



# Perch Juvenile Production in Ireland – Grasping the Potential

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# Mission Statements

‘To promote the sustainable development of the Irish seafood industry at sea and ashore and support its diversification in the coastal regions so as to enhance its contribution to employment, income and welfare both regionally and nationally.’



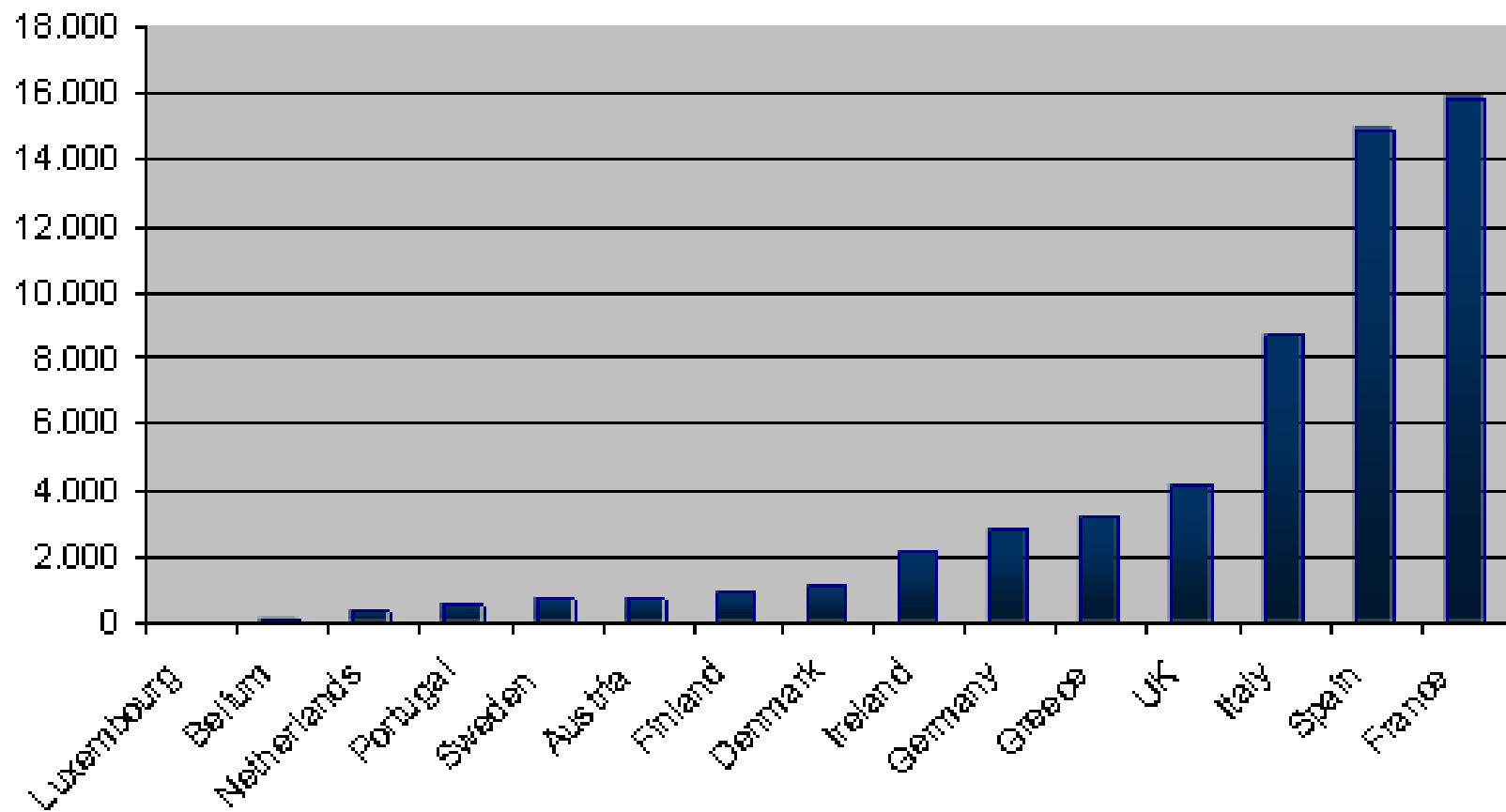
‘To provide a range of support services for the sustainable development of the aquaculture sector, increasing volume, value and employment in the six counties of Northern Ireland and the six border counties of the Republic of Ireland.’



