

Supplementation using 0+ parr in the East Machias River, Maine. USA

Performance of *naturalized parr* provides significant positive results in contrast to stocking various other life stages and methods.

Dwayne Shaw, Downeast Salmon Federation
and numerous NGO and Governmental partners



PETER GRAY PARR PROJECT

Technology transfer from the River
Tyne (England and Scotland)
To the USA (via Iceland)

The Peter Gray Story



Orri Vigfusson 1942-2017



Peter Gray 1941-2012



Peter working with DSF



Peter Gray Hatchery

State & Federal Agency Partners

- Genetic Screening
- Assessment
- Support
- Reporting
- Co-management



NOAA
FISHERIES





Est. 1982

Mission:

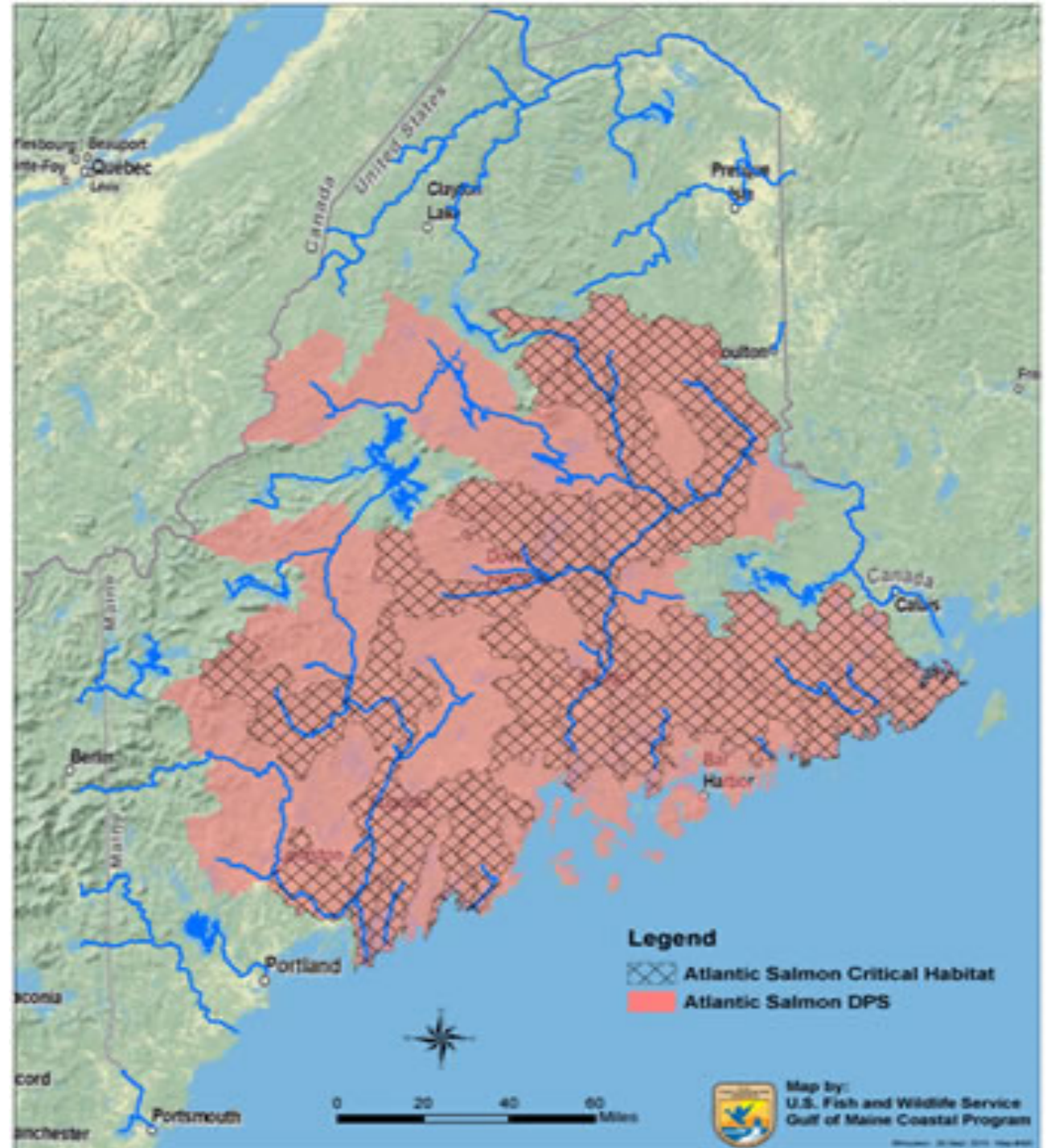
To conserve wild Atlantic salmon and its habitat, restore a viable sports fishery and protect other important river, scenic, recreational and ecological resources in eastern Maine.

