

HOOD CANAL SALMON ENHANCEMENT GROUP

2023 ANNUAL REPORT



A Message from Our Director

MENDY HARLOW

The closing of one more year brings another opportunity for me to reflect on all of the activities and projects in which the Hood Canal Salmon Enhancement Group has been a strong leading force. I feel incredibly privileged to have the chance to work with so many passionate people who are dedicated to the recovery of our unique Hood Canal ecosystem. These individuals who share my love of Hood Canal and the fish and wildlife populations which rely on its health are not just my incredibly devoted staff, but also our family of ardent volunteers, partners, community members and donors who give us the boost we need to keep us moving toward our goal of ecosystem recovery. This family is allied and fixed in our mission and feel the purpose of our work every day because of the genuine love that we share for the natural world. By presenting this 2023 Annual Report to all of you, it is my greatest pleasure to share the significant impacts we have all made toward accomplishing our mission and ensuring that our children and grandchildren will be able to enjoy the splendor and abundance of the remarkable Hood Canal that we call home.

HCSEG staff and volunteer board are passionate about Environmental Education. We feel that in order to achieve our goal of a healthy Hood Canal, we must make sure that information is available to help the youngest of our population become the environmental stewards of the future. During 2023, HCSEG led the third year of the statewide Salmon in the Schools partnership bringing this program to over 10,000 students in high poverty schools in Washington State.

Another educational program that we cherish includes a research and monitoring component: our Union River Summer Chum project. For the past 24 years, HCSEG volunteers, interns and staff have been collecting data on the ESA listed Summer Chum Salmon population that utilizes the Union River for spawning a rearing habitat. This program has provided an incredible opportunity to compare



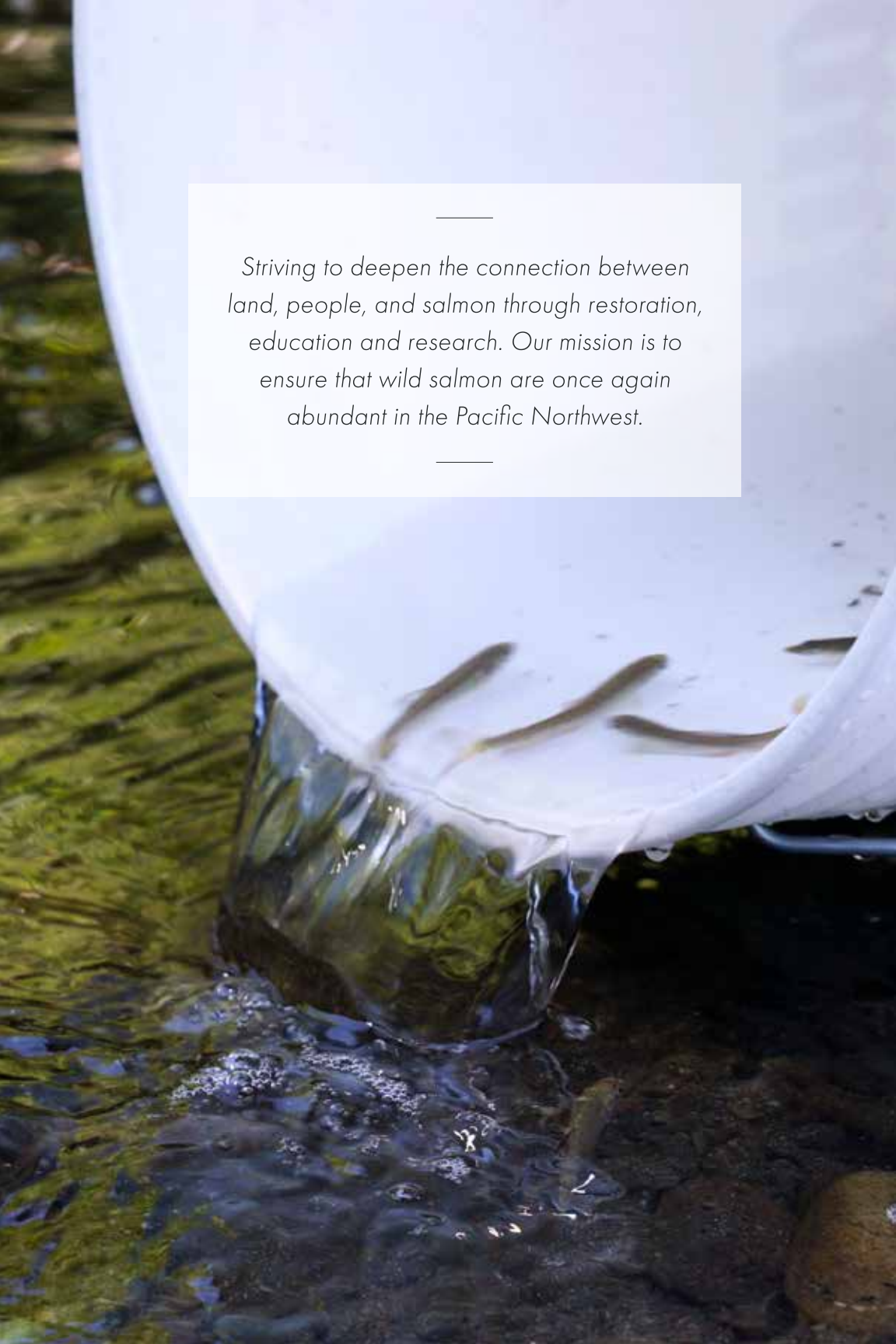
pre and post restoration population trends following our estuary restoration project on the Union River, which we completed in 2013. It is exciting to see the summer chum numbers climb due to the fact that we opened up more than 30 acres of additional estuary habitat that serves as a juvenile salmon nursery.

