is managed in partnership with the National Oceanic and Atmospheric Administration and coastal states. The Oregon Department of State Lands partners with NOAA to oversee the Reserve.

Reserve programs include Education, Research and Monitoring, Coastal Training, and Stewardship. These programs help people of all ages learn about estuaries and coastal watersheds; provide scientific information for coastal planning, resource management, and decision-making; conduct research and monitor ecological change over time; and manage and maintain Reserve land and facilities. These efforts collectively enhance scientific and public understanding of estuaries and contribute to improved estuarine management.

The Reserve's immediate governing body is the South Slough National Estuarine Research Reserve Management Commission, which includes nine governor-appointed members and the director of Oregon Department of State Lands, who serves as chair. The Commission establishes the Reserve's operating policies and administrative rules.

Tribal Partnerships

The Reserve recognizes its location on the traditional lands of the Miluk Coos people who have managed this area for abundance since time immemorial. To ensure ongoing and sound stewardship of this special place and protection of its cultural resources, the Reserve relies on regular consultation and partnership with the Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians (CTCLUSI); Coquille Indian Tribe; and Confederated Tribes of Siletz Indians. The Reserve values regular input from Tribal staff participating on the Reserve Management Commission and serving on technical advisory groups. Staff also maintain close contact with the Tribes' Tribal Historic Preservation Officers to assess potential impacts of Reserve projects on cultural resources and take measures to avoid or mitigate any negative impacts.

In 2023, Reserve staff partnered with Tribal staff

CTCLUSI Tribal Elder, John Schaefer, offers cultural knowledge to researchers from the Pacific Birds Habitat Joint Venture, Monica Iglecia and Laura Farwell, during their visit to the Wasson Creek Restoration Project.

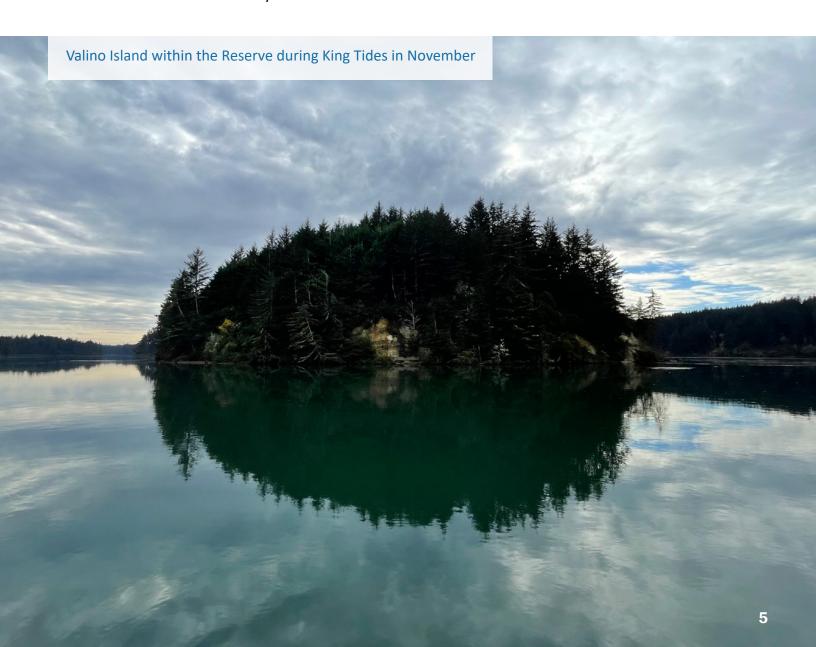


on education and training programs, research and monitoring projects, and stewardship work. For example, Reserve staff hosted multiple days of the Coquille Indian Tribes' Summer Camp, engaged with Tribal staff to incorporate cultural content into the designs for the new exhibits at the Reserve's visitor center, provided stewardship opportunities for Tribal youth, and collaborated on multiple science projects.

