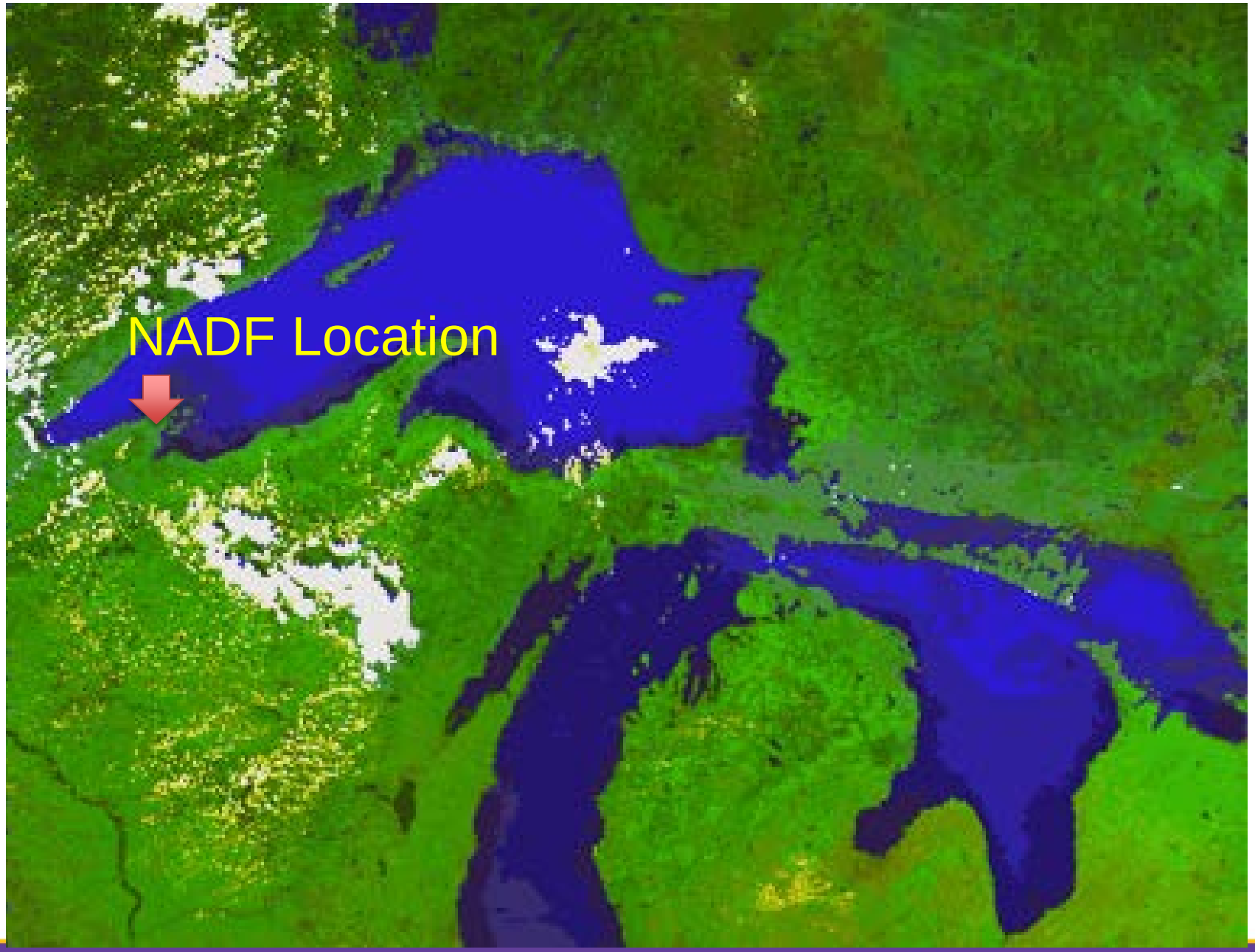

NADF Location

UWSP Northern Aquaculture Demonstration Facility

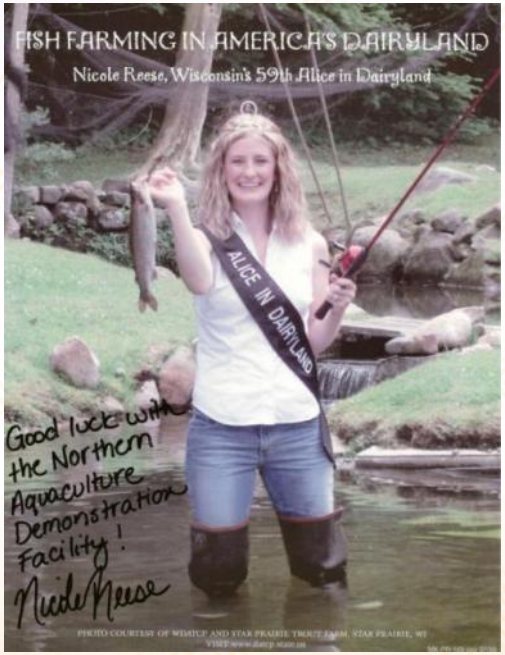
Partnership to Advance Wisconsin Aquaculture

Presented by: Gregory Fischer
Facility Operations Manager

UWSP-Northern Aquaculture Demonstration Facility

"Promote & advance the development of commercial aquaculture in a northern climate"

Over 2,000 registered fish farms in WI



NADF: A Wisconsin concept, not just a location…

