

"In-ter-vale n. [a blending of INTERVAL + VALE] [Americanism. Chiefly New England] low, flat land between hills or along a river." Webster's New World Dictionary

DOWNEAST SALMON FEDERATION
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Protecting rivers and
wild Atlantic salmon
since 1982

SUMMER 2021

INTERVALE

Breakthrough! Peter Gray Parr Project



Peter Gray Hatchery Visitor Center Viewing Windows



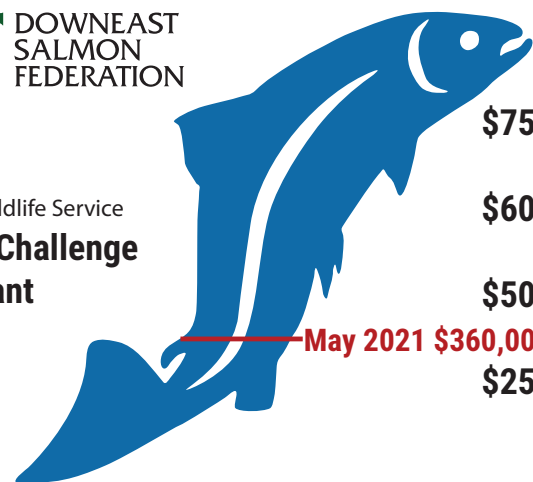
PGPP SALMON RETURN AT UP TO 14X THE RATE

The Peter Gray Parr Project (PGPP) is achieving remarkable results in wild Atlantic salmon restoration. The program raises endangered Atlantic salmon from eyed-egg (supplied by the U.S. Fish & Wildlife Service/USFWS) to parr life stage in a unique environment that closely replicates the natural river environment. DSF has partnered with the USFWS, the Maine Department of Marine Resources (MDMR), and the National Oceanographic and Atmospheric Administration (NOAA) since 2012 on this public-private recovery project.

Analysis of data from the project indicates that PGPP salmon return from the sea to spawn up to 14 times the rate of fish raised and stocked using other hatchery techniques.



U.S. Fish & Wildlife Service
Matching Challenge
Grant



\$751,000

\$600,000

\$500,000

May 2021 \$360,000

\$250,000

Please consider a contribution

www.mainesalmonrivers.org/donate

U.S. Fish & Wildlife Service Matching Challenge Grant

First federal grant for the PGPP

Since 2002 \$7,500,000 has been raised
entirely from individuals and
foundation grants

More than 1600 individuals have
donated to the project

To meet the USFWS grant
requirements we must raise an
additional \$751,000

Every dollar matched 1:1

THANK YOU TO OUR MAJOR BUSINESS PARTNERS



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THE SCIENCE OF SALMON

The Downeast Coastal Rivers Salmon Habitat Recovery Unit (DESHRU) Stock Enhancement Plan has been developed by Maine Department of Marine Resources (MDMR) scientists in consultation with DESHRU Coordinating Committee members.

The objectives of the DESHRU Stock Enhancement Plan include:

- ensuring quality rearing habitat is utilized by the appropriate river-specific stock and lifestage; and
- spatially and/or temporally segregating enhancement strategies to evaluate the effectiveness of recovery actions to supplement wild salmon populations.

Using the resources currently available for producing enhancement products for release in the DESHRU, the Coordinating Committee recommends a shift in the current stocking strategy, that focuses almost solely on unfed fry, to one that will pair freshwater lifestages with appropriate width-class stream habitat.



After relying almost solely on fry for stock enhancement since the early 1990s it is apparent that although unfed fry will continue to provide a means to prevent extinction near term they will not produce robust smolt populations necessary to move toward recovery goals. (pg.3 paragraph 2)



Over the next five years, greater emphasis will be placed on the use of age 0+ parr in larger width-class habitat in order to increase numbers of semi-naturally-reared smolts emigrating annually. (pg.3 paragraph 2)



Within the highest quality class B water in the East Machias, PGH (Peter Gray Hatchery) age 0+ parr stocking outperformed all other stock enhancement strategies (fed fry, unfed fry, and gravid adults) since 1997 (Figure 1). PGH 0+ origin smolt production during this period averaged 914 smolts; more than 3.5 times greater



At the watershed scale, stocking PGH ambient age 0+ parr appears to greatly enhance juvenile production with an apparent doubling of age 1+ and age 2+ parr density compared to unfed fry (roughly 4.9/unit compared to 10.5/unit). (pg 10 paragraph 1) than observed from unfed fry stocking. (pg. 10 paragraph 1)

