



Welcome

Tonight's informal meeting is to increase awareness and understanding for developing a General Conservation Plan and listen to your ideas, comments and concerns.

Science, Service, Stewardship



Building partnerships through a General Conservation Plan

Public Meeting
Downeast SHRU
August 18, 2011

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Overview

- Atlantic salmon ESA listing
- Aquatic ecosystems
- Atlantic salmon life cycle and habitat needs
- Habitat accessibility and factors limiting species survival
- Conservation plans and recovery goals
- Connectivity and benefits of open rivers
 - Project SHARE
- How to stay involved in the GCP process
 - Open discussion with questions



A Gulf of Maine Distinct Population Segment (GOM DPS) of Atlantic salmon was first listed as endangered in 2000.

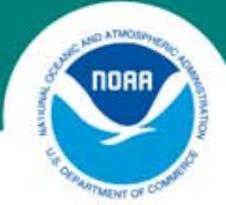
In 2009 the GOM DPS range was expanded to include other large rivers in Maine such as the Penobscot, Kennebec and Androscoggin.

NOAA identified separate geographic areas called Salmon Habitat Recovery Units (SHRUs) for establishing recovery goals.

Background



Salmon Habitat Recovery Units



Aquatic Ecosystems

Ecosystems are formed through interactions with the natural environment that determines species composition and size of the populations

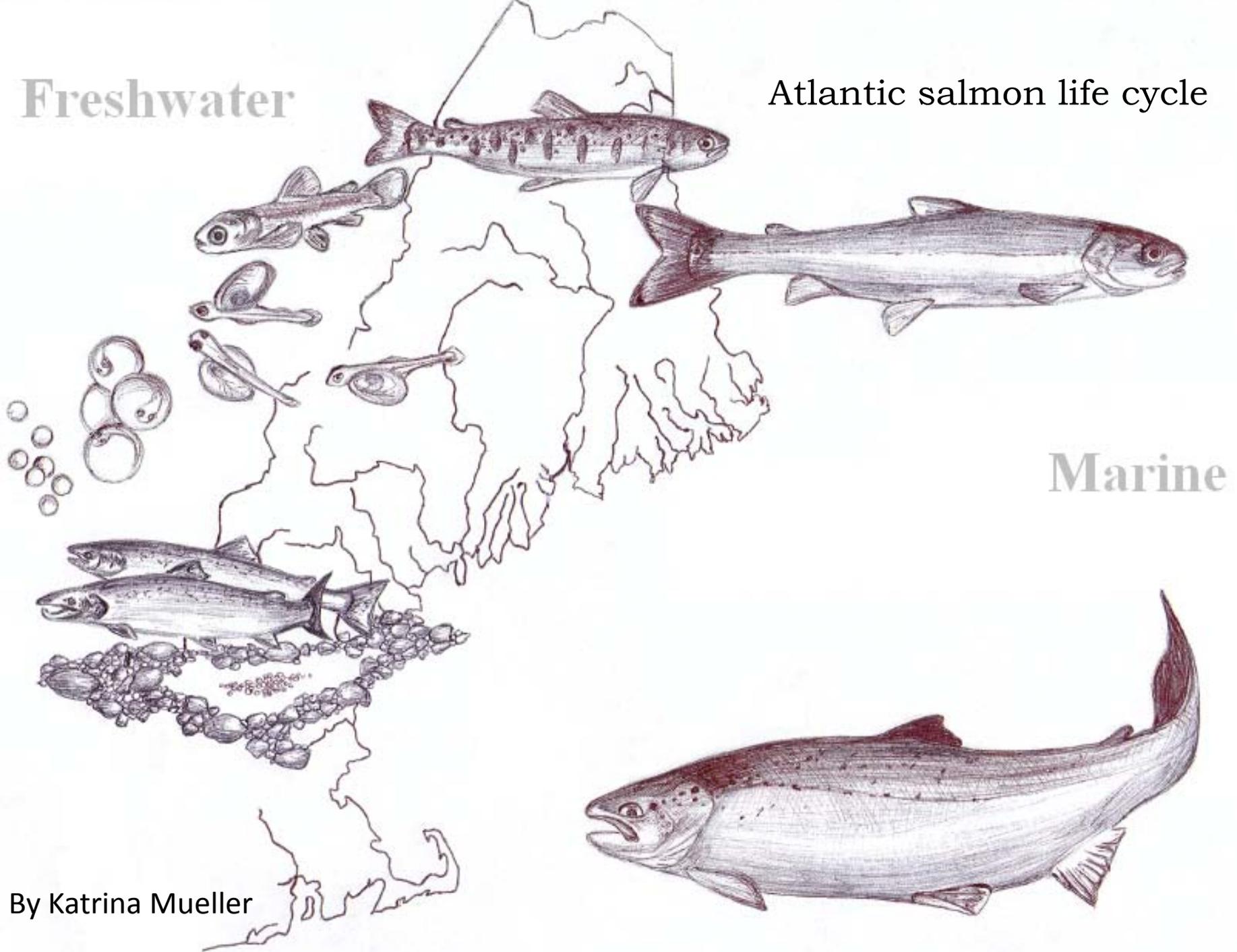
Interactions between biological resources influence life history traits and behavior of co-evolved species