Partnerships to Advance Wisconsin Aquaculture

- Partnerships with private, federal, tribal, state and university entities around the world.

- Research projects with various cold, cool and warmwater fish species encompassing a variety of areas including aquaponics, baitfish, food fish production, outdoor ponds, wetlands, native species rehabilitation and supplementation.

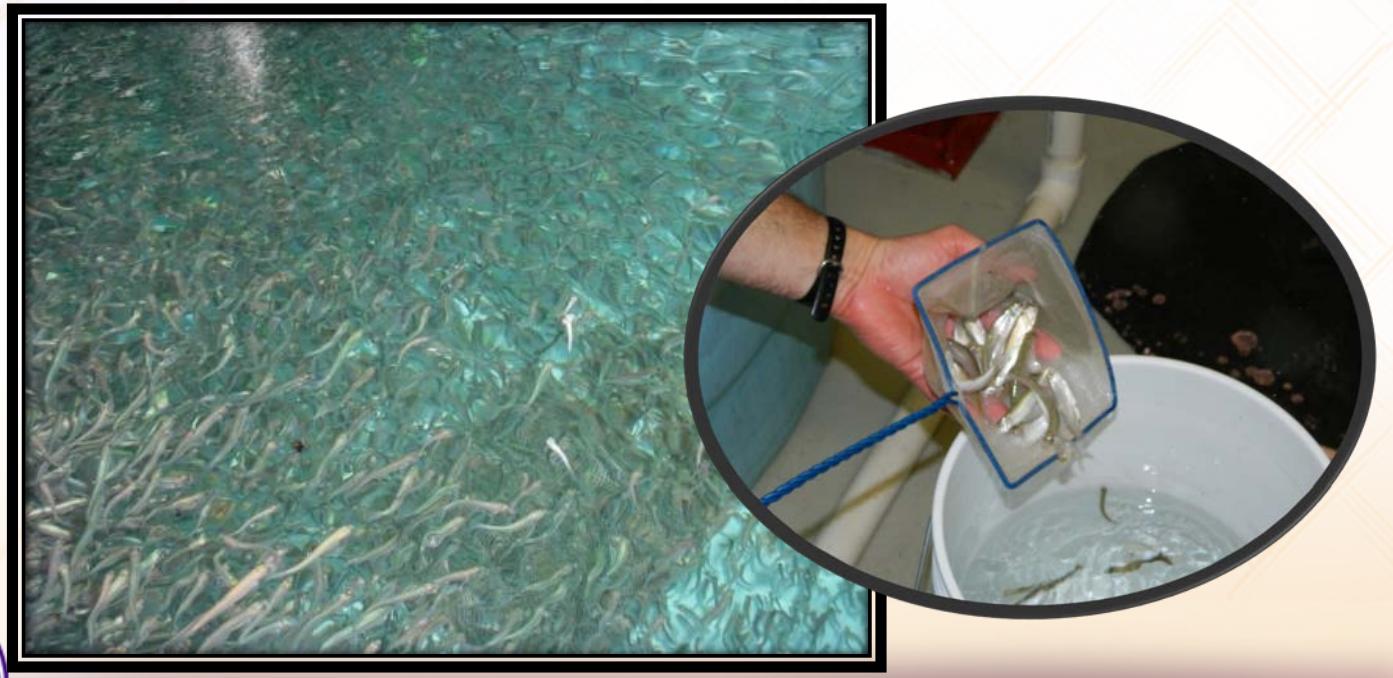
UWSP-NADF Recipe for Success
= Partnerships