Gulf of Maine Distinct Population Segment

*THE GEOGRAPHIC BOUNDARY OF THE GULF
OF MAINE DISTINCT POPULATION SEGMENT
OF*

*ATLANTIC SALMON AND DESIGNATED
CRITICAL HABITAT.*

*MAP CREDIT: U.S. FISH AND WILDLIFE
SERVICE GULF OF MAINE COASTAL
PROGRAM.*

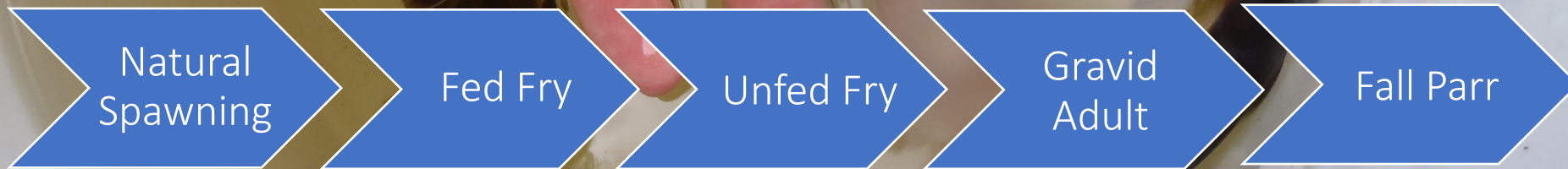




BREAKTHROUGH!

- The Peter Gray Parr Project (PGPP) has now stepped from a 10-year proof of concept experiment to expansion and scaling of the program into other rivers
- PGPP salmon return from the sea to spawn up to 14 times the rate of fish raised and stocked using other hatchery techniques
- Agencies are recommending broad adoption of parr stocking based upon the results of the PGPP

East Machias River Reproduction/Stocking History



East Machias River Before Dam Removal (1930s) and After (2000)



And so it began...

In 2000, DSF led the effort to remove the old dam on the East Machias River, just below the Rt. 1 bridge.



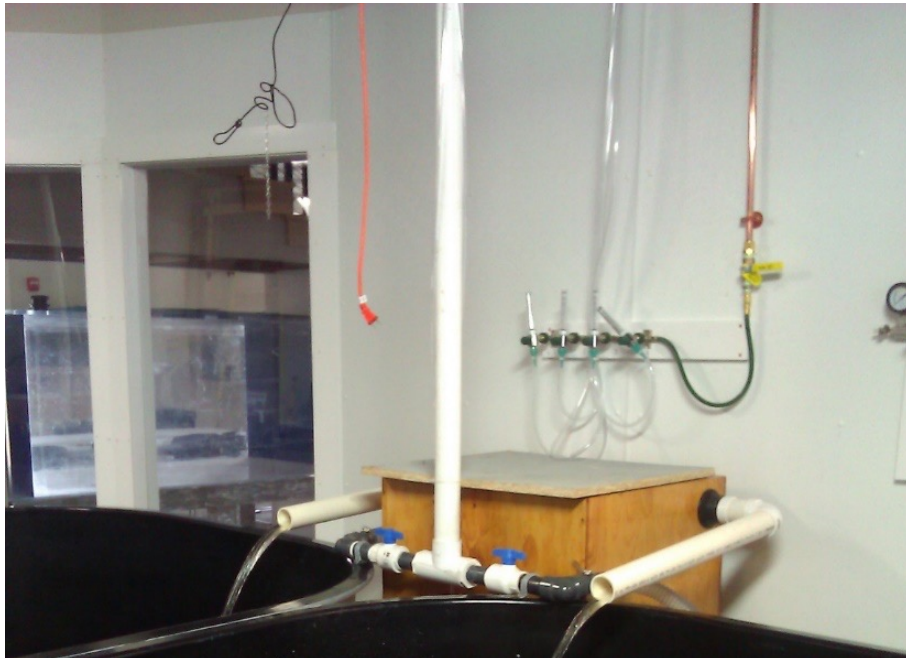
Beauty is in the eye of the beholder!