As we move through the design phases of the Big Quilcene River Projects, we are getting closer to the days when we will be breaking ground on these projects that will have a significantly positive impact on spawning habitat in this river system. During our planning phase, our riparian habitat crew has also been working hard to control invasive weeds and restoring native vegetation so that the river will have the appropriate cover in order to keep water temperatures low and a bank of trees for the large woody debris recruitment of the future.

All of this work in education, research and restoration would not be possible without my fantastic staff, volunteers, donors and partners. We all have the pleasure of working together for the common good, ensuring that we achieve our mutual goal of a healthy Hood Canal watershed with diverse populations of fish and wildlife we can enjoy for years to come.

Thank you for all of your support!

Mendy A. Harlow

A close-up photograph of a white plastic bucket being poured into a stream. The water is clear and bubbling as it falls from the bucket's spout. Several small, silvery fish are visible inside the bucket, swimming in the water. The stream bed is covered in dark, wet rocks and green moss. The background is slightly blurred, showing more of the stream and surrounding foliage.

—

*Striving to deepen the connection between
land, people, and salmon through restoration,
education and research. Our mission is to
ensure that wild salmon are once again
abundant in the Pacific Northwest.*

—

16 YEARS OF THE HOOD CANAL STEELHEAD PROJECT

This year HCSEG concluded our involvement with the Hood Canal Steelhead Project. This NOAA-led project began in 2007 in order to monitor and evaluate supplementation efforts for steelhead populations on the Skokomish, Dewatto, and Duckabush Rivers. We supported this project in partnership with the WDFW with early survey and supplementation efforts, using naturally-spawned steelhead eggs from the supplemented rivers which were reared in hatchery settings and later released into their natal streams. Compared to production hatcheries where adults are artificially spawned, this supplementation was designed to encourage natural spawning of steelhead in their natal streams. Since 2013, HCSEG has operated juvenile rotary screw traps in the supplemented Dewatto River as well as two un-supplemented control streams, the Tahuya and Little Quilcene Rivers to collect biological data and estimate the abundance of juvenile outmigration.

2023 METRICS



1,050

Outmigrating
Little Quilcene
Steelhead

1,280

Outmigrating
Dewatto
Steelhead

833

Outmigrating
Tahuya
Steelhead



In 2023, HCSEG operated these traps from the April 1st through May 31st. Throughout the trapping season, 58 volunteers dedicated 1,060 hours in support of trap operations by assisting with trap installation, identifying and counting captured fish, DNA sampling, data collection, and trap removal. During this season we captured and sampled 63 steelhead on the Dewatto River, 100 steelhead on the Tahuya River, and 211 steelhead on the Little Quilcene Rivers. All captured steelhead were marked with a fin clip and released upstream. Recaptured fish are recorded to calculate trap efficiencies which are used to estimate total abundance of the outmigration. Based on the trap efficiencies from this year, it is estimated that there were 1,280 outmigrating steelhead in the Dewatto River, 833 in the Tahuya River, and 1,050 in the Little Quilcene Rivers. Estimates for the Tahuya and Dewatto Rivers appear lower than that of the majority of previous seasons whereas the estimate for the Little Quilcene River appears to be about average. This data, along with data collected by other partner organizations operating in the Hood Canal, will be analyzed by the project managers at NOAA to determine results and conclusions from this study.