- Feasibility of raising Arctic Char utilizing sustainable, intensive rearing systems for food fish production.
  - Private Partnerships with Safe Harbor and Aquaterra, Wisconsin

Multiple Rearing Systems

Partnerships=
UWSP-NADF Recipe for Success

- Developing Rearing Protocols for Lake Herring production
  - Collaborations with U.S. Fish & Wildlife Service, Red Cliff Band of Lake Superior Chippewa, Great Lakes Fish Commission, Great Lakes Fishery Commission and others
  - Stock rehabilitation and enhancement for the Great Lakes



Partnerships=

UWSP-NADF Recipe for Success

University of Wisconsin-Stevens Point

Outreach & Technology Transfer

- Partnership with UW-Extension
  - Helped create >30 jobs in 5 years
  - Helped save >450 WI jobs
  - Over 17 workshops in:
    - New aquaculture business
    - Using farm ponds to raise fish
    - Rules & regulations
    - Aquaponics
  - >7,000 direct contacts with fish farmers
  - >300,000 indirect contacts with farmers, investors & future farmers
- Liaisons for understanding state regulations and establishing new laws

Why Walleye??

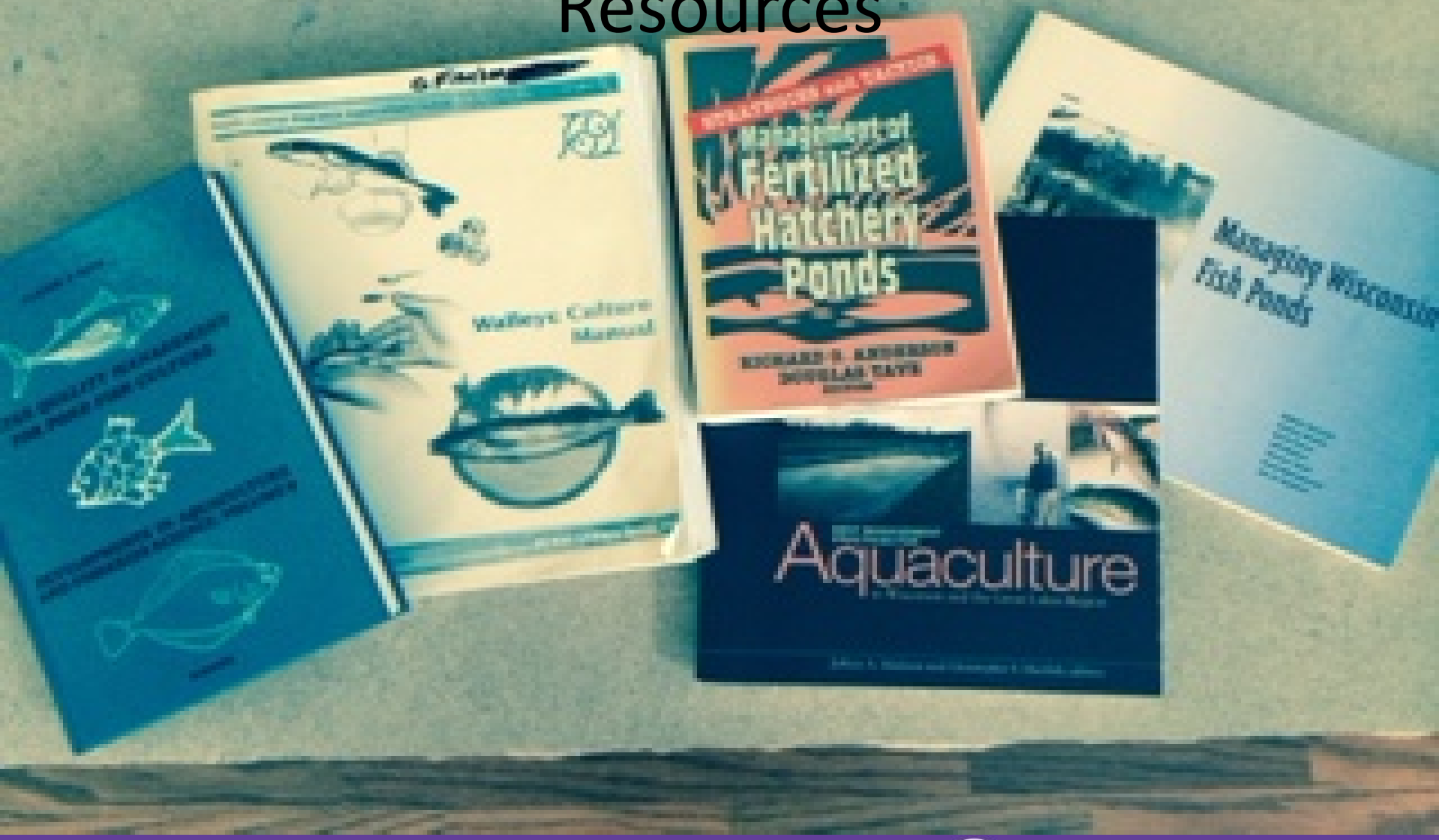
- Strong Stocking Markets- enhancement
- Wisconsin Walleye Initiative-$12 million
- Partnerships with Private, Tribal and Public Fish Culturists and Hatcherys
- Typically reared in outdoor ponds with natural forage for summer season and stocked in the fall
- WDNR buyback of extended growth walleye for $1.75

Why Walleye??

- Food Fish Market
- Friday night fish fry
- Importing a lot of fish
- >11 million pounds