The old Bangor Hydro building associated with the dam up-river. An eyesore in a scenic part of town, DSF acquired the building and had a great vision for it.



The Peter Gray Hatchery today, a fully operational conservation hatchery.

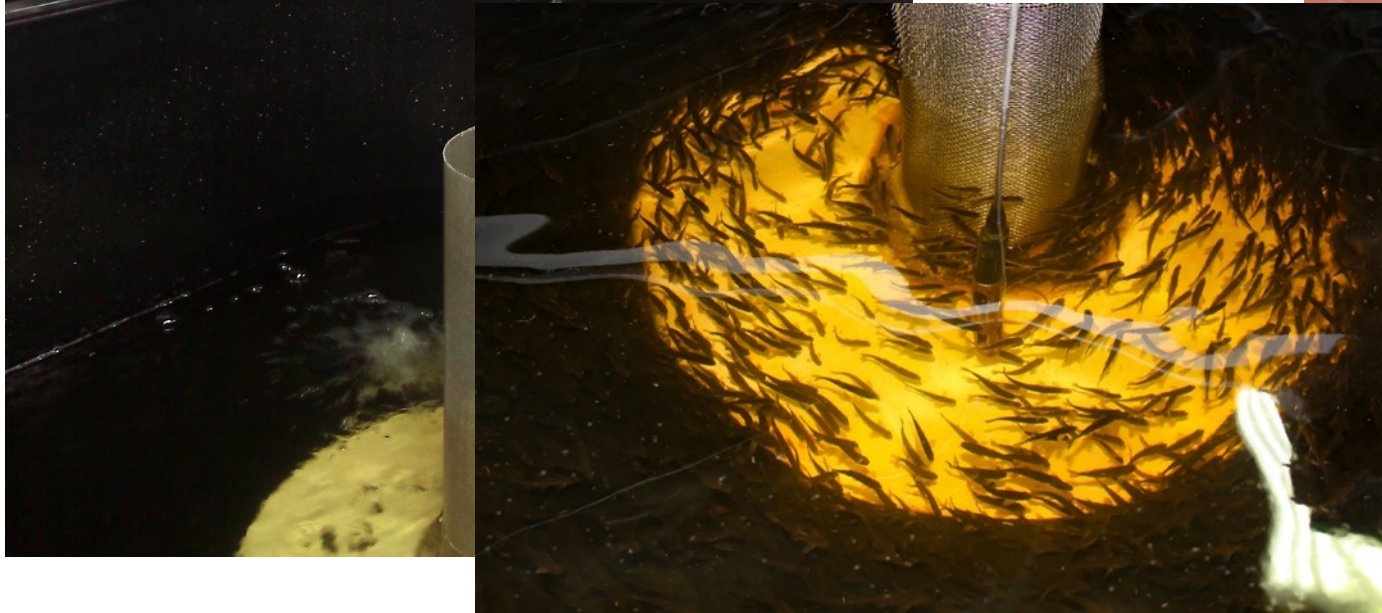
Some of what makes us different



Alevin in an incubation box