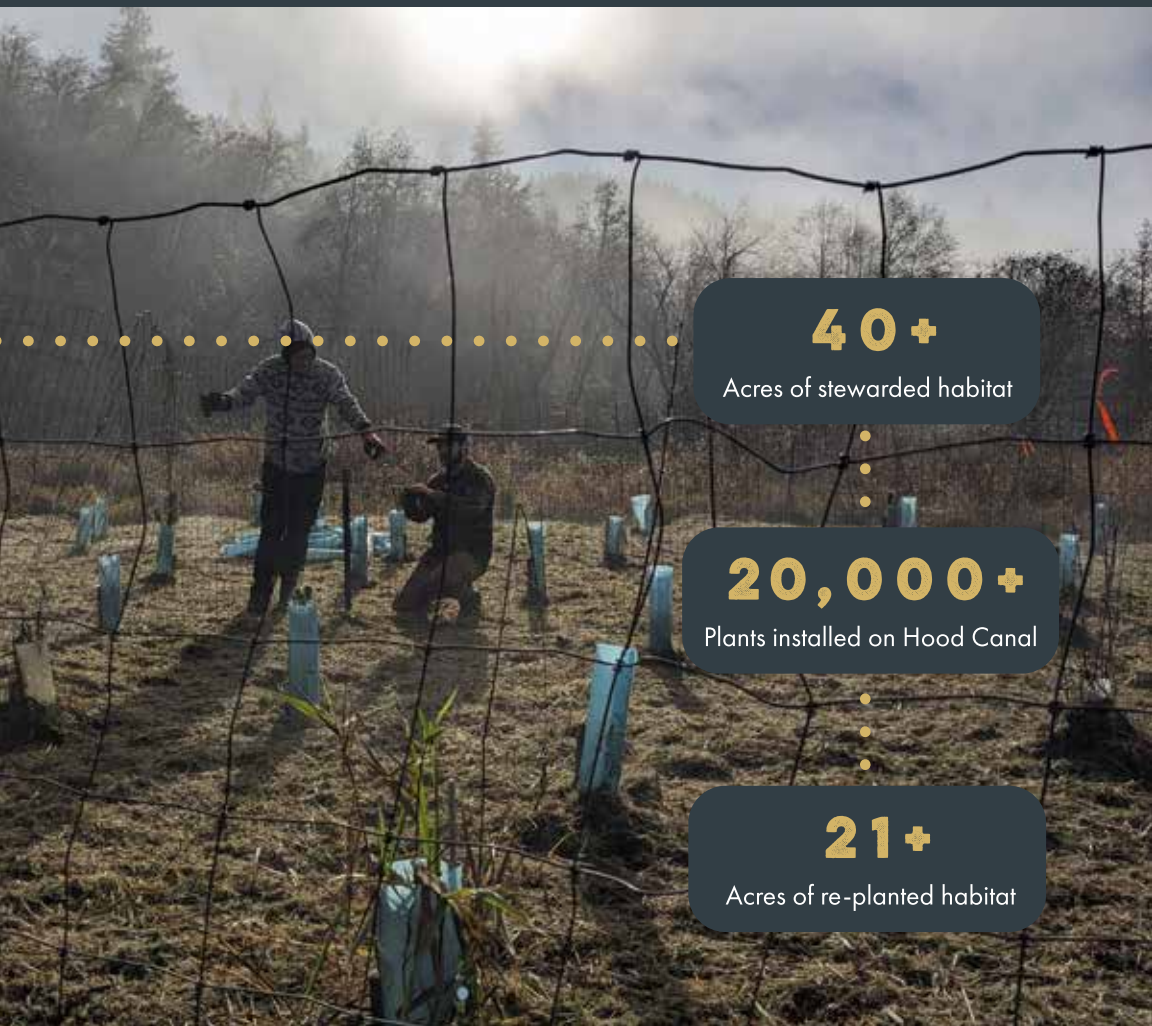


RIPARIAN ENHANCEMENT

Over the past two years, HCSEG has re-planted over 21 acres of degraded habitat and stewarded over 40 acres of previous plantings. In the 2022-2023 planting season, HCSEG partnered with the Washington Conservation Corps (WCC) and Department of Natural Resources (DNR), and held multiple volunteer parties to install 20,000+ plants around the Hood Canal! All of HCSEG's plantings target summer chum-bearing streams – an effort to restore the riparian ecosystem for aquatic species, in particular ESA-listed salmonids.