Bob Summerfelt
The Real Walleye Guru

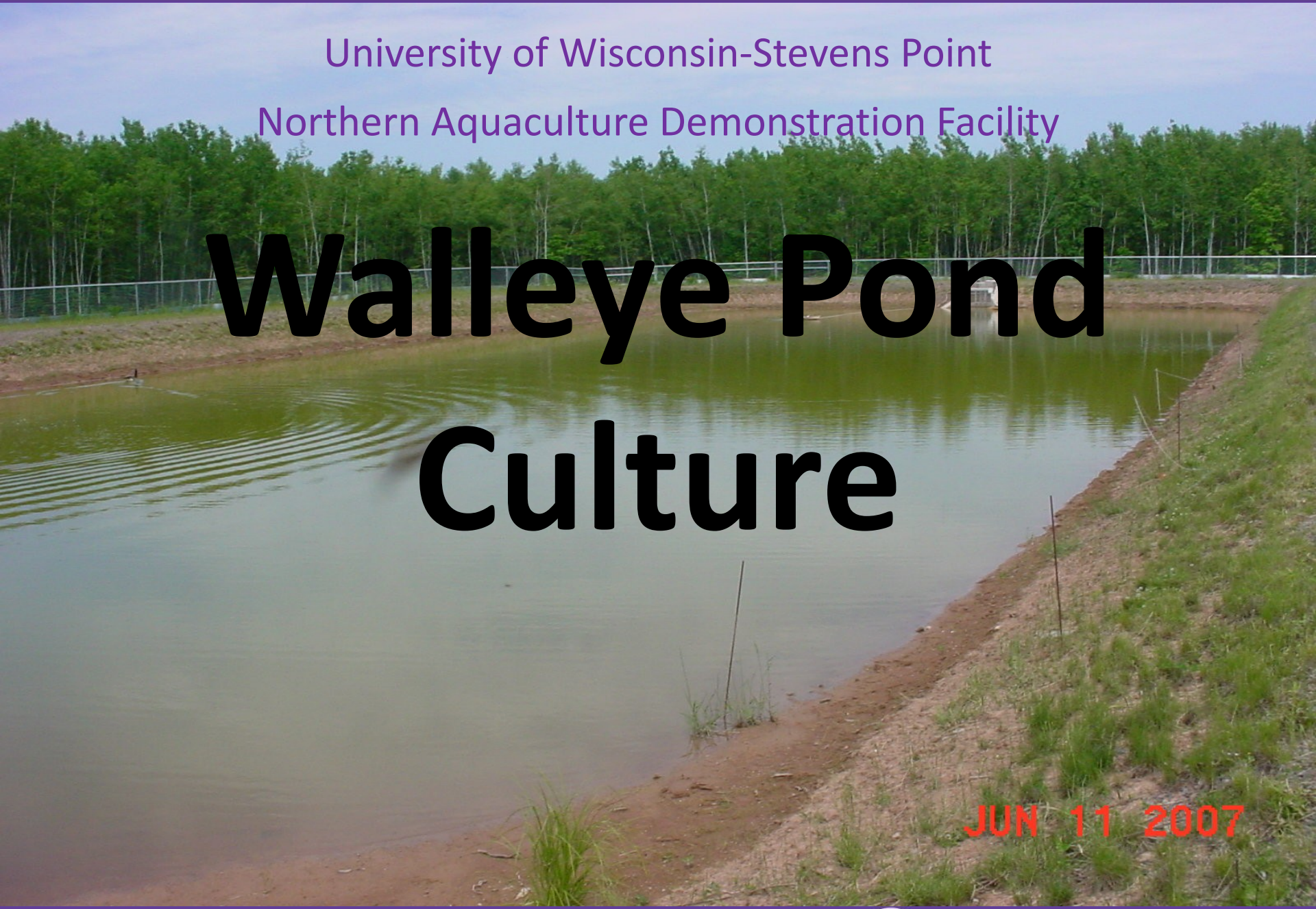
Pond Culture Resources



University of Wisconsin-Stevens Point

Northern Aquaculture Demonstration Facility

Walleye Pond Culture



Wild Broodstock Collection

- Conservation
- Stocking
- Local Genetics


NADF


NADF

Egg Preparation

Adding tempered clay

Stirring to coat eggs

Egg Preparation

- Pour off clay
- Rinse with fresh water
- Allow to water harden
- Freshen water periodically
- Iodophor disinfection
- Move to incubators

Walleye Egg Preparation

- Eggs are collected from adult male and female walleyes in spring(April-May) utilizing fyke nets set in natural spawning areas

- Eggs are fertilized, clayed and transported back to hatchery

- Eggs are cleaned with fresh water and disinfected with 100 mg/L Iodine/15 min.