Plans and Priorities

South Slough Reserve's programming and decision-making is guided by two key planning documents: the Department's 2022-2027 Strategic Plan and the Reserve's 2017-2022 Management Plan. The Reserve management plan outlines a Reserve-specific vision, mission, and overarching goals as well as a detailed strategic planning framework linked to the Reserve's Priority Focus Areas: Climate Change, Habitat Protection and Restoration, and Invasive Species.

In 2023, staff paused updating the Reserve management plan to focus capacity on completing the federal process for amending the Reserve's boundary to include all the lands acquired by the Reserve since 2008. With the boundary amendment nearing completion, Reserve staff will resume updating the management plan in 2024 to include the new boundary area.



EDUCATION

All programs of South Slough Reserve promote increased understanding and connection to the estuary through learning. The Education Program serves teachers, students, and community members from the local area, across Oregon, and beyond.

During 2023, the Reserve served:

- Regular school programming, such as classroom visits and field trips, for 2,120 students
- Four-week after-school Estuary Explorers program for 19 elementary students
- Spring break and summer science day camps for 108 kids
- Community classes and outreach events for 3,206 people

The Visitor Center was open Tuesday through Saturday from 10 AM to 4 PM, welcoming 3,055 people over 253 days.



Digitizing Program Surveys

During spring 2023, Education Program staff and interns created digital program evaluation forms for school and community education participants. At the end of a school field trip or community program, participants are invited to scan a QR code and complete a short survey to help staff, interns, and volunteers identify what aspects of the program are working well and areas for improvement.

Converting the evaluation forms to short, online formats is making it much easier for the Education team to collect and analyze feedback from participants of these program areas. Previously the feedback for these programs was collected through paper surveys, or through a document sent with an email, requiring the data to be entered manually before it could be analyzed. Providing participants with an opportunity to respond immediately after a program, rather than hours or days later via email, has also increased the response rates for feedback.

Survey results were also overwhelmingly positive. For example, results from school field trips showed:

- 100% of participants found the education programs to be engaging and thought provoking
- 98% of teachers noted the curriculum was age appropriate and met curriculum outcomes
- Instructors received 4.9 stars out of 5 for knowledge and enthusiasm

The Education team is excited about the success of this transition and the information received through the evaluations. In the future, surveys can also be used to evaluate participants' understanding of Reserve priority issues and effectiveness of Reserve communication techniques.

Updating Interpretive Exhibits

The Reserve is working to update the interpretive exhibits inside the Visitor Center. Much has changed at the Reserve and in Oregon since the existing exhibits were designed twenty years ago. The new exhibits incorporate human stories and experiences as well as make improvements in accessibility and inclusivity so that all visitors can interact and learn.

Starting in 2022, Reserve staff and partners met with contractor, Content Design Collaborative, to kick off the development of detailed plans and drawings. This year, the Reserve contracted Sea Reach to implement design, writing, and fabrication based on the 2022 plans. A working group comprised of cultural staff from the CTCLUSI, the Coquille Indian Tribe, and the Confederated Tribes of Siletz Indians meets regularly with the Reserve Education Coordinator, Jaime Belanger, to ensure accurate and meaningful incorporation of Tribal culture and stewardship information. Reserve staff from all program areas are contributing information, ideas, and feedback to ensure that the natural history, science, and reserve activity is captured and communicated effectively. Updated exhibits will be installed by the end of June 2024 and highlighted during the 50th anniversary celebrations.

The work is funded through a NOAA Procurement, Acquisition, and Construction (PAC) grant, which also included updates to the public restrooms and installation of automatic doors to increase accessibility and inclusion for Reserve visitors.

Draft Exhibition Design



STEWARDSHIP

The Stewardship Program connects people to place, strengthens relationships with lands and waters, provides opportunities for people to contribute to the wellbeing of coastal watersheds, and facilitates co-stewardship with Tribal Nations on ancestral lands. In 2023, the stewardship team:

- Actively engaged with 460 students
- 23 members of the public participated in stewardship activities
- Gave public presentations to 245 people
- Partnered with more than 41 local natural and/or cultural resource professionals.