The Tahuya River, in particular, has been a focal point for plantings in recent years. Since 2019, HCSEG staff, partners, and volunteers have re-planted more than 43 acres of degraded habitat along 3 stream miles of the lower river. The remote Tahuya poses unique challenges for planting, with frequent flooding, invasive plant infestations, and heavy deer and beaver activity. Yet the need for planting along the Tahuya is high. The river's large sediment loads, high rates of aggradation, and extensive channel migration, likely increased by heavy logging practices along the river over 80 years ago, may play a role in low summer chum returns (Lestelle 2022, Jim Starkes et al. 2020).



**40+**

Acres of stewarded habitat

**20,000+**

Plants installed on Hood Canal

**21+**

Acres of re-planted habitat

One remarkably successful technique HCSEG has implemented along the Tahuya in recent years is beaver cage installation. The cages, typically installed by driving t-posts into the ground and attaching taut wire fencing, prevent beaver and deer from accessing the trees inside the cages. Three years after initial installation, the caging method has allowed protected trees to grow up to twice as tall as unprotected trees. This helps to stabilize the riverbank, outcompete invasive plant species, and keep water temperatures cooler for salmonids.

In 2023, HCSEG's stewardship department installed additional 20'x30' cages, solely with re-used and recycled materials, throughout a 10-acre planting site spanning 0.65 river miles along the Tahuya. Successful reforestation of this planting site will help restore habitat for salmonid species including winter steelhead, coho, pink, and fall and summer chum, as well as providing ecological connectivity to the surrounding 33 acres of plantings.



THELER WETLANDS

HCSEG and project partner Washington State Department of Fish and Wildlife made significant strides in 2023 on restoring the Theler Wetlands in Belfair. This project will result in the removal of two levees (825 ft. and a 425 ft.) consisting of a total of 2,000 cubic yards of fill material from the southern part of the Union River Estuary on Hood Canal, allowing for the re-connection of 7 acres of estuarine wetland habitat that will benefit juvenile Hood Canal Summer Chum salmon and other wildlife that utilize this estuary. Constructed early in the 20th century to contain a freshwater pond, the levees have constrained the tidal floodplain and limited functionality of the kind of habitat that is required for rearing of ESA listed juvenile Hood Canal Summer Chum. A tidegate built into the levee was damaged by high tides in 2012 and had completely compromised a large section of the dike just a few years later. Local trail users have been diverted to walking on an adjacent county road since the levee was damaged, but this road is dangerous for pedestrians and now sees frequent winter flooding during high tide/low pressure periods. Roessel Rd will also be elevated as part of the project to address this flooding, and an elevated boardwalk will be constructed in the footprint of the levees to safely reconnect the Theler trail system for the local community. There will also be replacement of an 18" CMP culvert with a new 25 LC concrete box culvert, and sections of a gravel access road raised adjacent to the dikes/project area. A pilot channel will be constructed into the project area for suitable sediment and tidal transport.

In 2023, project staff advanced the project through many stages of the permitting process. Geotechnical investigations were completed at the site in January and February. Site geology and subsurface conditions were determined by Aspect Consulting and benefited from information gathered in recent geological surveys on the adjacent Union River Estuary Restoration project. Aspect conducted investigations to assess soil conditions in support of the proposed dike removals, spur dike design, and fish-passable culvert design. ASM Affiliates was also hired during this period for the cultural resources assessment of the project area. ASM was onsite during the geotechnical field explorations to examine all exposed ground surfaces