Atkinson, Bruchs, Buckley, Craig, Saunders (2021) Maine Atlantic Salmon Stock Enhancement Plan Downeast Coastal Rivers SHRU

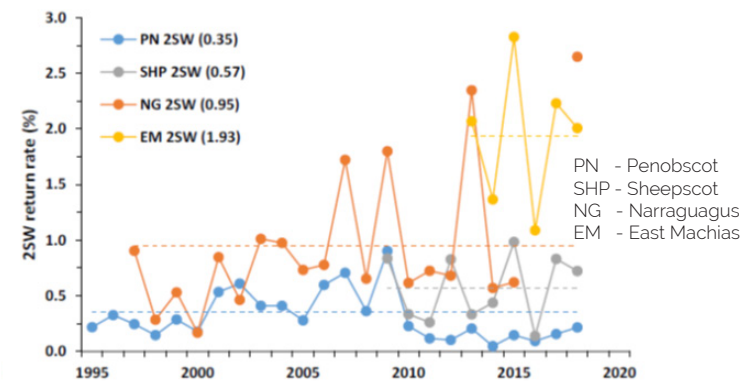
The central aim of recovery of the Gulf of Maine Distinct Population Segment (GoM DPS) of Atlantic Salmon is for the population to have a low risk of extinction in the foreseeable future due to threats from either environmental and demographic variation or changes in genetic diversity (USFWS and NMFS 2018).

In line with this aim, this plan generally follows a river-specific approach for stock enhancement.

The goals of the Maine Atlantic Salmon stock enhancement program are:

- to maintain populations of juveniles in productive historic rearing habitat,
- to maximize freshwater production of naturally-reared smolts,
- and to maximize the distribution and abundance of adult Atlantic Salmon returns.

Two sea winter (2SW) return rate for wild Atlantic salmon



Tim Sheehan, Research Fishery Biologist, Northeast Fisheries Science Center Atlantic Salmon Ecosystems Research Team NOAA Marine & Fisheries Update April 15, 2021



Peter Gray Hatchery 3.5 times greater fall parr observed

The Peter Gray Hatchery (PGH), in collaboration with MDMR (Maine Department of Marine Resources) and USFWS (U.S. Fish & Wildlife Service), has released fall parr (0+ parr) as the primary stock enhancement strategy in the East Machias River drainage since 2012.

PGH parr are released at increased densities, 45-120 parr per unit of habitat versus the previously stated recommendations of 17-40 parr per unit, as part of an experimental program to determine a smolt recruitment curve to optimize stocking densities. Smolt production rates from PGH 0+ parr stocking have averaged 0.60 smolt/unit.

The East Machias River LCMS (Life Cycle Monitoring Station) has documented significant increases in large parr abundance, smolt abundance, and smolt production rates since monitoring began in 2013 (DSF 2020; USASAC 2020).

At the watershed scale, stocking PGH ambient age 0+ parr appears to greatly enhance juvenile production with an apparent doubling of age 1+ and age 2+ parr density compared to unfed fry (roughly 4.9/unit compared to 10.5/unit). Increases in juvenile density were apparent in a range of stream sizes ranging from small (class A, less than six meters), medium (class B, between six and 12 meters; and class C, between 12 and 18 meters) and large (class D, over 18 meters).

Within the highest quality class B water in the East Machias, PGH age 0+ parr stocking outperformed all other stock enhancement strategies (fed fry, unfed fry, and gravid adults) since 1997. PGH 0+ origin smolt production during this period averaged 914 smolts; more than **3.5 times greater than observed from unfed fry stocking.**

Atlantic salmon Life Cycle Monitoring Stations (LCMS) provide critical data.

Stock enhancement actions are conducted by the Maine Department of Marine Resources (MDMR) in cooperation with USFWS, and DESHRU stakeholders. MDMR directs Atlantic Salmon population monitoring activities throughout the DESHRU.

As a component of the MDMR-NOAA Cooperative Agreement (MDMR and NOAA 2016), MDMR operates a Life Cycle Monitoring Station (LCMS) on the Narraguagus River to evaluate trends in juvenile abundance, smolt production, adult returns, spawning escapement and distribution, and smolt-to-adult return rates (SARs). DSF partners with MDMR and NOAA to operate a LCMS on the East Machias River.