Wasson Creek Restoration Project

One of the Focus Projects of the Department's 2022-2027 Strategic Plan, the Wasson Creek Restoration Project is a unique watershed-scale restoration project that has been decades in the planning. The Project will benefit fish and birds—including culturally important species such as coho salmon and lamprey and endangered species such as the marbled murrelet—as well as other wildlife and people.

The Wasson Creek Restoration Project project will not only restore a 525-acre watershed, but it will also serve as a living classroom so that we can learn from and improve restoration practices at the local, national, and global scale. Over \$3.5 million has been received for implementation and monitoring of the Project in 2023. Much of this funding is supporting jobs through hiring contractors and researchers, providing internships, and supporting staff at the Reserve. Funding is coming from:



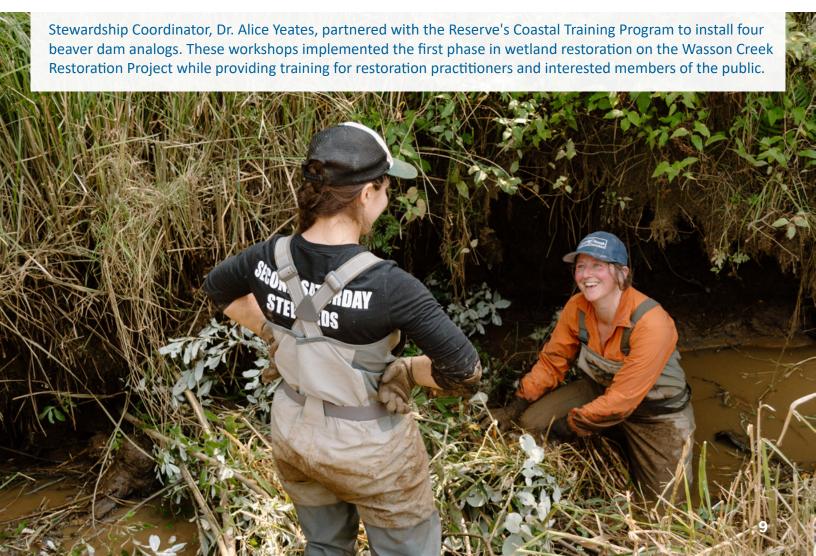
- The National Estuarine Research Reserve System Habitat Protection and Restoration funds made possible by the Bipartisan Infrastructure Law (\$3,535,900)
- The Coos Basin Coho Partnership (\$300,000)
- The U.S. Fish and Wildlife Service Coastal Program (\$64,203)
- The Coquille Tribal Community Funds (\$5,000)

In 2023, the Wasson Creek Restoration Project restoration team—made up of Reserve staff, partners, volunteers, and interns—moved the project forward through:

- 1. Environmental compliance and permit completion for beaver dam analogs
- 2. Pre-restoration monitoring
- 3. Restoration implementation
- 4. Community engagement

With funding secured and progress made, the Reserve estimates restoration project completion by March 2026. This is an adjustment from the Department's 2022-2027 Strategic Plan which cited 2025 for completion. Major Tasks highlighted in the 2022-2027 Strategic Plan are on track:

MAJOR TASKS FROM DSL 2022-2027 STRATEGIC PLAN	CURRENT STATUS OF MAJOR TASKS
Develop restoration plan for forested uplands	Completed 2021
Update restoration plan for wetlands	Completed 2022
Pre-restoration monitoring	Extensive pre-restoration work has been completed, will be ongoing until restoration commences
Complete forested uplands restoration work	Completed phase 1 (45-acres) in 2022



COASTAL TRAINING

The Coastal Training Program provides training and technical assistance to coastal decision makers, natural resource managers, and restoration practitioners to support science-based coastal and estuarine management.