CONNECT

7 acres of estuarine
wetland habitat

REMOVE

2 levees & 2,000
cubic yards of fill

REPLACE

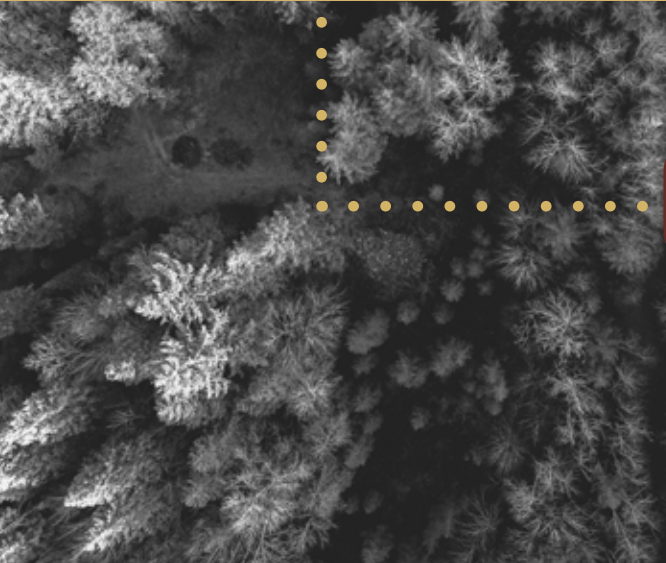
an undersized,
failed culvert

for archaeological resources, and minor subsurface excavation at regular intervals in areas proposed for disturbance within the Project Area of Potential Effect. Wetland delineation consultant Confluence also completed fieldwork in February at the project site. Confluence prepared a baseline Critical Areas Study to characterize the wetland resources at Theler. Once the project design is further along, Confluence will complete the impact assessment and append it to the Critical Areas Study. These field activities advanced design and permitting for the project. Progress was shared with the local public and feedback solicited at a series of public meetings in Fall 2023. Project staff is currently working with the Multi-Agency Review Team (MART) to complete the permitting process and aim to begin construction in 2024.

THE BIG QUILCENE

In 2023, noteworthy progress was made on HCSEG’s two large scale restoration projects on the lower Big Quilcene River – Moon Valley and Lower One Mile. Significant amounts of construction funding was secured for the projects, with \$9.6 million being awarded to Moon Valley from NOAA and \$25 million awarded to Lower One Mile from USDOT. Final design and permitting work has begun for both projects, and is expected to be completed by summer of 2024.

HCSEG expects to break ground on both projects late in 2024. Once completed, the projects will restore and create roughly 2 river miles of world class salmon habitat and restore over 80 acres of historic floodplain surrounding the river corridor. The community of Quilcene will also greatly benefit from the projects, with flood risks being greatly reduced from a flood prone neighborhood and essential transportation corridor.



REDUCE

Flood risks to local community



CREATE

2 river miles of salmon habitat

RESTORE

80 acres of historic floodplain



FROM HORSE FARM TO SALMON HABITAT: **RESTORING THE TAHUYA**

1.2

Stream miles to
be treated

42

Acres of floodplain
to be reconnected

.5

Miles of side
channel habitat to
be restored

144

Acres to be
surveyed and/or
planted





HCSEG recently partnered with the Great Peninsula Conservancy (GPC) land trust to acquire a large property on an important reach of the Tahuya River. The 145-acre property, which once hosted a horse farm and racetrack, is located mainly within the floodplain and riparian area of the river about three miles upstream from the mouth – right in the heart of Hood Canal Summer Chum spawning territory. GPC completed the purchase in the summer of 2023, and now the initial stages of the restoration process have begun. In the past, a large amount of bank armor was installed to prevent the river from inundating the pastures, which channelized the river and cut it off from its historical floodplain. The floodplain area is about 42 acres and includes side channel habitat that is often disconnected from the main channel. The river corridor directly upstream and downstream of this area is largely unaltered, which makes this an ideal reach to restore to its natural state.

The ultimate restoration goal of this project will be to remove the bank armoring and reconnect the Tahuya to its full floodplain and half a mile of side channel habitat in this reach. This will allow the river to slow down and spread out during high flows, which leads to more natural distribution of sediment. Restoration will also open up many acres of complex habitat for rearing juvenile salmonids, and improve spawning grounds for adult salmon. In this first phase of the project (2023-2026) we will be removing all buildings and infrastructure, establishing some riparian plants, and removing noxious weeds. We will also begin working with experienced consultants to study different restoration options, and complete the preliminary design for the future project.



