Net Pen Aquaculture

Little Current, Ontario

May 30, 2018
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 Cages

HDPE Plastic Cages
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 proven.
- Can avoid ice and bad weather in a matter of mins.
- All the benefits of HDEP Plastic cages 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
Wiwkemikong First Nations
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.
Harvesting
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 so important.
Fish Health

- Regular mort collection
- Dip netting, Divers, uplift systems
- Good practice to open up to see what’s happening
- Always cull fish 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 Policy's for self governance.
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
Thank you