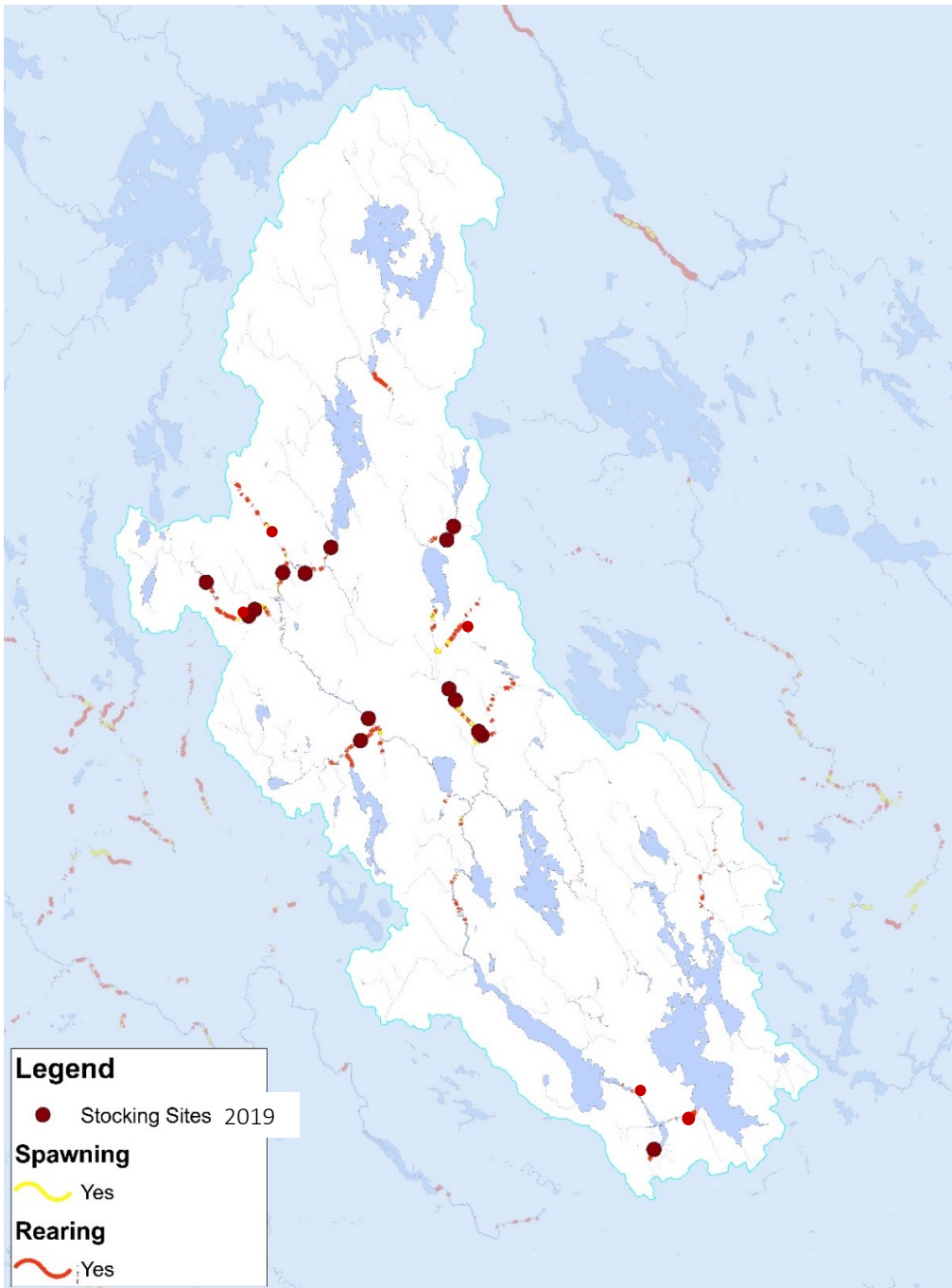
Fall parr at stocking



A "little athlete"
after 1 year in
the river

Stocking

- Stocking densities of 30-150 parr/unit drainage wide over the years
- 150 parr/unit has been the highest densities stocked during the PGPP
- Over 1.2 million fall parr stocked since 2012
- Stocking occurs drainage wide



