



Walleye Culture 101

prepared by

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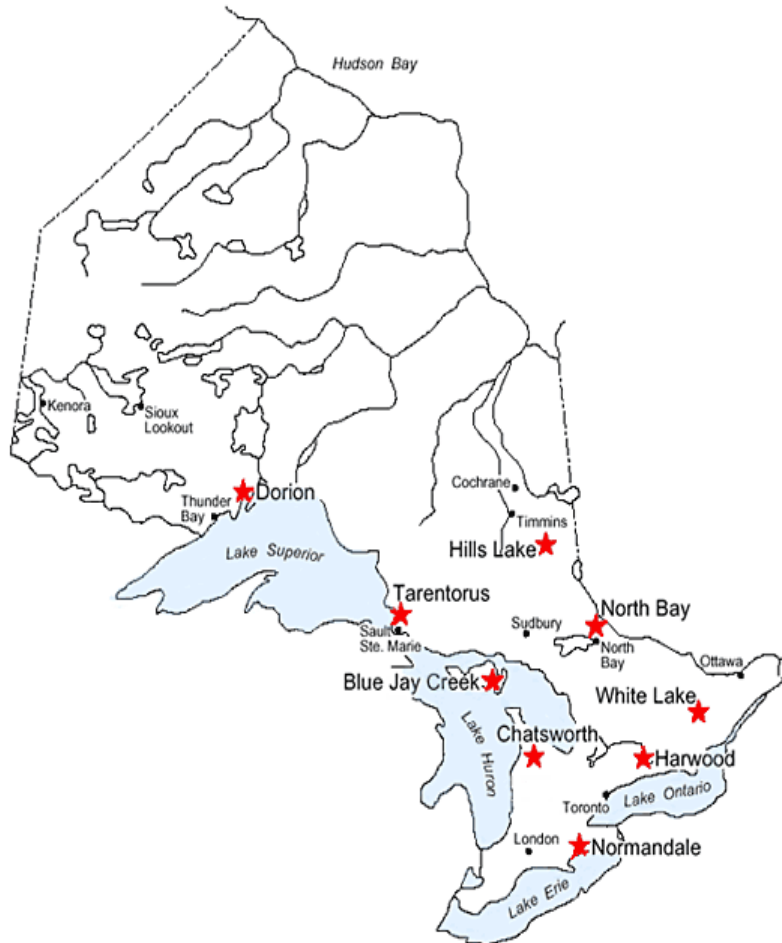
Blue Jay Creek Fish Culture Station