However, human influenced activities increase the rate of change and affects:

- the natural environment
- the range and distribution of species
- the amount of essential habitat

Freshwater

Atlantic salmon life cycle



Marine

By Katrina Mueller



What do salmon need?

Access to essential habitat through an open corridor that provides;

- **adults** timely access to well oxygenated gravel/cobble substrate for spawning
- **parr** access to diverse, abundant habitats for juvenile feeding and growth
- **smolts** timely access to the marine environment

An ocean full of food to support extensive marine migrations and maturation



Where do salmon live?

In freshwater, juvenile Atlantic salmon can live anywhere they can successfully compete for food and space

- Rivers and streams
- Lakes and ponds
- Urban settings
- Estuaries





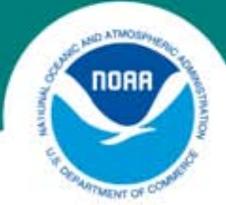
Habitat Diversity

Atlantic salmon require diverse habitat types which includes in stream structure such as; pools and riffles, gravel bars, boulders, undercut banks, large woody debris

- Promotes genetic diversity through natural selection
- Increases their ability to adapt to changing environmental conditions
- Provides options to maximize survival over time

Typical stream habitat in Maine



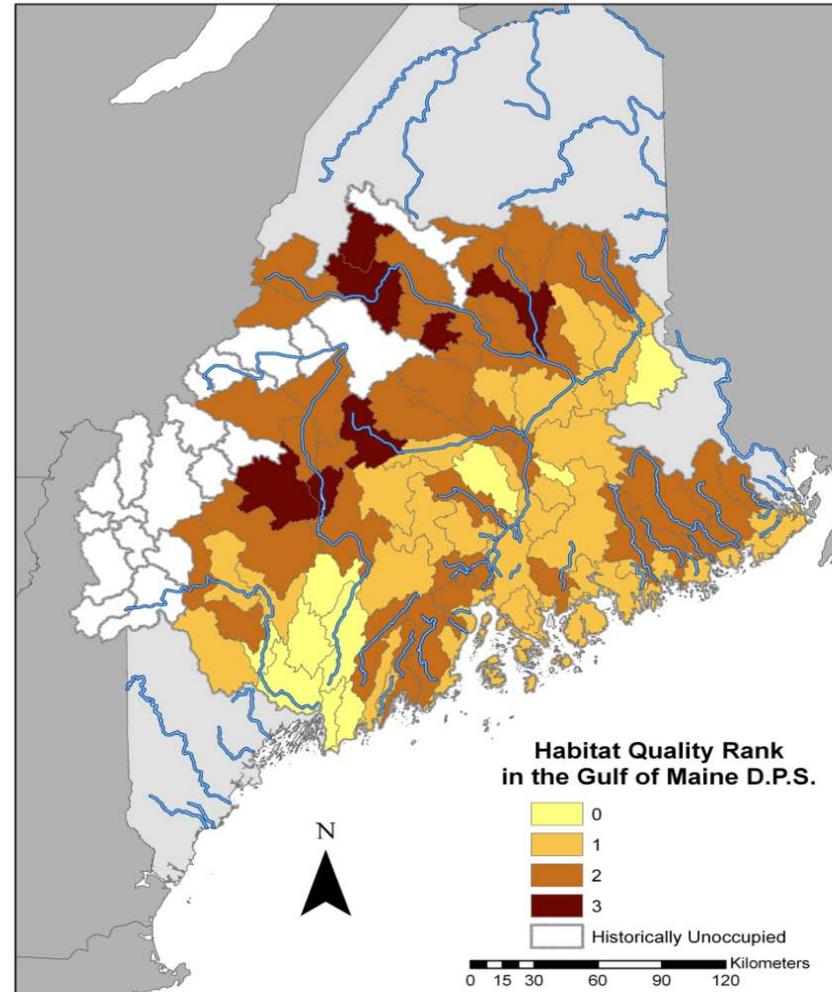


Habitat in the GOM DPS

Historically, over 700,000 units of salmon habitat (1 unit = 100m²) within the GOM DPS

Today there are 87,000 units fully accessible :

- ~ 48,000 units of marginal habitat
- ~ 39,000 units of quality habitat



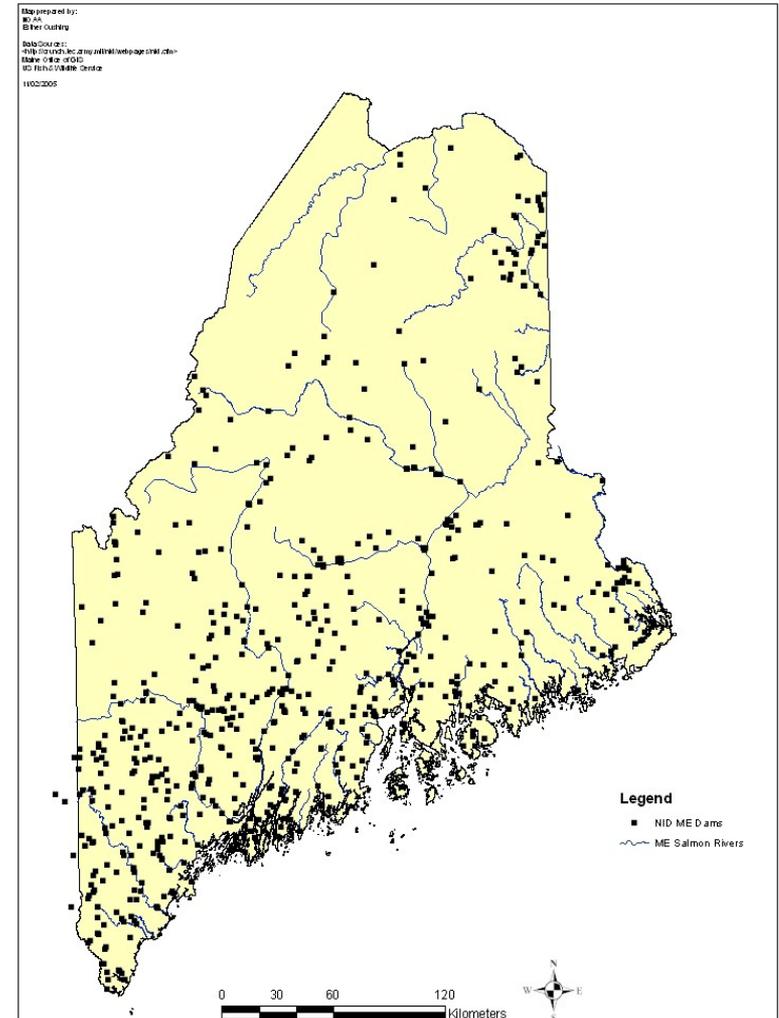


Barriers to migration

782 Dams in Maine

467 documented dams in
the GOM DPS account
for:

