

Net Pen Aquaculture



WAUBETEK
BUSINESS DEVELOPMENT CORPORATION



Fisheries and Oceans
Canada

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.

stormsafesubmersible.com



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.



Meeker's Aquaculture, Lake Wolsey

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.

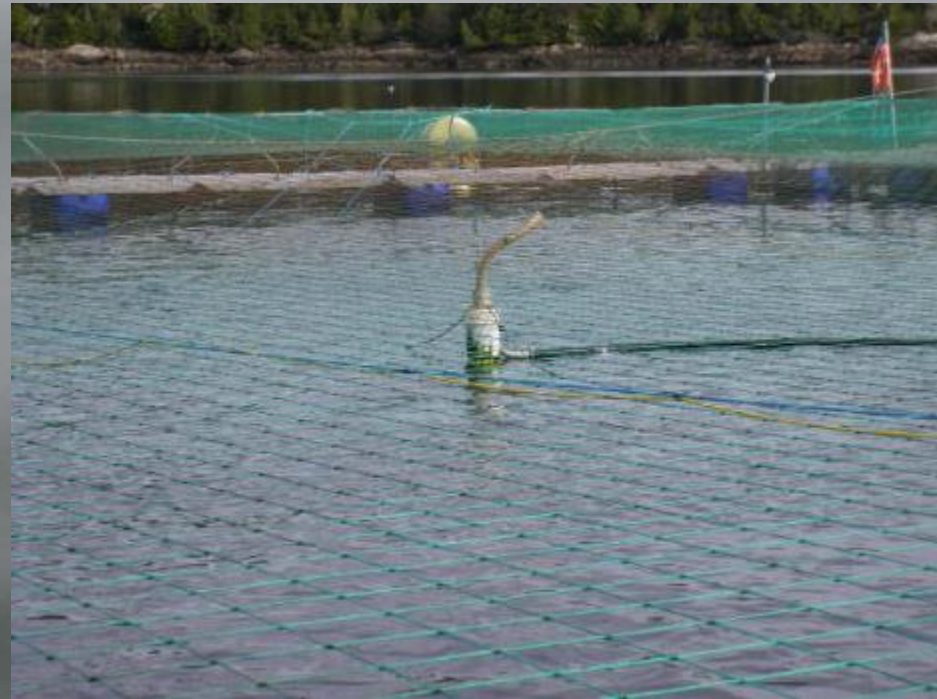






Capacity to hold tonnage assist in reducing transport cost's and constant handling.