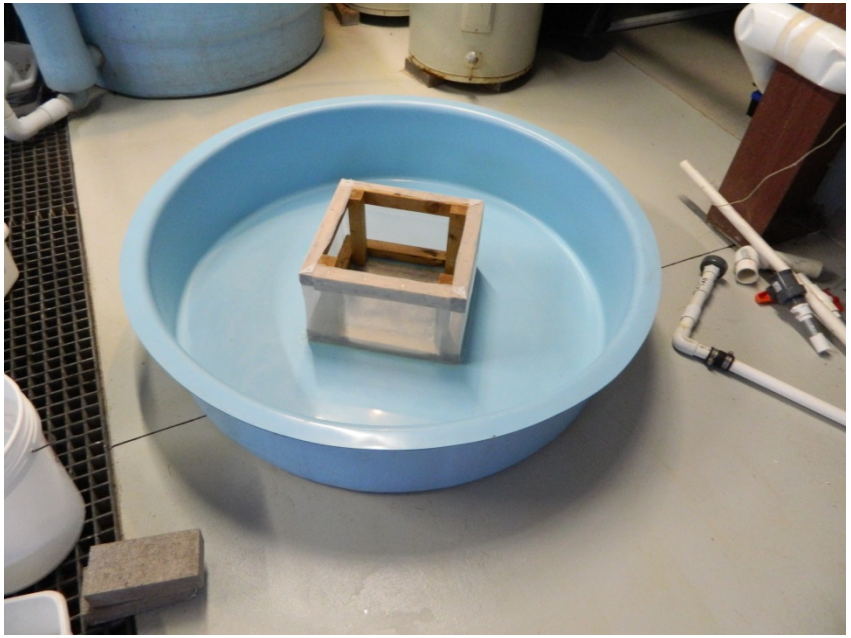
- Water hardened eggs are measured and placed into bell jars

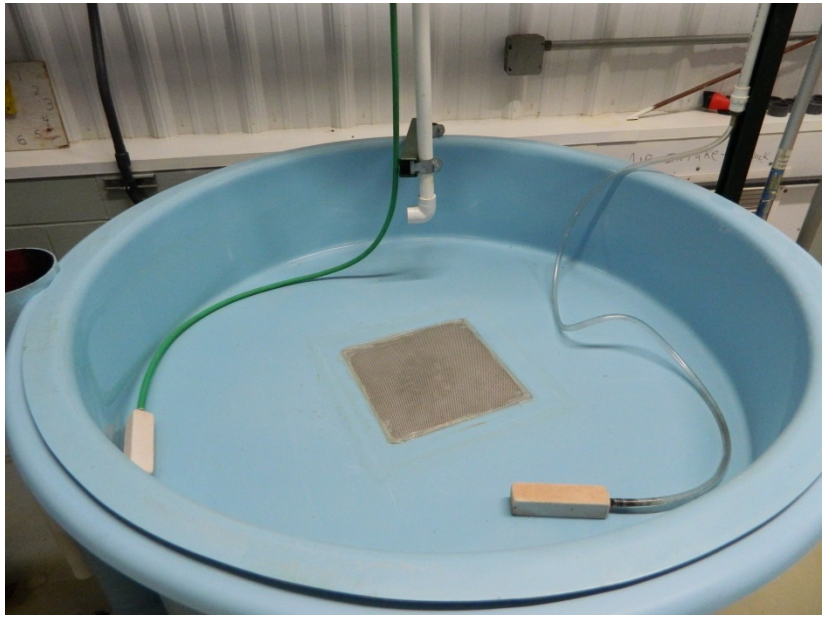
Bell Jar Incubation Setup with Fry Collecting Tanks

Fry Collecting Tanks with Inserts

Critical components:

- Removal Fry insert tank
- External standpipe system
- Screen Box with aeration tubing
- Light for fry collection





Walleye Egg Incubation

- Initial water temperature 48-50ºF
- Gently roll eggs in the beginning (0.4gpm) with aerated/degassed groundwater
- Increase water temperature slowly to 58ºF to speed up hatching
- Increase flow rate to 0.7gpm once eggs are eyed up