During 2023, the Coastal Training Program offered eight trainings attended by a total of 125 participants. Training topics included:

- Creating infographics
- Geographic Info Systems (GIS) remote sensing techniques and climate change impacts
- Accessible trail design
- Biochar kiln usage and demonstration
- Creating defensible space around structures
- Installing beaver dam analogs for restoration
- An overview of Oregon's coastal planning goals for local and city planners

Trainings were hosted in partnership with:

- South Coast GIS Users group
- Wilson Biochar Associates
- OSU Extension program, Coos Forest Protective Association
- Oregon Department of Forestry
- Trailkeepers of Oregon
- U.S. Fish and Wildlife Service
- Oregon Department of Land Conservation and Development

Biochar Kiln Demonstration

In 2023, the Reserve's Coastal Training Program hosted a training for natural resource managers as well as practitioners in forestry and restoration fields to get handson experience building a fire in a biochar kiln. Biochar is a

Outreach for the GIS user group meeting south_slough_reserve south_slough_reserve The South Coast GIS (Geographic Info System) Users Meeting is open to everyone-professionals, enthusiasts, and... more November 2, 2023

low-emission fertilizer made from partially burning woody debris. This debris is usually a waste product, from timber operations and forest thinning treatments, that would otherwise require expensive or emissions-heavy disposal.

During breaks from tending the kiln the group had a robust discussion around using biochar as a forest management tool and the resulting char for carbon sequestration. Twenty participants and six instructors from as far away as northern California and the Portland metro area came away from the program with solid ideas and enthusiasm for utilizing biochar in their respective jurisdictions.



Coastal Training Program Coordinator Sabra Comet worked with Stewardship Coordinator Dr. Alice Yeates and Reserve Park Ranger Jonathan Forth to deliver the training. The Reserve contracted Wilson Biochar to conduct the demonstration using a kiln the Reserve had purchased in 2022. Feedback from speakers and participants was overwhelmingly positive and there are requests to make it a repeat program. Plans are already in the works to schedule more biochar kiln trainings to coincide with key steps in the Wasson Creek Watershed Restoration Project.

Additionally, several Reserve volunteers with video production experience created a short informational video of the biochar kiln operation and benefits, interviewing subject matter experts throughout the process. The video can be found on the Reserve website.

Since the training, Oregon Department of Forestry has borrowed and tested the Reserve's kiln for management of sudden oak death, a large concern for the timber industry of Curry and Coos counties. Use of the kiln was reported to be effective for rendering affected foliage during Forestry's culling efforts. In between workshops, the Reserve kiln will continue to be loaned to local groups for use in their own forest management projects.

RESEARCH & MONITORING

The Research and Monitoring Program improves scientific understanding of estuaries and coastal watersheds through application of research, monitoring, and education to inform coastal management. The Program team expands capacity through collaborations and partnerships with academic, federal, state, nonprofit, and Tribal scientists as well as natural resource managers. In 2023, Reserve staff and partners:

- Conducted 36 research and monitoring projects
- Leveraged limited resources to increase productivity
- Facilitated collaborative learning experiences
- Improved understanding of estuarine, wetland, and upland ecosystems

These collaborations have resulted in numerous technical working groups, grant-funded projects, presentations, reports, and scientific publications.

Wetland Restoration Over Time

With a decades-long history of restoration science, South Slough Reserve serves as a long-term living laboratory to understand the effectiveness of restoration methods and projects. The Mature Restoration Analysis is funded by National Estuarine Research Reserve System Science Collaborative and led by Dr. Chris Janousek from Oregon State University. The effort is a collaboration across west coast states and includes four Reserves. The project is researching the status and trajectory of the oldest regional tidal wetland projects to better understand restoration effectiveness and outcomes. The results will inform future restoration efforts.

Reserve staff are included on the project team to:

- Help coordinate engagement with decision makers and stakeholders
- Present results to regional and national audiences
- Provide local and technical knowledge
- Collect data at wetlands in the Coos estuary
- Assist with data acquisition in Oregon
- Develop education and outreach products

In 2023, Reserve staff and interns joined Oregon State University to collect vegetation and elevation data at sites in South Slough. The project team is planning a 2024 decision makers workshop at South Slough to disseminate findings.