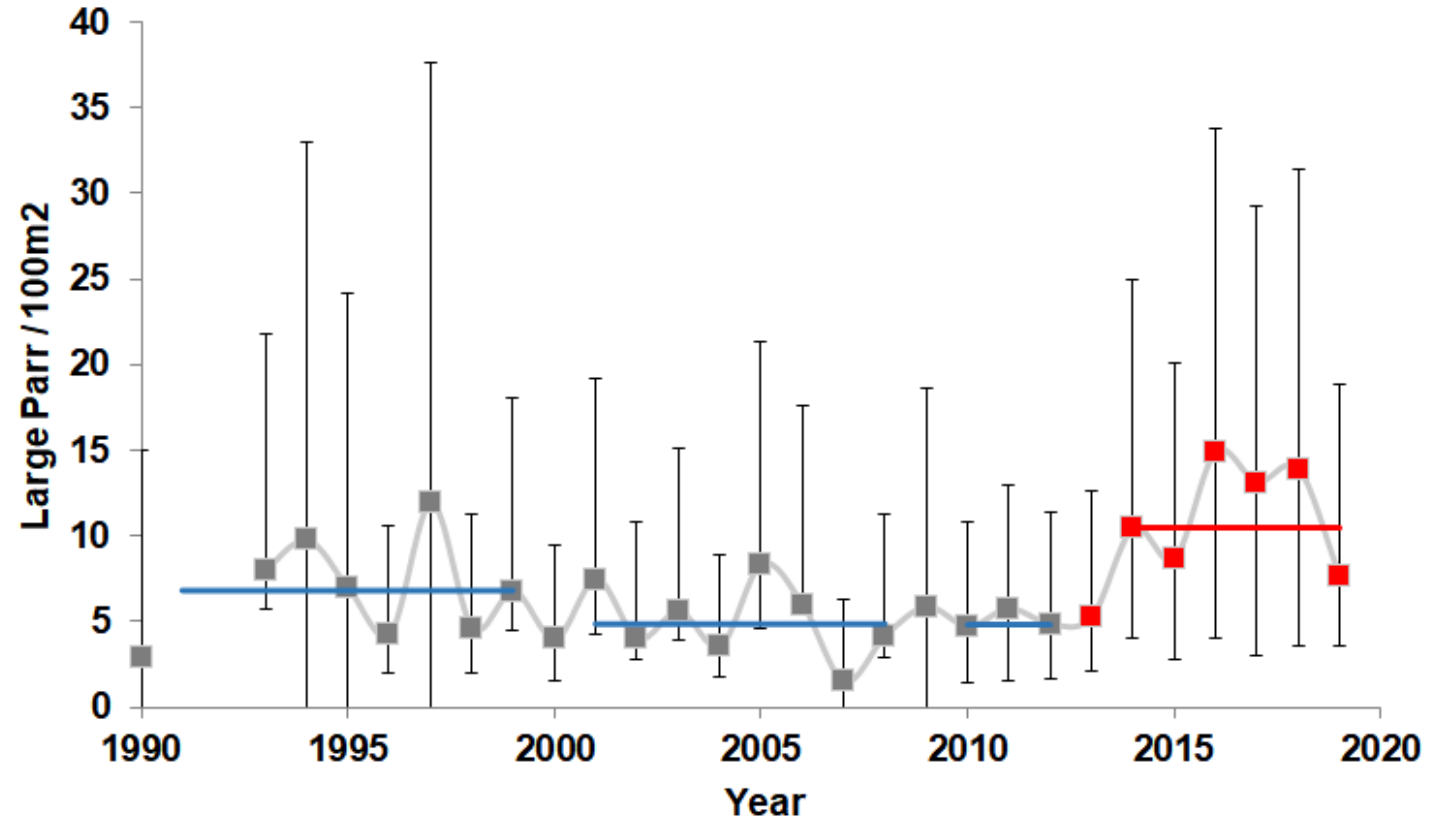


PGPP salmon return from the sea to spawn up to 14 times the rate of fish raised and stocked using other hatchery techniques

How the data is gathered:

- **Electrofishing**
- **Smolt Counting**
- **Redd Counting**

Electrofishing



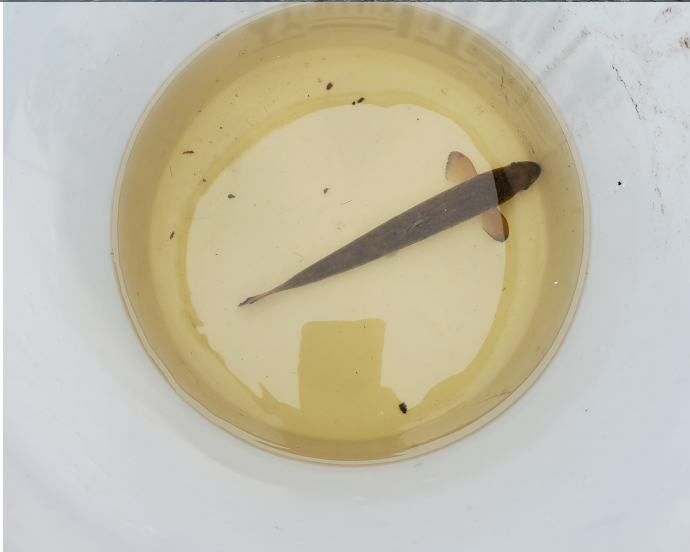
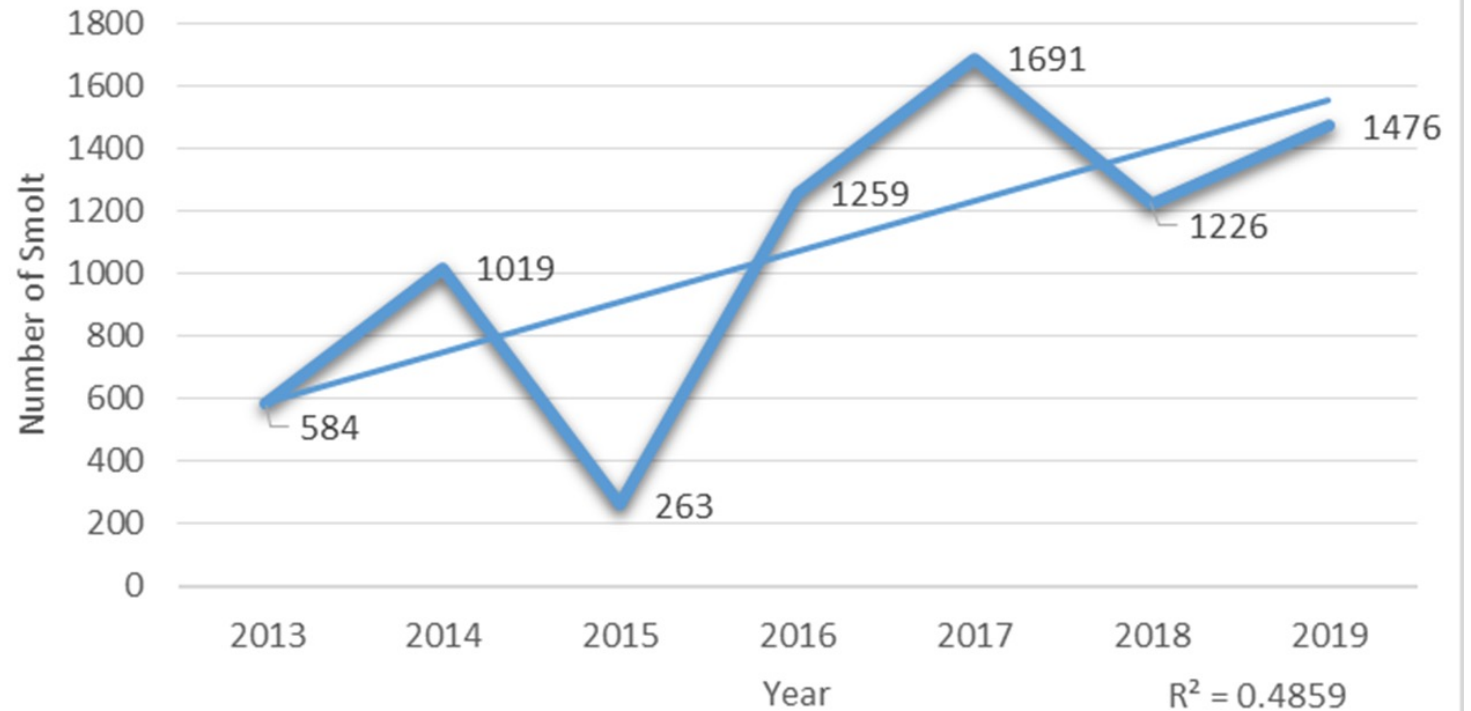
■ Annual Median — Decadal Median