Objective data provided by both LCMSs (Narraguagus and East Machias) guide the stock enhancement plan and recommendations of the DESHRU Coordinating Committee in consultation with stakeholders.

'However, given the extreme low survival of unfed fry, low numbers of resultant smolts, and poor marine survival, a stock enhancement strategy that relies solely on fry should not be considered practical for achieving recovery goals.'

DESHRU Coordinating Committee report Lifestage Descriptions, Release Methods, Historical Use, and Relative Merits



Peter Gray parr fall release into Seavey Stream, a tributary of the East Machias River

The **DSF LAND TRUST** to date has conserved nearly 6,000 acres and 43.5 miles of riparian habitat, all in areas protecting sea-run fish, and providing important climate-resilient buffers.

REDMOND'S BROOK

This 8-acre property is dedicated in memory of Charles Parker. Charlie was a resident of Harrington, a local high school teacher, and a strong advocate for conservation. Charlie and his students worked with the Downeast Salmon Federation for many years monitoring water quality and improving fisheries in this region. Redmond's Brook has been a destination for people wanting to catch smelts for many generations. On dark nights in the spring of the year, people came with their dip nets and flashlights to scoop up the migrating fish. Despite the harvest pressure, Redmond's Brook was one of the most productive smelt brooks in the region. But this was not guaranteed since the land had been privately owned with public access allowed but could have changed at any time.

This preserve has been protected by the Downeast Salmon Federation (DSF) through our DSF Land Trust program to ensure the conservation of this important smelt spawning habitat and to ensure public access to this traditional smelt fishing site.

To learn about all of our preserves, please visit our website:
www.mainesalmonrivers.org/land-trust



DSF Citizen Science Monitoring

Sea-run fish monitoring is a critical part of DSF's mission. We conduct spring wild Atlantic salmon smolt counting and fall redd counts with our hatchery staff.

With our partners the Gulf of Maine Institute, the Maine Department of Marine Resources and the Nature Conservancy, DSF conducts yearly smelt, tomcod and river herring citizen volunteer projects.

To participate, visit our website:
www.mainesalmonrivers.org/take-action

BREAKING NEWS

Union River beats Brookfield at Maine Board of Environmental Protection

On June 3rd the Maine Board of Environmental Protection (BEP) voted overwhelmingly to affirm the Maine Department of Environmental Protection's denial of water quality certification for Brookfield Renewable's two Union River dams. Without this certificate these dams cannot be relicensed by the Federal Energy Regulatory Commission.

The BEP's order made clear that Brookfield's large, ecologically destructive water drawdowns from Graham Lake violate state water quality standards in Graham Lake and the river below it, and that current operations of the downriver dam in Ellsworth cause depleted dissolved oxygen in the impoundment.

DSF will continue to hold Brookfield accountable for their management of the Union River dams and its impacts on fisheries and water quality and will coordinate community discussions around the outcome of this recent decision.

Thanks to all of our members for their continuing support.

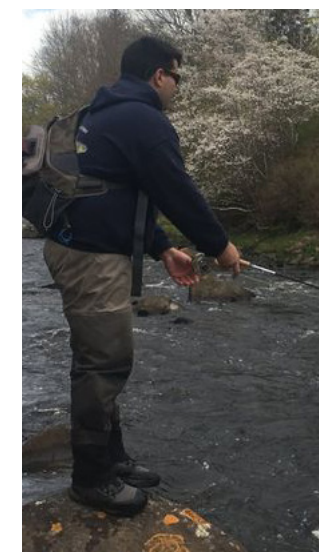
Habitat Restoration

Meddybemps Power Plant Removal



Meddybemps Lake is the source of the Dennys River and is a prime spawning ground for alewife, an anadromous species of river herring that spawns in freshwater but lives in the sea. The fish, however, are often unable to reach the lake. They are hindered by an abandoned powerhouse and remnant dam that compress and accelerate the lake's outlet flow. At most water levels, the fish are unable to fight their way through it during their upstream migration.

Thanks to our partners the Maine Department of Marine Resources, the Passamaquoddy Environmental Department and the Town of Meddybemps, in 2020 DSF removed the powerhouse and will be working to remove the remnant dam and fully restore fish passage this summer.



Sea-Run Brook Trout

Last summer we began tagging brook trout in streams along Cobscook Bay to help understand how these special fish use their salt and freshwater homes and how we can best restore rivers for their use. We're at it again this year!