THE SUMMER CHUM REPORT

2023 TRAP SEASON

2023 marks the 23rd season of the Summer Chum Trap on the Union River, and we owe another successful year of monitoring to our incredible volunteer community! These folks assist HCSEG interns in monitoring the trap 24/7 from mid-August to mid-October, (yes - this includes monitoring the trap through the night!). Without you all, this project would not be possible.

The Summer Chum trap helps collect data on Summer Chum abundance on the Union River. In 2023, HCSEG continued to make positive observations about the future of this threatened salmon population. Since the Union River estuary restoration project was completed, we have watched the chum salmon returns rise steadily to healthier numbers, reflecting the success of our environmental stewardship efforts. Our volunteer community had a direct hand in this habitat restoration project as well, joining us for native plantings, invasive plant removal, and trash clean-ups on the Union River Estuary over the last 23 years.

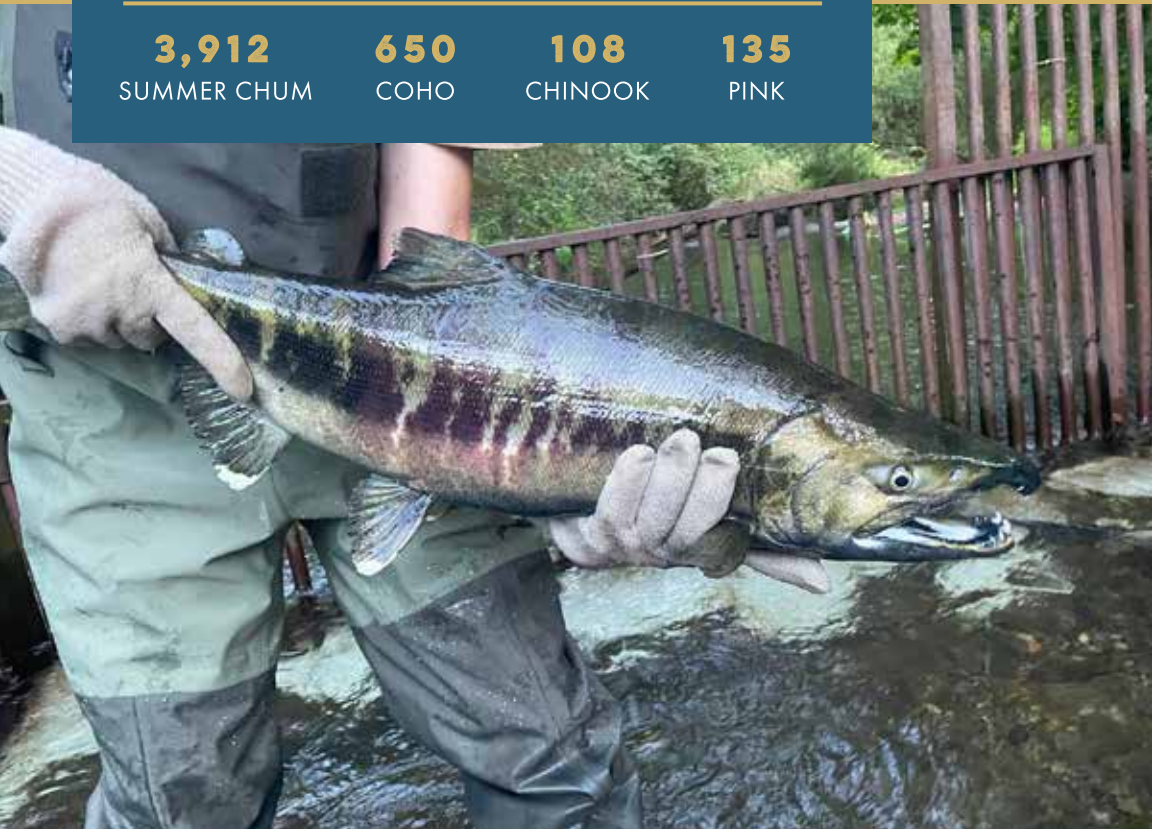
2023 FINAL SALMON COUNT:

3,912
SUMMER CHUM

650
COHO

108
CHINOOK

135
PINK





YEAR	RETURN
[Supplementation Starts]	
2000	744
2001	1491
2002	872
[Supplementation Ends]	
2003	11916
2004	5976
2005	1987
2006	2836
2007	1967
2008	1144
2009	611
2010	967
2011	276
2012	2246
[Estuary Restoration Completed]	
2013	1882
2014	676
2015	1232
[1 st Adult Return that Utilized the Restored Estuary]	
2016	3512
2017	5810
2018	3628
2019	1887
2020	1777
2021	6479
2022	5363
2023	3912