The decadal median during the PGPP is 10.5 parr/unit. The previous decadal median utilizing the unfed fry stocking strategy was 4.9 parr/unit. This is the highest decadal median since electrofishing began in the 1970s. Source – Colby Bruchs Maine DMR

Smolt Counting

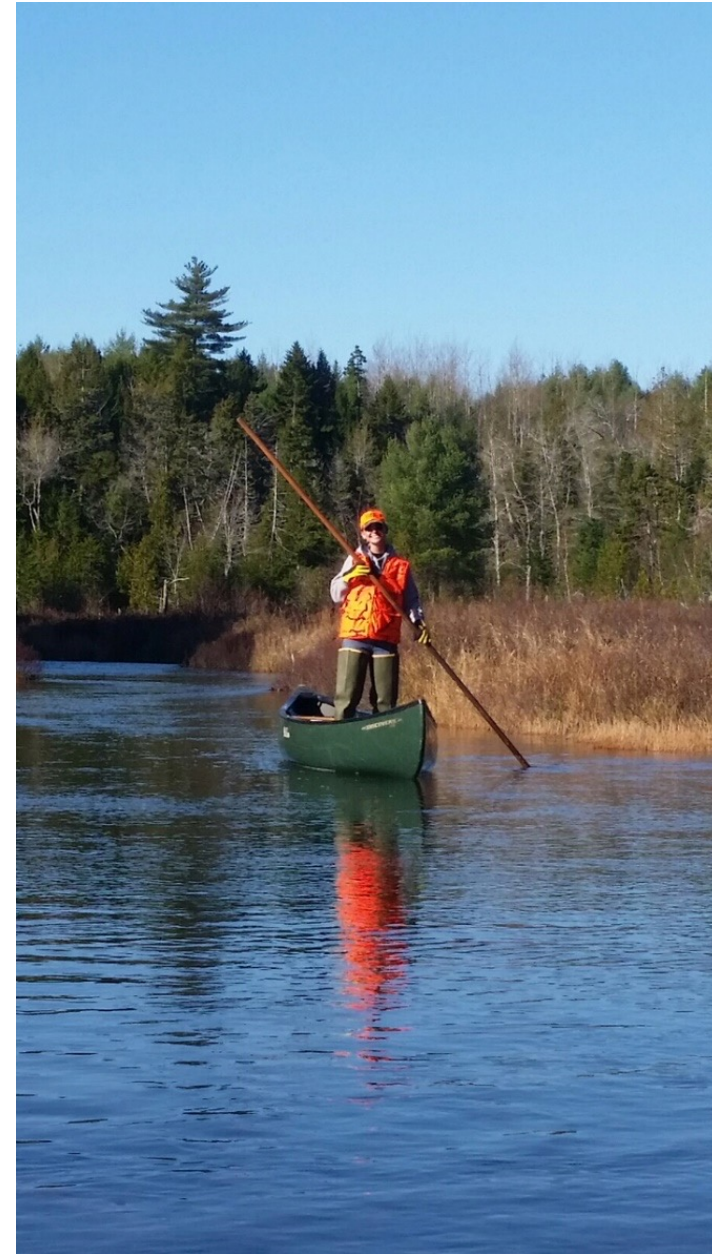


Estimated Total Number of Smolts Produced in the East Machias River by the Peter Gray Parr Project



Redd Counting

The 60 redds observed in 2019 were the highest number of redds since 1998 in the East Machias River.