Walleye Egg Incubation

Dead egg removal

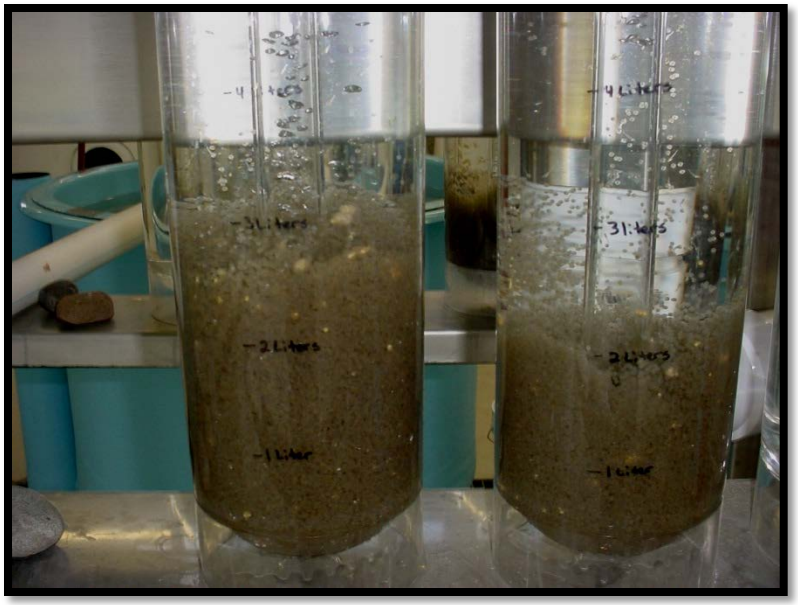
- Dead eggs (white) accumulate at the top of jar
- Dead eggs need to be removed daily to limit fungus growth
- Use of simple siphoning tube constructed of piping and clear plastic hose

Walleye Egg Incubation
Chemical Treatment

- Modified chicken waterer with hole drilled in bottom ring
- Chicken waterer is placed to drip into water headtank feeding bell jar system
- Set up for 15 minute (1,600ppm) formalin drip daily based on flow rate
- Use safety equipment when using chemicals

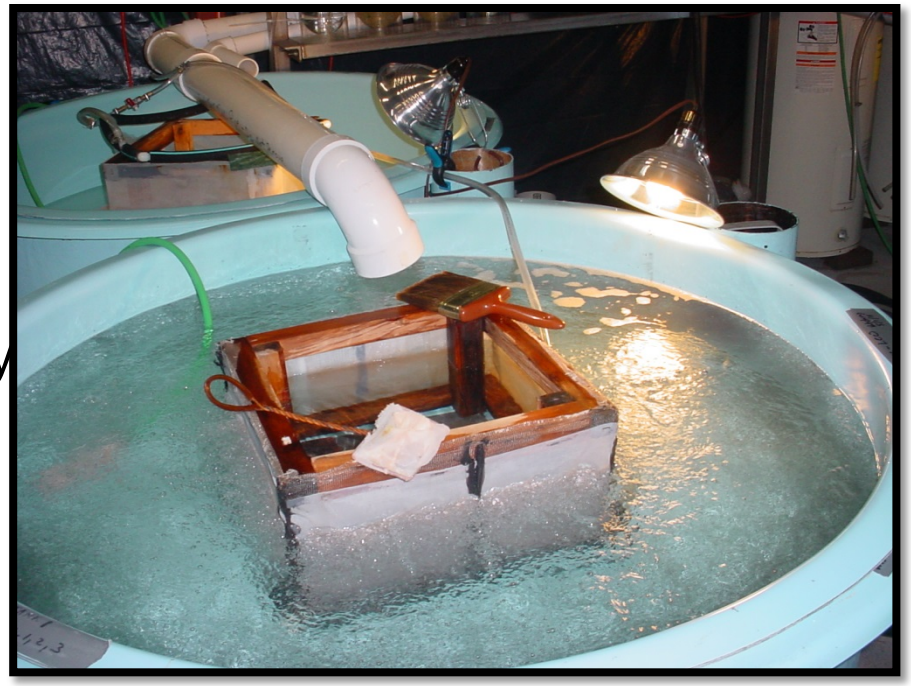
Walleye Hatching and Fry Collection

- Discontinue formalin treatments
- FORMALIN WILL KILL FRY!!!
- Remove screens from bell jars to allow fry to swim out
- Fry swim out of bell jar into collection tanks