"I am a cultural anthropologist researching the social impact of debris that washed ashore from the 2011 tsunami and aquatic hitchhikers. This was a very important experience for me. I am deeply grateful for your cooperation."

Dr. Taichi Uchio, Faculty of Global Studies at Reitaku University in Japan, after joining Reserve scientists and interns to survey Green Crabs over two days in August 2023.

Supporting Graduate Fellows

The National Estuarine Research Reserve System program supports graduate students through the two-year NOAA Margaret A. Davidson Graduate Fellowship Program. Fellows work on the Reserve's coastal management priorities including climate change, habitat protection, and invasive species.

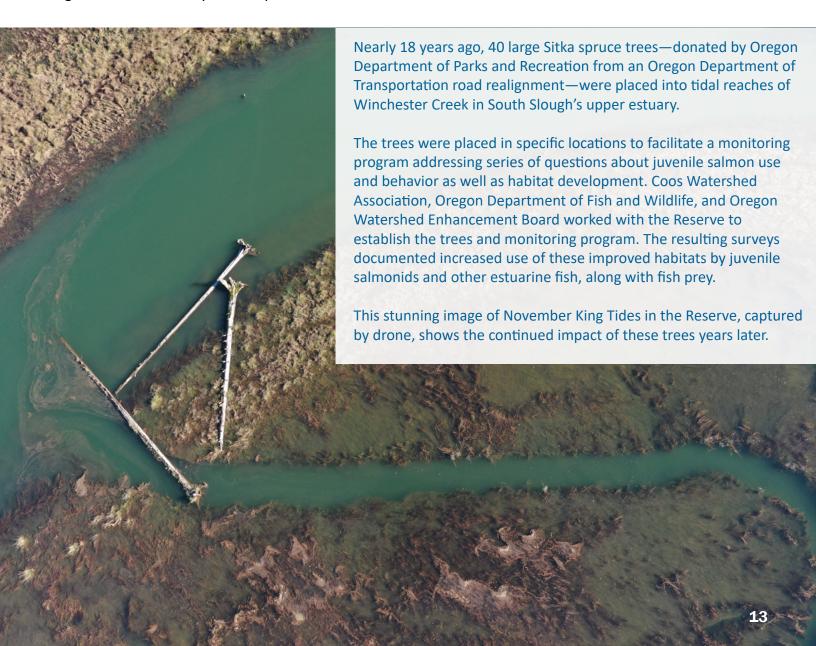
Taylor Dodrill, a PhD student from Portland State University and the Reserve's 2020-2022 fellow, conducted research to help predict the occurrence and effects of harmful algal blooms in South Slough, Coos estuary, and Tenmile Lakes. She completed her dissertation in October 2023.

Lara Breitkreutz, a MS student from Oregon State University and the Reserve's 2022-2024 fellow, is evaluating recovery potential of eelgrass from seed banks under ambient and warming conditions in the Coos estuary.

Launching an Uncrewed Aerial Systems program

Over the past year, Science staff led by GIS Specialist Jennifer Kirkland have been developing an Uncrewed Aerial Systems (UAS) program. Monitoring and mapping habitats in the Reserve such as eelgrass beds, emergent marsh, upland forests, and the Sitka spruce swamp will be greatly enhanced by the UAS program. Other benefits include helping Reserve Science staff study the progress of restoration projects, assess vegetation health, and track wetland responses to sea-level rise and other environmental stressors, as well as acquiring beautiful landscape photos for outreach and education purposes.

Jennifer Kirkland has completed the requirements to obtain her Federal Aviation Administration remote pilot (Part 107) certificate and has begun testing imagery acquisition and image processing methods. To aid in her work, the Reserve has acquired three UAS platforms, two smaller units for standard photography and one larger unit that can carry more sophisticated sensors.



