Net Pen Aquaculture
Open Net Pens

- Lower unit costs for capital and operation than land-based.
- Needs to be located in more remote areas to avoid potential user conflicts.
- Site selection is vital as many sites have high surface temperatures during the summer months.
- Need to be sufficiently large to be economical (Rule of thumb at least 400 tonnes per year).
  - Every site and area is different and a site business plan/feasibility study should be conducted to confirm minimum tonnage threshold based on location/area.
- Location, location, location – not in a small confined hypolimnion area and location to minimize risk of ice movement and severe weather.
Open water net pen farming - early 80’s
85% of Ontario’s rainbow trout
11 farms – 6 first nations
~800,000 to >3 million lbs/farm
Net Pen Systems

Steel Net Pens

HDPE Plastic Net Pens
Steel Net Pens

- Become more intimate with your stock (behaviour, signs, health, feeding).
- Easy to work from.
- Very Safe to work from.
- Can take weather, better in low energy sites.
- Not for off shore locations.
- Ice flows can be a problem.
HDPE Plastic Net Pens

- More space in between Net Pens.
- More forgiving at high energy sites.
- Independently moored to a system grid, in theory you can detach and go.
- Strong and durable.

- Do not spend as much time with the fish or on each cage.
- Travel to each net by boat.
- Can be more of a challenge to work from depending on age and model.
HDPE Plastic Net Pens

Can be a great option for extreme weather.

100 km/hr winds / Force 10 shown in picture.
Submersible Net Pens
Submersible Net Pens

- All the benefits of steel net pens, but you can sink these ones on purpose.
- Avoids ice flows.
- Avoids bad storms.

- This style of submersible net pen can take some time to sink, so proper planning is key.
Storm Safe Submersible

- New technology already trialed and deployed.
- Can avoid ice and bad weather in a matter of mins.
- All the benefits of HDEP plastic net pens but made of steel.
- You can raise the cages out of the water.
- Net pens can be sunk remotely from shore.
- Wide walkways for improved safety and improved ability to work from.
Buzwah Fisheries
Wiikwemkoong Unceded Territory
Buzwah Fisheries
Wiikwemkoong Unceded Territory
Eastern Island, operated by Cole-Munro
Aquacage Fisheries
Wasauksing First Nations, Parry Island
Other types of Basic Equipment

Infrastructure is as important as anything!!

• Anchors
• Nets
• Bird Nets
• Rope
• Chain
• Shackles
• Thimbles

“If you can’t keep your fish in the cage, what’s the point!”
Feeding

• Feed is one of the highest cost associated with fish farming.
• You do not want to waste feed as you are just throwing money away.
• Always monitor environment conditions and know your fish’s feeding behaviour.
• Well trained, experienced employees with a “care factor” is key.
Capacity to hold tonnage assist in reducing transport cost’s and constant handling.

A good spread to cover as much surface area as possible assist in reducing stress and builds better feeding behaviour.
Under Water Camera’s

• Improves on feeding techniques and results......
• You can use for more than just feeding....
Fingerling Entries

- Shipped from south on Transport trucks.
- Then either transferred by boat, or directly to site if site is connected to land.
- Important to reduce stress during delivery.
- Once fingerlings are settled and happy get them on feed.
- Important to spend the extra time with fingerlings for best introduction possible.
- Ensure you have the right sized nets!
Harvesting

• Hand Netting
• Brailing
• Pesculators
• Fish Pumps
• Hauling in Fish Totes
• From boat or directly onto land
• Transported to processing plant by Road.
• Other techniques are wellboat, live hauling, stun and bleed.
Weather

• Location, Location, Location!
• Ice flows can be destructive, must be able to counteract!
• Wind can be devastating and dangerous!
• **NEVER TAKE WEATHER FOR GRANTED!**

• We are good at siting sites both for good growth sites but to deal with environmental conditions.
• Equipment and infrastructure is built to last now.
• Use the right equipment.
• Submersibles, booms help.
• Inspections and maintenance are **sooooooo** important.
Fish Health

- Regular mort collection
- Dip netting, divers, uplift systems
- Good practice to open up to see what’s happening
- Always cull moribund fish, Labs can be very helpful

- Never take Bio-security for granted, its best to be safer than sorry!
- Not many fish health issue in Ontario, lets keep it that way!
Environmental Sampling

- Baseline Data is important.
- Daily monitoring is key.
- Annual sampling protocols are important for historic stats and reporting to Chief and Council.
- Communities should set up their own Aquaculture Permits and Policies.
Many years of research on the effects of cage aquaculture on the environment and where to locate farms
It’s a Way of Life!!

- It’s a commitment, fish farming is not a 9-5 job.
- Very satisfying and exciting.
- No two days the same.
- Self pride.
- It’s a passion for great results!
- Get paid to work with fish in the great outdoors, SURE….sign me up!!
Benefits of Inland Aquaculture

Not a problem in Freshwater 😊
Thank you