STATEWIDE SALMON EDUCATION

SALMON IN THE SCHOOLS

In 2023, HCSEG's Salmon in the Schools (SITS) funding from the Washington Office of Superintendent of Public Instruction was renewed for another year, which provided an additional \$470,000 for SITS programming for elementary schools designated as high-poverty in Washington state. SITS is a statewide collaboration between HCSEG and 14 other Washington State nonprofits. In 2023, HCSEG and project partners were able to bring SITS to 1,861 more students and 41 additional schools.

2023 IMPACT

10,581

STUDENTS SERVED

150

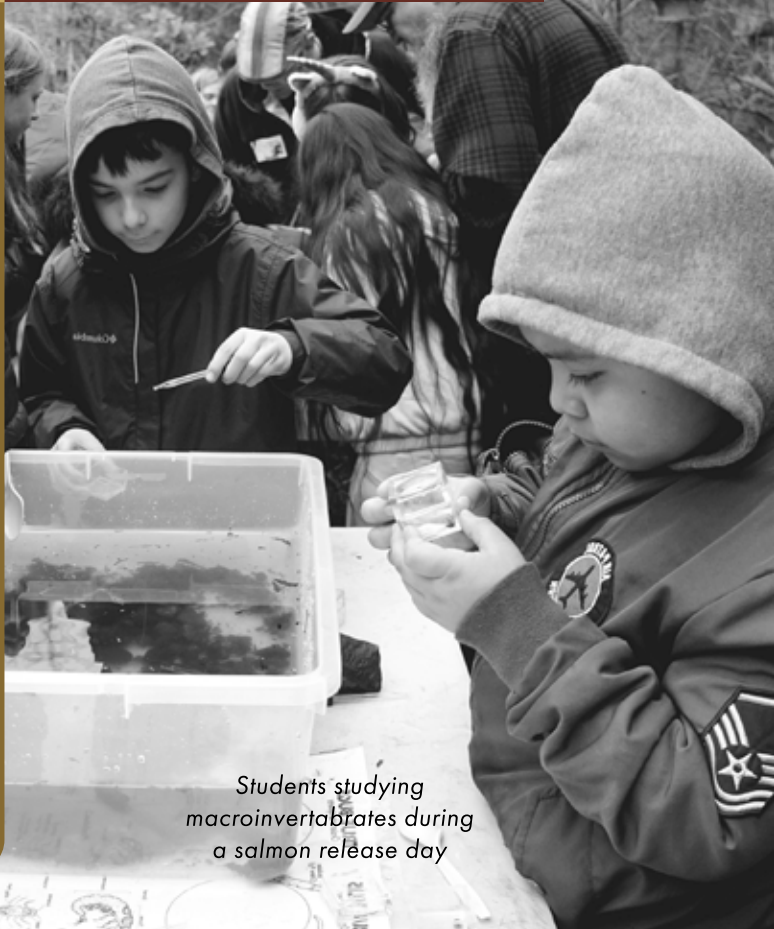
SCHOOLS SERVED