Walleye Hatching and Fry Collection

- Collection tanks have large box style screens over drains to maximize screen surface area
- Run air bubble strips along screen to prevent clogging and clean frequently during hatching
- Strong swimming fry 3-5 days old can be concentrated in the collection tank utilizing a light source

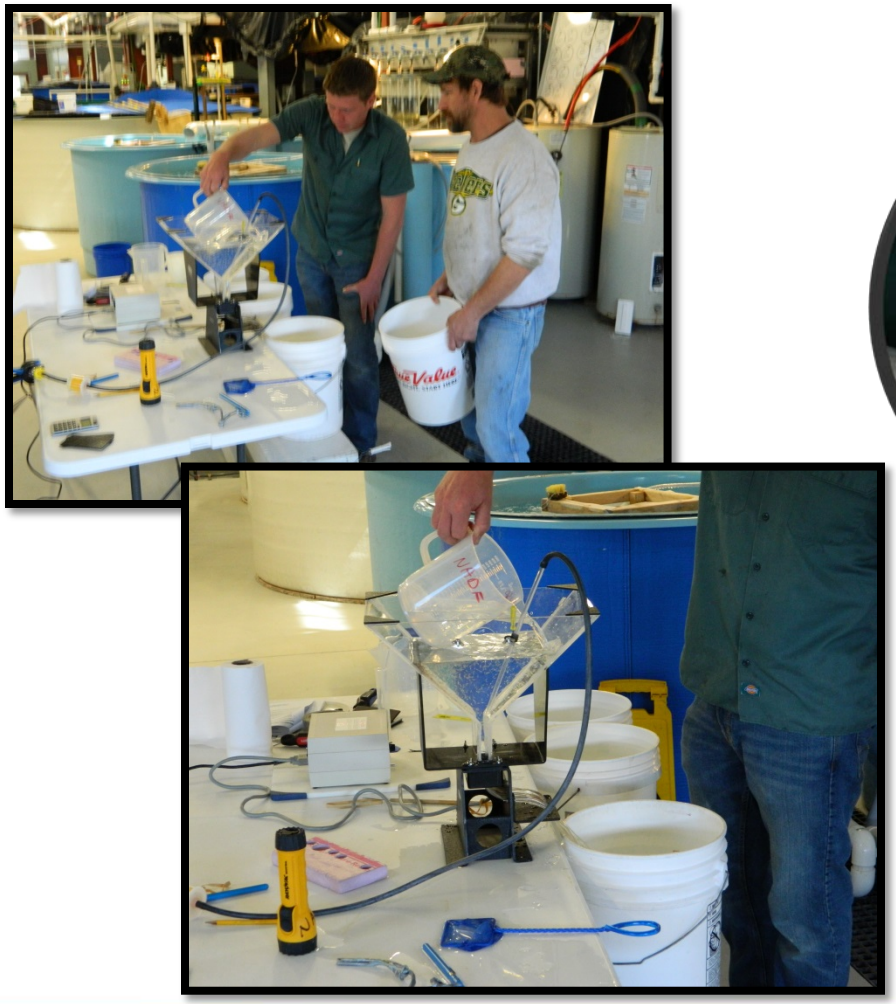


Fry Size

8-10 mm

Fry Enumeration

Jensorter Fry Counter



XperCount Fry Counter

End of Egg Incubation and Hatch

- Questions – 5 minutes

Fish Management

- Fry stocking into ponds
- Walleye
- Generally hatched out from eggs in bell jars
- Stock ponds with 3-5 day old strong swimming fry collected by light
- Stock fry on calm day
- Temper fry into ponds slowly