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

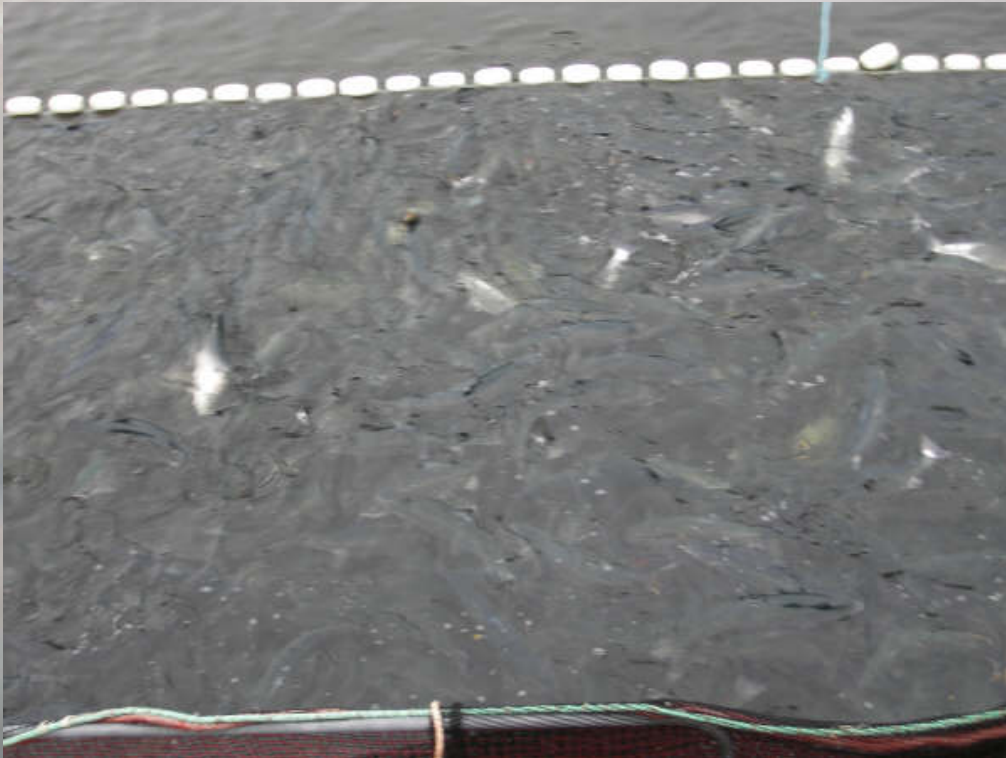


- Shipped from south on Transport trucks.
- Then either transferred by boat, or directly to site if site is connected to land.
- Important to reduce stress during delivery.
- Once fingerlings are settled and happy get them on feed.
- Important to spend the extra time with fingerlings for best introduction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



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 **soooooo** important.