Fish Culture Section, Fish & Wildlife Services Branch

March 24, 2015

Blue Jay Creek FCS

Location



Facilities and Production

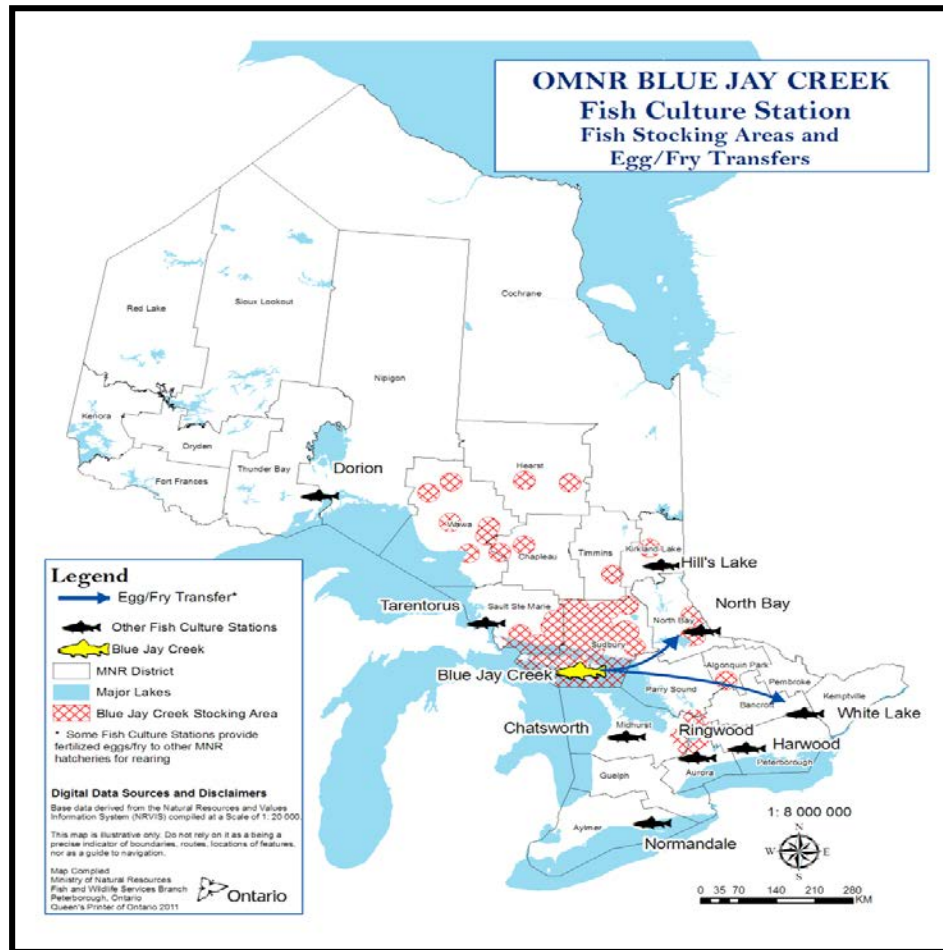
Blue Jay Creek Main Station

- ❑ Single pass, spring-water fed
- ❑ Indoor facility
- ❑ Traditional production lake trout, F1 splake, rainbow, incubation and early rearing of walleye intensively, musky intensively.

Sandfield Sub-station

- ❑ Lake-water fed (single intake)
- ❑ Small number of indoor tanks
- ❑ 7 outdoor ponds totalling 2.8 acres
- ❑ Species produced
 - ❑ overwinters 600 K lake trout;
 - ❑ capacity to produce 350 K walleye SPF and 30 K walleye FF
 - ❑ 750 K walleye eggs or fry to community hatcheries
- ❑ Walleye production bottleneck = ponds
- ❑ Not able to meet client demand