294

EDUCATORS SERVED

68

SCHOOL DISTRICTS
SERVED



*Students studying
macroinvertebrates during
a salmon release day*



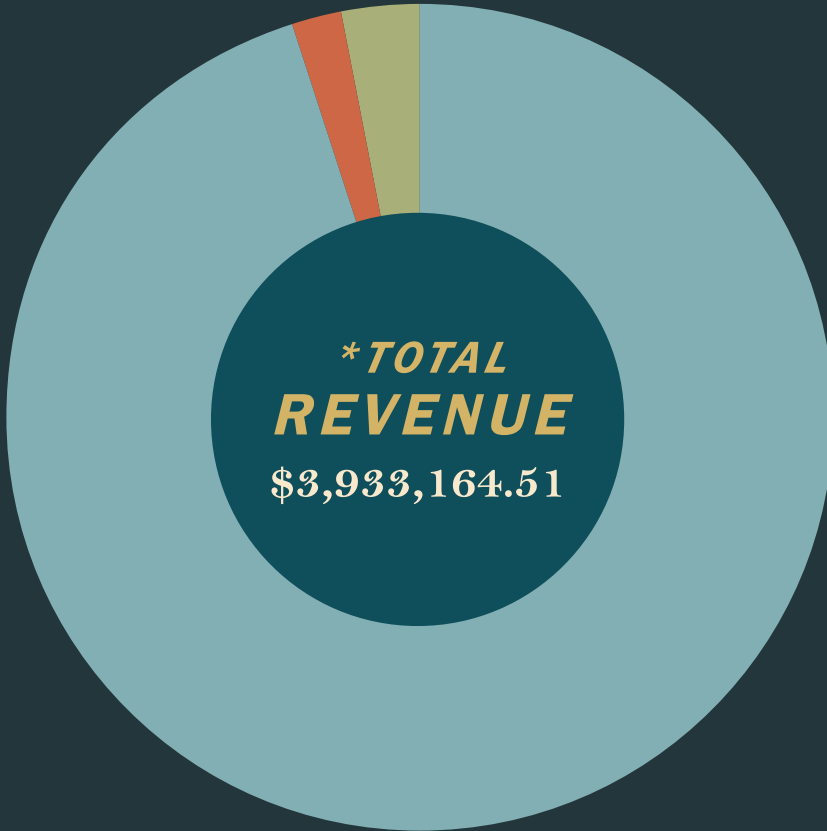
Students releasing
their classroom's
salmon fry into
local streams





FINANCIAL SUMMARY

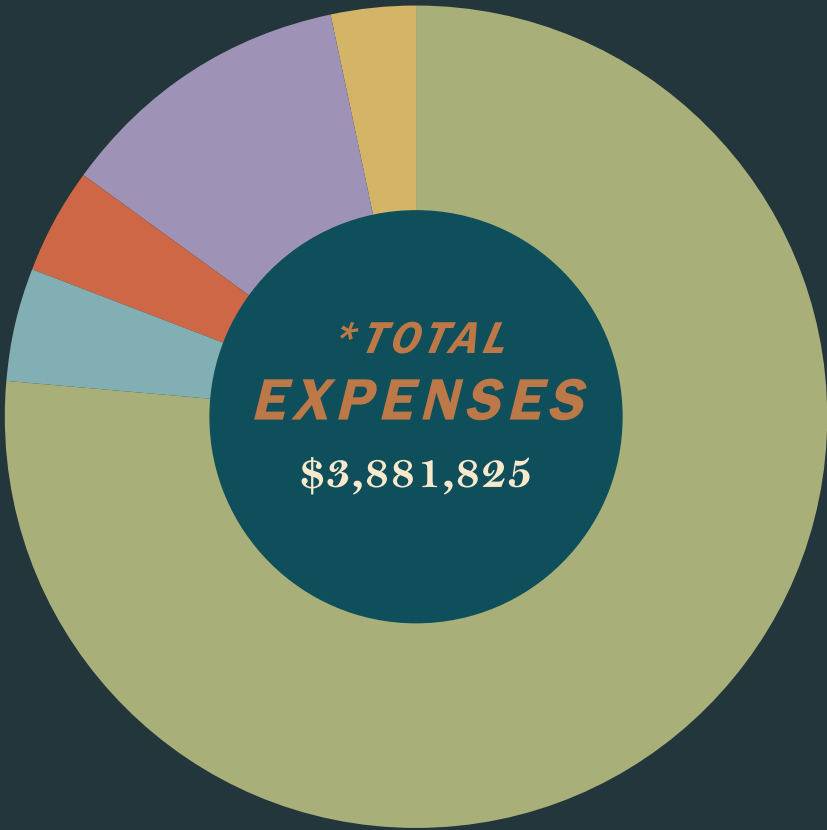
HCSEG IS A
501(C)3 NONPROFIT
FUNDED BY GRANTS,
DONATIONS AND
MEMBERSHIPS.



■ **GRANTS**
\$3,747,446.84

■ **DONATIONS**
\$74,414.43

■ **PROGRAMS**
\$111,393.24



HABITAT RESTORATION
\$2,969,373.65

ECOSYSTEM RESEARCH
\$177,263.63

EDUCATION & OUTREACH
\$161,604.76

OPERATING EXPENSES
\$447,437

FARM
\$126,145.76

**FIGURES NOT AUDITED*