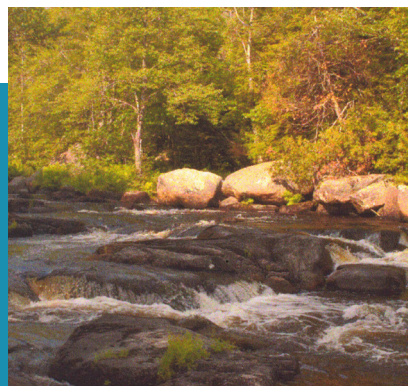
From the start, this has been an intensive collaboration between the Sipayik Environmental Department, U.S. Fish and Wildlife Service, the Native Fish Coalition, Sea Run Brook Trout Coalition, Downeast Trout Unlimited, Maine Coast Heritage Trust, and countless volunteers.



PLEASANT RIVER COMMUNITY FOREST PRESERVE

At 391 acres and 8600 feet of frontage on the Pleasant River, this is a preserve for all seasons. The loop trails at Pleasant River Preserve offer hiking, snowshoeing and cross-country skiing adventures.

The campsite near the river is a great spot to hike into for a picnic and swim, or for a weekend adventure.



GREAT FALLS PRESERVE

With 73 acres, Great Falls is a series of rapids and cascades surrounded by an intact forest on Rt. 193 in Deblois. The property has gentle terrain on its western edge, and a steeper trail on the east leading to a swimming hole known locally as "The Skeleton Pool".

DSF partners with the Acadia Area ATV Club who maintain the ATV trails in return for the use of the garage on the property.



DSF LAND TRUST CAMPS

DSF has several areas for tent camping and we have 3 rustic and beautiful camps that are available for use by the general public. The campsites are on a first-come/first-served basis, and we encourage a donation to cover the costs of upkeep and maintenance.

Learn more on our website:
www.mainesalmonrivers.org/dsf-land-trust-camps

FROM THE ARCHIVES

DSF and the Endangered Species Act

The Federal Endangered Species Act became law in 1973, and by 1994 conservationists had pushed for the inclusion of wild Atlantic Salmon to the list, and it was finally added in 2000! DSF had embarked on the East Machias hatchery development by 2002.

In 2010, DSF was issued a U.S. Fish & Wildlife Section 10 permit as a sub-entity operating under the USFWS federal permit to rear, raise and handle an endangered species, wild Atlantic salmon. That year, 50,000 parr were raised.

In 2012 DSF began operating the new Peter Gray Parr Project at our East Machias hatchery facility. DSF was convinced that the innovative Peter Gray stream-side process offered the highest chance for the restoration of the species. Since 2012, **over 1,000,000 parr have been successfully raised and released by the Peter Gray Parr Project (PGPP).**

In 2021, having demonstrated the viability and productivity of the PGPP system, DSF was awarded a stand-alone Section 10 ESA permit. The PGPP is now raising parr for two rivers, the East Machias and Narraguagus, and has received 800,000 eggs for the 2021 stocking season.

WORTH A THOUSAND WORDS

Pictured below are post-spawn Atlantics - 'black salmon' - from the Pleasant River circa 1960 (note the yardstick). Courtesy of Dr. Vaughn Anthony.



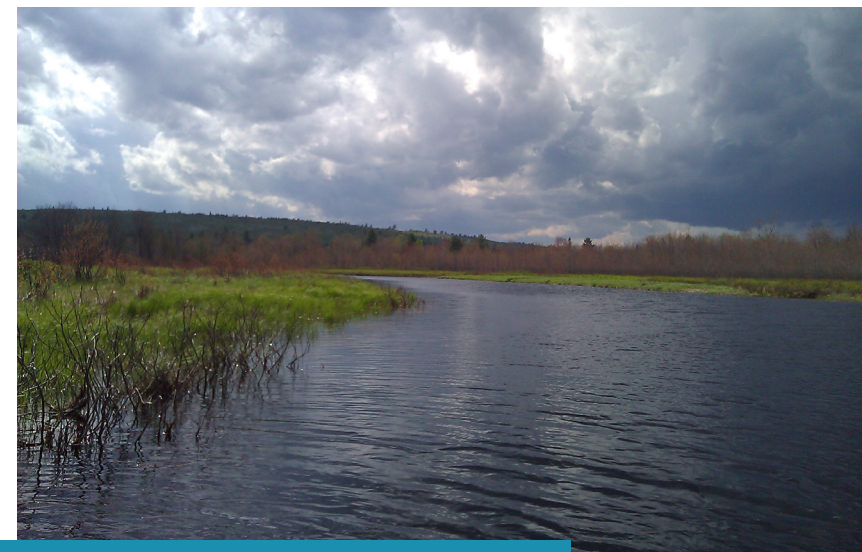
SUPPORT DSF PROGRAMS WITH A DONATION TODAY