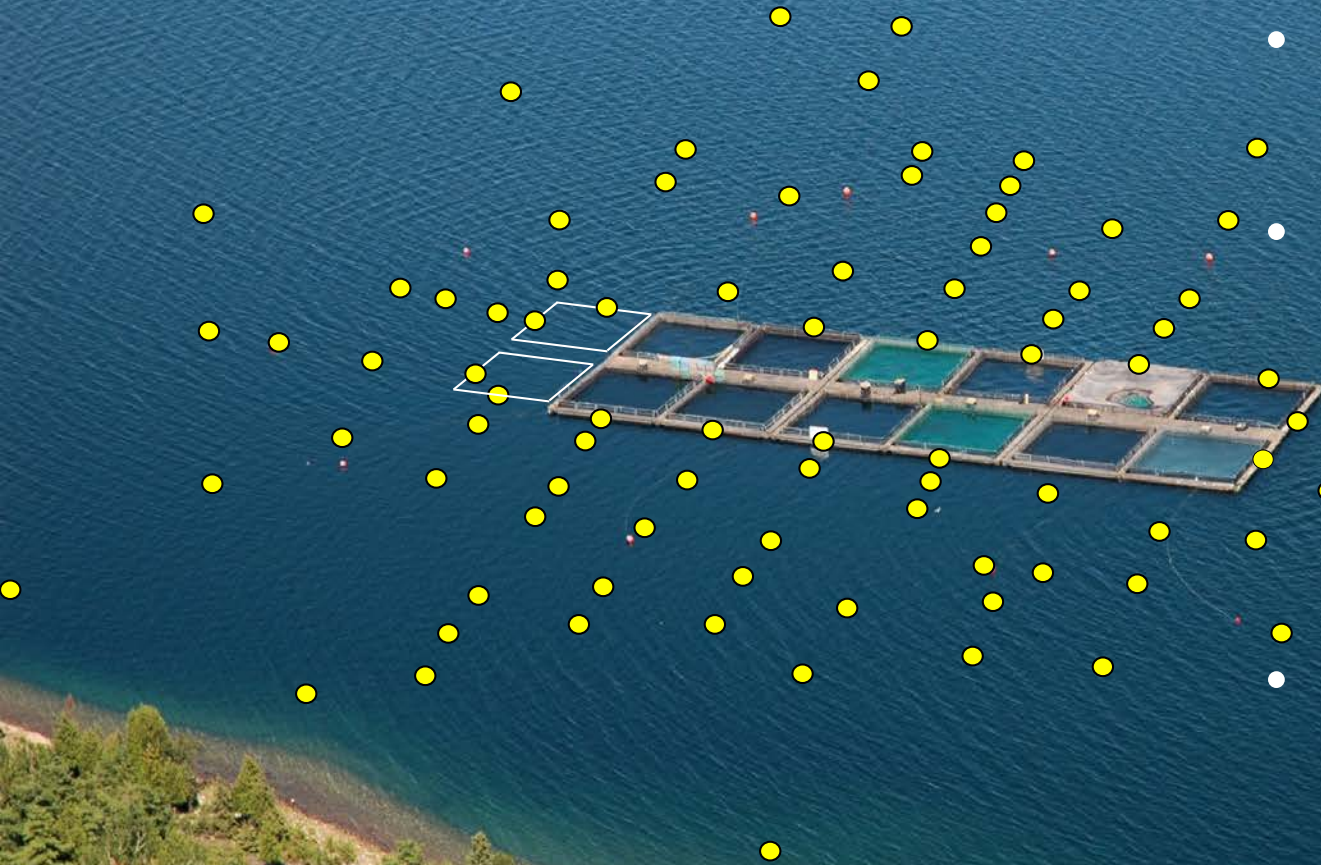
Fish Health

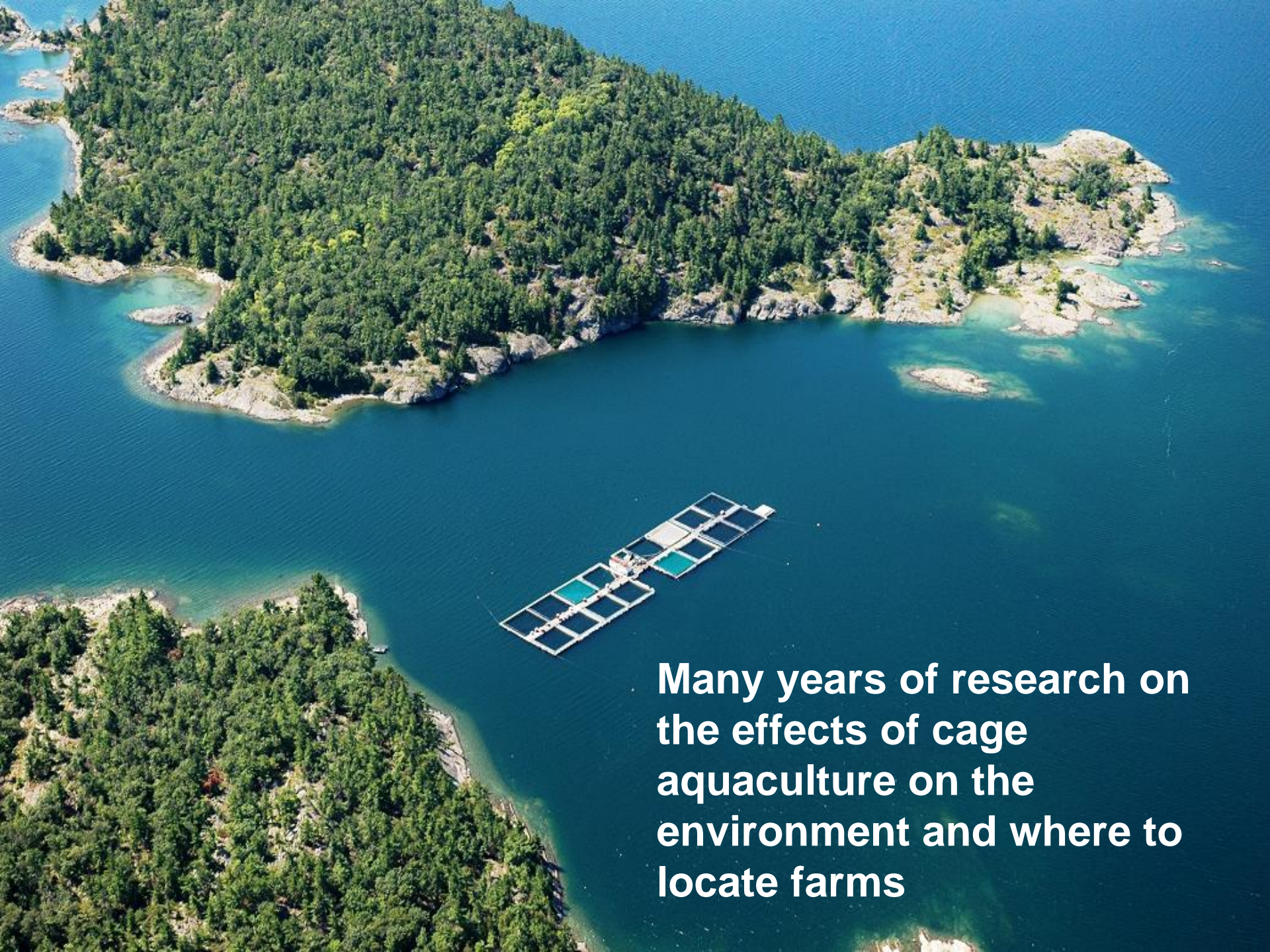


- Regular mort collection
- Dip netting, divers, uplift systems
- Good practice to open up to see what's happening
- Always cull moribund fish, Labs can be very helpful
- **Never take Bio-security for granted**, its best to be safer than sorry!
- Not many fish health issue in Ontario, lets keep it that 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