Priorities in Stocking:

- Unfed fry stocking can prevent extinction but has not produced the robust smolt numbers needed for recovery
- 0+ PGPP stocking should be emphasized, particularly in larger width-class habitat
- At watershed scale, PGPP parr more than doubled older age classes of parr (age 1+ and 2+ parr)
- PGPP parr outperformed fed fry, unfed fry and gravid adult stocking in these larger width-class reaches producing more than 3.5 times more smolts
- Smolt to Adult return rates are up to 14 times better than SARs from other methods



**Agencies are now recommending broad adoption
of parr stocking based upon the results of the
Peter Gray Parr Project**



U.S. Fish & Wildlife Service

Scaling the Peter Gray Parr Project: Increasing Atlantic salmon returns to the Narraguagus and East Machias Rivers in Eastern Maine

MATCHING CHALLENGE GRANT



USFWS MATCHING CHALLENGE GRANT

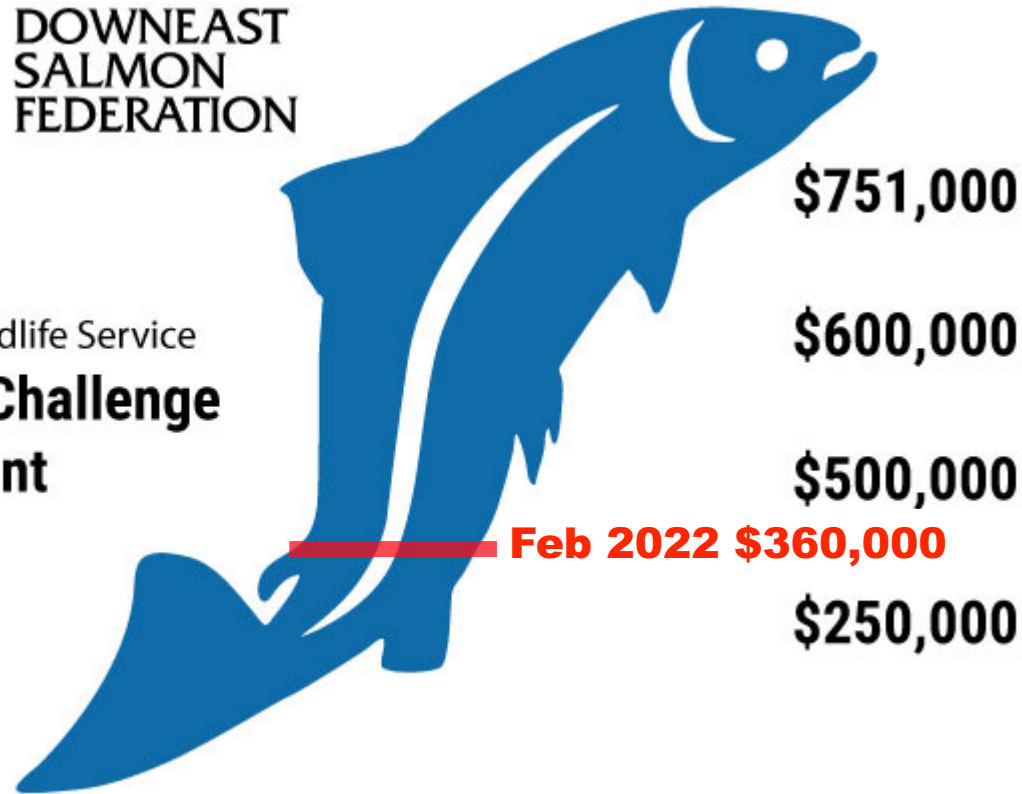
First federal grant for the PGPP.

Since 2002, more than 1,600 individuals and foundations have donated to the project.

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



U.S. Fish & Wildlife Service
**Matching Challenge
Grant**





Support our work:

www.mainesalmonrivers.org/donate

Contact:

Dwayne Shaw

dwayne@mainesalmonrivers.org

207-598-8474