- Land Trust Stewardship
- Peter Gray Parr Project
- Habitat Restoration
- Field Based Biology

All donations of \$100+ receive a stainless steel 12 oz. cup with the DSF logo. This lightweight stainless steel cup holds 12 ounces of hot or cold beverages. Perfect for those hiking, fishing, camping trips where you want a strong, reusable cup.



www.mainesalmonrivers.org/donate



DON SPRANGERS DSF BOARD OF DIRECTORS MY FAVORITE RIVER East Machias

I was first introduced to the East Machias River upon moving to Downeast Maine in 1990 with hopes of fishing the iconic Atlantic salmon. I soon learned that the salmon population was "Threatened". I recall watching Joe Robbins and others fly fishing in the Gaddis Pool, but I never saw a fish landed. I never took the opportunity to fish for salmon in Maine and instead joined the Downeast Salmon

Federation in support of their mission to conserve and restore the fish I have come to admire most.

Shortly after moving to East Machias I was invited along on a spring river trip on the East Machias River. We launched our boats at Route 9 and fished our way downstream. Drifting, paddling, and navigating the quick-water. First night; Foster's Camp on Second Hadley Lake. Second night; camped in tents along the river below Crooked Pitch. Third night; 32 Special Camp upriver from Hadley Lake.

My good friend Tim (Kenneth) Gatcomb guided the boats downstream through the rapids finding the best and safest lines. Tim, the elder in our group, was a wealth of information as he told stories of working the log drives back in his younger years. He was an avid hunter, fisher and trapper, and always had a good story to tell. Tim knew the north woods like the back of his hand.

We concluded our trip at Palmer's Landing on Hadley Lake. Why is it that there is always a headwind when going across Hadley Lake? This river trip became an annual event for many of us. I have so many fond memories.

Airline Brewing Company - DSF IPA

Thanks to DSF Board of Directors Vice President George Leinbaugh, Airline Brewing Company of Ellsworth and Amherst Maine, has created a special 'Downeast IPA'.

The India Pale Ale promotional brew is hand-crafted and served at the brewery and available for purchase in 4 packs. There are four beautiful photos of the Union River, and information about supporting DSF on the cans.



ABC hosted a launch party at the Amherst brewery on June 25, 2021 with local Maine seafood hors d'oeuvres.

<https://www.abcmaine.beer>



DONATIONS IN MEMORIAM

DSF has been honored to receive recent gifts from family and friends in remembrance of the following individuals with a passion for salmon recovery:

DR. PAUL HERMANN

The DSF East Machias facility, housing the Peter Gray Parr Project, is home to the Dr. Paul Hermann Library and Archive. Paul was a DSF Board of Directors member, and his wife Kathleen and friends continue to honor him with donations to DSF and the Peter Gray Parr Project,

PAUL FRINSKO

Paul had a distinguished legal career, developing a reputation as the leading municipal lawyer in Maine. He was recognized by the Bernstein Shur law firm and the University of Maine School of Law with the creation of the Shur – Frinsko Award for Municipal Law and Local Governance. His wife Linda and their friends have contributed to DSF in honor of Paul's lifelong love of fishing and river restoration.

RALPH KEEF

After an adventurous life, Ralph and his wife Allison returned to Maine to

enjoy retirement. He was an active member of DSF and the Maine Council of the Atlantic Salmon Federation (MCASF), serving on the DSF Board of Directors, and as president of the MCASF Council for several years in the late 1990s.

DALE REX COMAN

Dr. Coman was a research physician (1906-1963) who wrote wonderful stories of his walks and canoe trips that ranged from the rocky forested wilderness of Maine to the salt marshes and pine barrens of southern New Jersey. Donations have been made in recognition of his book *Pleasant River*, which is a record of his fishing and nature study of this Downeast Maine river famous for wild Atlantic salmon.

CHARLES FURLONG

'Chuck' had a life filled with achievement, from being the UMaine quarterback for 4 winning seasons to volunteering with the Citizen's Democracy Corps after the fall of the Berlin wall. He and his wife Beth are lifelong environmentalists and Chuck was a longtime participant in Pleasant River watershed conservation with DSF.