Where Blue Jay Stocks its Fish



Walleye Culture Part 1

Capture and Spawning of Mature fish

Incubation of Walleye eggs

Care and Enumeration of Walleye Fry

Seeding of Walleye Ponds with Fry

Raising of Walleye to Various Stages

Walleye Pond Management, Harvest and stocking

Capture Methods of Spawning Adults

Trap nets

Hoop nets

Electro-fishing Boat

Generally Live Capture



Egg Collecting

Ryman effect

Correct # adult spawners to collect

Good versus Bad Cross

To Pool or Not to pool
Families



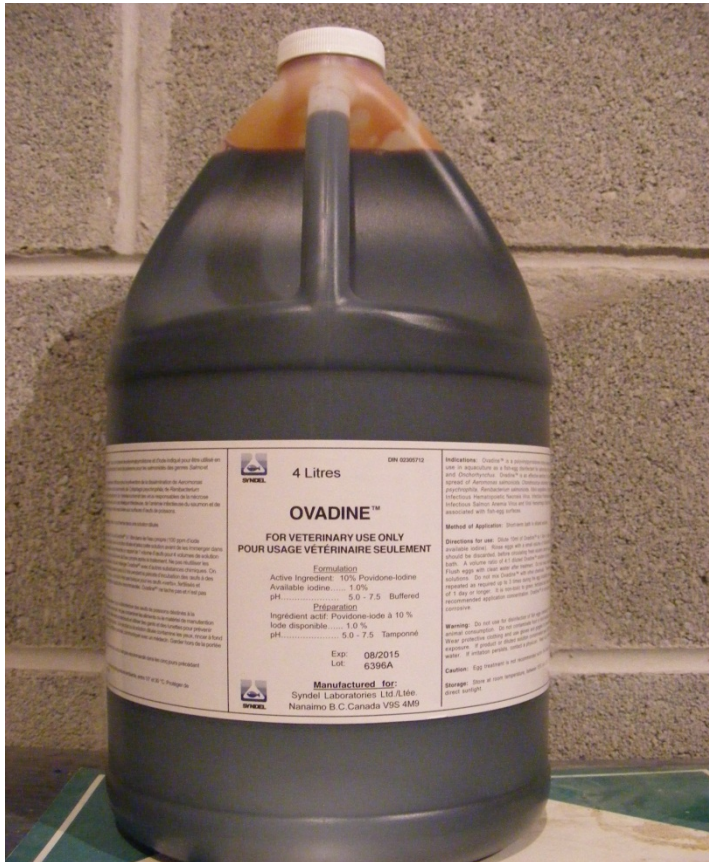
Sampling and Egg Conditioning

Preparing eggs for incubation

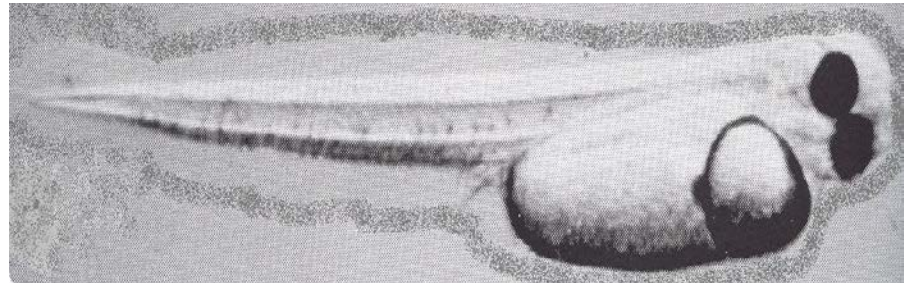
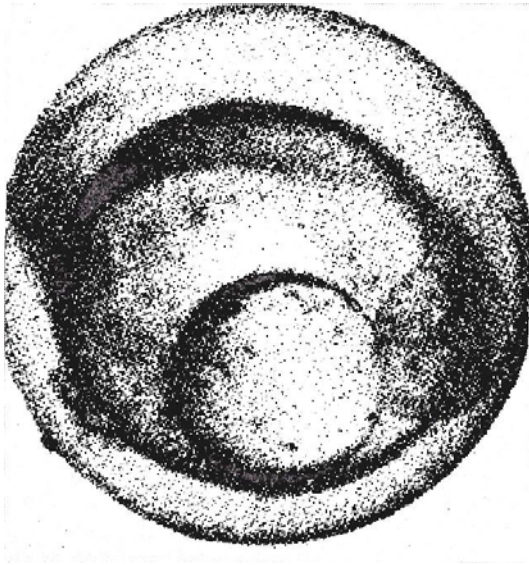
Mudding and stripping agents



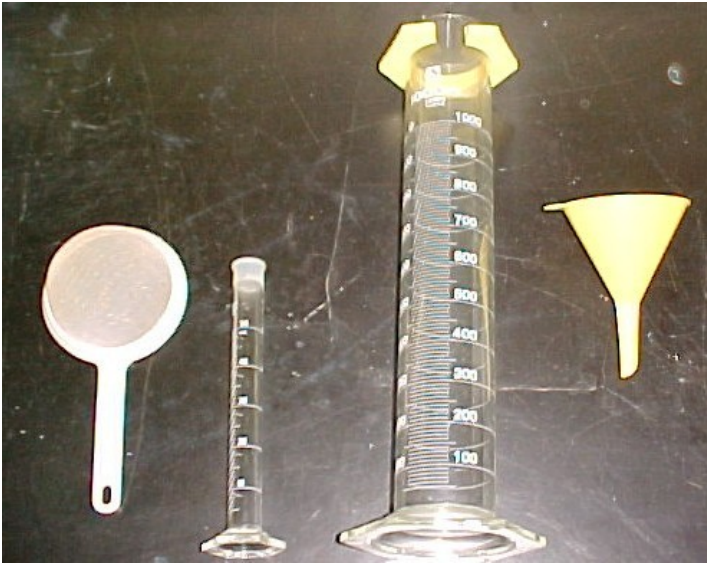
Biosecurity and Gametes



Incubation Egg Development



Walleye Fry Inventory



Accurate Numbers of strong fry for optimal Survival
Accurate planting of Ponds to ensure
“Pond Balance”

Pond Designs



Walleye Pond Preparation



- ◆ Dry Pond start
- ◆ Dry soya application
- ◆ Fry seeding rate
- ◆ Fermenting soya bean
- ◆ Oxygen/ Temp monitoring
- ◆ Weekly sampling of fish

Walleye Pond Harvest



- ◆ Draining
- ◆ Harvest



Ensuring the BEST pond harvest



Advanced Rearing

- ◆ Economics
- ◆ Fish Health Management
- ◆ Rearing Environment
- ◆ Techniques



Thank You!



Walleye Culture Part 2

- Size of mosquito larvae at hatch.
- Cannibals!
- Production of fish for stocking relies on extensive (i.e., pond) culture
- Ponds are expensive and production per unit area is relatively low
- PFCS is currently trying to apply intensive culture techniques from Iowa State.
- If successful, a game changer.
- Many challenges, but making progress



Walleye Culture Considerations

Intensive culture of 24-36 hour old walleye fry

Set up of system Flow Through or Recirculation

Components of the system

Fish requirements

24-36 Hour old fry

Key

Stronger fish to start on diet

Weak fish have perished



Flow Trough vs. Recirculation

Key Factors

Temperature

Oxygen

Turn over(exchange rate)

Diet – Micro

Turbidity



Early and advanced rearing

Recirculation

- When you don't have the temperature profile



Flow Through

- When temperature profile is adequate



System Components

Circular tanks sized appropriately
Fine Screen 30 -50 Micron mesh size
Clay injection to maintain turbidity
- for recirculation only
Inline Heater
Drum filter sized for your system
Recirculation pump sized for the system
Bio Filter and Low head Oxygen system
Ozone generator
Spray bars
Micro feeding system

Mechanics of the system



End Product