PUBLIC INVOLVEMENT

Reserve staff strive to give the public an opportunity to make meaningful connections to South Slough Reserve through volunteer and internship opportunities as well as informational outreach events around the community. In turn, volunteers and interns provide support and assistance to the Reserve by helping fulfill its operational, research, stewardship, and education goals. From January to December 2023, 49 volunteers and

interns put in 4,795 hours valued at \$151,419.

Interns from summer 2023 returning to fixed points where the marsh level is measured repeatedly.

The survival of tidal wetlands depends on the intricate relationship between sea level and marsh elevation.



Internship Program Improvements

The South Slough Reserve Internship Program has been providing quality educational experiences for high school and college students, as well as those re-entering the workforce or changing careers, since 2013. As of December 2023, the Reserve has hosted 118 interns who spent an average of 100-300 hours of job training with a staff mentor.

The Reserve made significant improvements to its internship program in 2023, including incorporating a toolkit from the Oregon Department of Administrative Services for state internship programs. The Reserve's Public Involvement Coordinator, Operations Manager, and DSL Human Resources staff worked together to set up administration of monthly stipend awards provided through grants and the Friends of South Slough. Previously, administration and dispersal of stipend awards was done directly through the Friends of South Slough on a limited basis. As of December 2023, 19 of the 118 internships have been directly administered through the Department and South Slough Reserve.

Volunteer Program Communications and Engagement

The Reserve continually works to update volunteer program management. Since 2021, volunteers have been able to report

their hours via an online form which they can access with a QR code or link. This has helped to streamline the tracking of volunteer hours. Volunteers are recognized annually by the Management Commission, as well as by Reserve staff at every opportunity.

Second Saturday Stewards

Through collaboration between Reserve Stewardship Coordinator Dr. Alice Yeates, Public Involvement Coordinator Deborah Rudd, and Park Ranger Assistant Jonathan Forth, a program was set up in 2019 to engage volunteers in the monitoring of invasive species through the Second Saturday Stewards program. A regular group of volunteers meet every second Saturday of the month for two hours to help remove and learn about invasive species. Thanks to the generosity of the local Coos Head Food Coop, stewardship volunteers are provided a meal after each session. As of December 2023, the Second Saturday Stewards have removed 508,406 square feet of invasive weeds and 24 industrial size bags of trash from Reserve lands.

FACILITIES AND LAND

MANAGEMENT PROJECTS

Progress on New Entrance to the Reserve

In 2023, the Reserve partnered with the Friends of South Slough to reconfigure the entrance to the South Slough Reserve Visitor Center from Seven Devil's Road. The goal of the redesign is to create a welcoming entrance with increased safety, parking, and access for school group buses. The project will also improve internet access, which is currently unreliable and impacts work operations at the Reserve.

Friends of South Slough provided funding and contract support for the development of engineering and architectural designs. Staff provided input throughout the iterative design process to ensure the designs would fit the needs of visitors and onsite programs. The final designs were approved by the South Slough Reserve Management Commission in November 2023 and are being used to develop a grant proposal for submission in 2024 to fund the construction phase of the project.

Expanding the Reserve Boundary

In 2023, the Reserve worked with NOAA to complete the federal process required for National Estuarine Research Reserve boundary amendments. This included writing a draft environmental assessment with legal and public review. The project is in the final stages of engagement with the local community, stakeholders, and Tribes. The boundary update is expected to be completed in January 2024. The new boundary will include all the lands acquired by the Reserve

since 2008.

Trail Projects

Multiple trail improvements were made on the Reserve's 5.5 miles of public trails, including replacing boardwalks and upgrading and installing new education platforms.

Accessibility Upgrades

Renovation of the public restrooms at the Visitor Center was completed in 2023 making them both fully accessible based on the Americans

with Disabilities Act (ADA) standards and gender neutral.

Significant progress was also made on contracting for the installation of ADA-compliant exterior doors at the Visitor Center.