- ~ 414,000 inaccessible
habitat units
- ~ 212,000 units with
impaired access
- ~ 87,000 units are fully
accessible





Summary of Limiting factors



- Obstructed access to essential habitat from man-made barriers (dams and culverts)
- Habitat quality and quantity
 - Water temperature, flow and dissolved oxygen levels, impacted substrate
- Introduced non-native species
 - Competition for Food and Space
 - Predation and Disease
- Marine Environment



Why Conservation Plans?

Private lands comprise a large portion of available habitat utilized by threatened or endangered species in the U.S.

Serves as a cooperative agreement between federal agencies and private landowners to manage activities that may harm endangered species on their land

A way to engage private landowners, communities and local governments in conservation planning



General Conservation Plan

Describes project activities and any effects to endangered or threatened species

Provides guidance to avoid, minimize and mitigate the impacts from any take of Atlantic salmon

- Avoiding peak spawning and migration periods
- Reduce project footprint and intensity
- Reduce sedimentation, noise and disturbance
- Identify mitigation approach



Benefits of GCP

Facilitates coordination between state and federal agencies, stakeholders, local and tribal governments

Provides private land owners assurance their activities are in compliance with the ESA

Promotes long term conservation of species and habitat by improving access through dam removal and fish passage



What are the goals?

Provide unobstructed access to quality habitat for spawning and rearing of diadromous fish

Provide streamline approach to promote regulatory efficiency

Increase private landowner collaboration in stream restoration activities to provide long term conservation benefits to many species of diadromous and resident fish



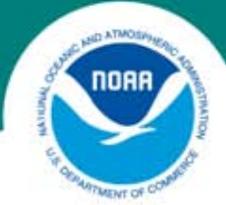
More specifically...

Improved access to 90,000 units of quality habitat for the entire GOM DPS of Atlantic salmon

– 30,000 in each SHRU

Improve or restore stream processes...

- Sediment transport
- Hydrologic regime
- Nutrient flow
- Reduce light and heat inputs



Strategies to achieve goals

- Ecosystem approach
 - Focus on projects where there is some certainty that the restoration will affect multiple species, and no lasting harm to the ecosystem will likely come from it
- Longevity
 - Conduct projects that have a long term benefit and require minimal to no maintenance



Lessons learned...

3 Key elements to prioritizing restoration:

- Principles of watershed processes
- Protection of existing high-quality habitats
- Current knowledge of the effectiveness of the technique

“...watershed restoration should focus on restoring natural stream processes that create and maintain habitat rather than manipulating instream habitats.” Roni et al., 2002



Monitoring for effects

Projects are considered ecologically successful if:

- Provides for a more dynamic healthy river system
- Measurable improvements to river conditions
- Able to withstand changes to the river system
- No lasting harm is inflicted on the ecosystem
- Incorporates both pre and post assessment

Palmer et al. 2005



Connectivity

Merriam-Webster's definition states “ the quality, state or ability to be connective or connected”

Placed within the context of watershed restoration applies to;

- physical habitat (ex. connectivity between river reaches, tributaries, or rivers and oceans) and;
- intrinsic, cultural, spiritual and emotional values that affect the people and communities along the river.

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Open rivers provide opportunities for...



Fish Migrations









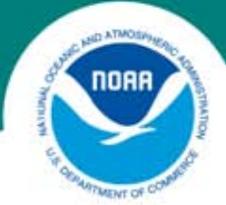
<http://www.fishbase.org>



Thanks for Coming

For more information, please see the Website;

http://www.nero.noaa.gov/prot_res/altsalmon/conservationplan/index.html



Staying Involved

- Review draft documents available on website
- Provide written comments during formal public comment period
- Participate in local community meetings during project development
- Participate in restoration projects as a volunteer