Upgrading Communication Tower Power

In 2023, power for our network communications tower failed and upgrades were needed. Staff from the Department's Salem office and the Reserve collaborated to install and connect a new propane generator at the tower. This ensures that power can be available 24/7 if solar going into the system is not enough to maintain connectivity.

REVENUE & SPENDING

State funding for South Slough Reserve comes from the Common School Fund, which provides stable support for Reserve operations, programs, and services provided to Oregonians as envisioned by the Legislature. The South Slough Reserve upholds the values of the Common School Fund by supporting education and the longterm stewardship of the state's wetlands and waterways. This funding provides two critical benefits. First, it enables the Reserve to provide high-quality programming and services to diverse audiences at little or no cost. Second, Common School Fund dollars are leveraged to bring in a significant amount of additional revenue: the Fund provides match for the Reserve's annual operations award from NOAA and for various competitive grants each year. In 2023, the Reserve brought in a total of \$1,634,744 in non-Common School Fund dollars to support the water quality monitoring program, trail improvement projects, the acquisition of a key property at the entrance to the Visitor Center, renovation and upgrades to public restrooms and exhibits, and general operations. The Reserve also brings in revenue every year from facility rentals and lodging, with the fee schedule designed to offset operation and maintenance costs for use of the facilities.

The percentage of funding leveraged by the Reserve varies from year to year depending on project needs, the federal budget, and grant opportunities. In calendar year 2023, Reserve revenue included \$1,634,744 of leveraged funds, which accounted for 51.48 percent of total revenue. This was a 5.76 percent increase from calendar year 2022.

REVENUE	2023
Common School Fund	\$ 1,540,603
Leveraged funds*	\$ 1,634,744
Total Revenue	\$ 3,175,347
% Leveraged Funds	51.48%

^{*} Leveraged funds include the operations award received from NOAA, competitive grants, funding from the Friends of South Slough, Inc. and fees charged for rentals and permits.

SPENDING	2023
Salaries and Wages	\$2,212,060
Services and Supplies	\$501,160
Capital Outlay	\$399,263
Total Spending	\$3,112,483

APPENDIX A

RESERVE PARTNERS

Tribal Partners

- Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians
- Coquille Indian Tribe
- Confederated Tribes of Siletz Indians
- Lower Elwha Klallam Tribe

City and County Partners

- City and county land-use planners
- Coos County
- Coos Health & Wellness
- All Coos County school districts

State Partners

- **Oregon Department of State Lands**
- Oregon Department of Fish and Wildlife
- Oregon Department of Land Conservation and Development
- Oregon Department of Forestry
- **Oregon Department of Transportation**
- **Oregon Coast STEM Hub**
- Oregon Sea Grant
- **Oregon Natural Resources Education Program**

Federal Partners

- U.S. Forest Service
- **Bureau of Land Management**
- National Oceanic and Atmospheric Administration
- **Coast Guard**
- U.S. State Department
- U.S. National Parks Service

University Partners

- University of Oregon
- University of Oregon, Oregon Institute of Marine
- University of Oregon, Institute for Policy Research and Engagement
- **Oregon State University**
- **Portland State University**
- University of California, Davis
- Southern Oregon University

Additional Partners

- Friends of South Slough, Inc.
- Partnership for Coastal Watersheds
- Coos Watershed Association
- Wetlands Conservancy
- The PEW Charitable Trusts
- National Estuarine Research Reserve System Science Collaborative
- National Estuarine Research Reserve Association
- Tenmile Lakes Basin Partnership
- Wild Rivers Land Trusts
- Pacific Marine and Estuarine Fish Habitat Partnership
- Trailkeepers of Oregon
- **National Science Foundation**
- Wilson Biochar, LLC
- Parks Canada
- George Wright Society
- Coos Bay Downtown Association
- Pacific Lamprey Conservation Initiative
- South Coast Food Co-op
- The Egyptian Theater
- American Fisheries Society