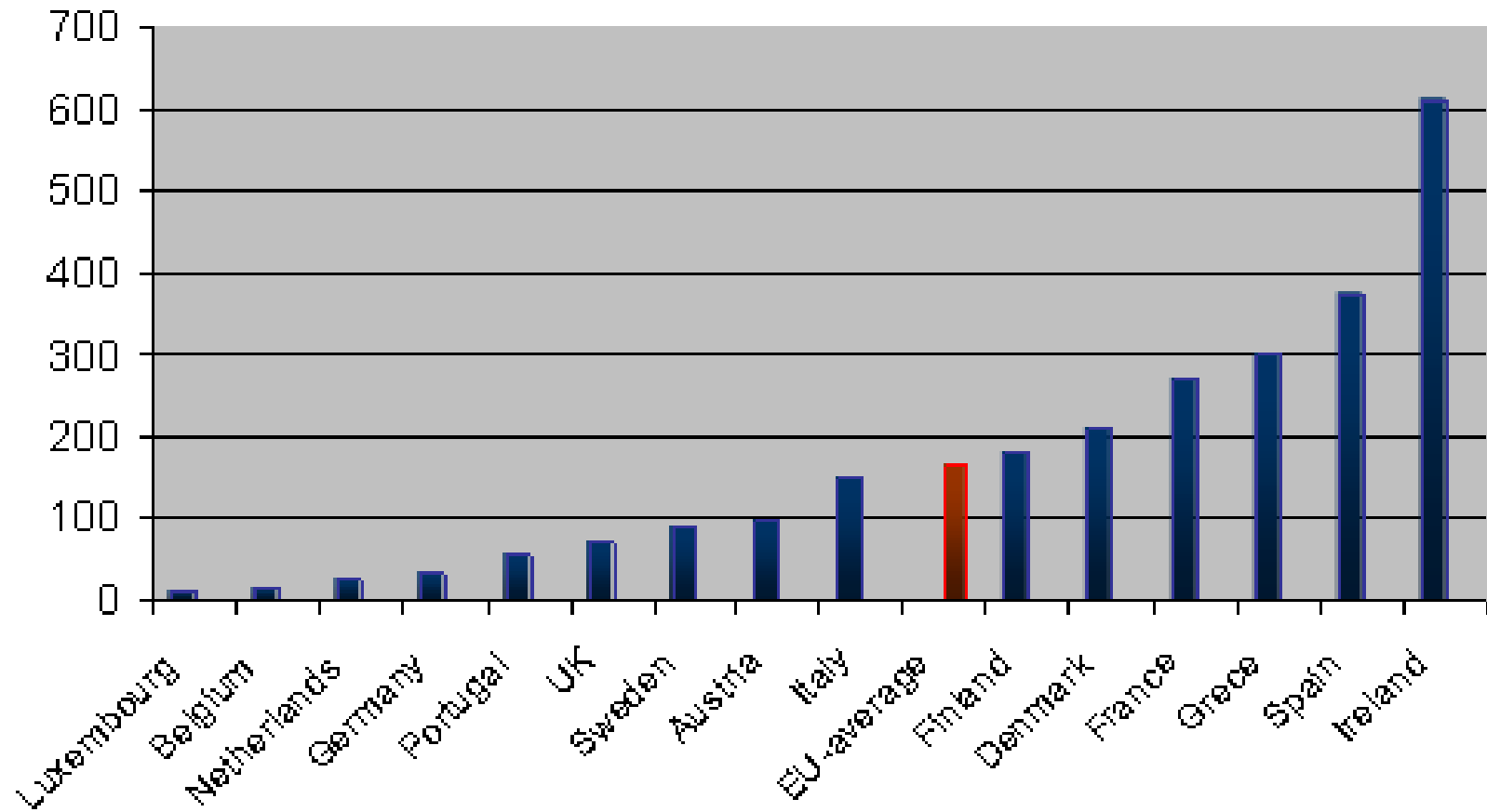
# Aquaculture in Ireland – Present Situation

- Sector value has increased from €51 million in 1994 to €125 million in 2006
- Salmon, Trout, Oysters and Mussels main species
- 2,058 employed on full and part time basis

## Employed in aquaculture

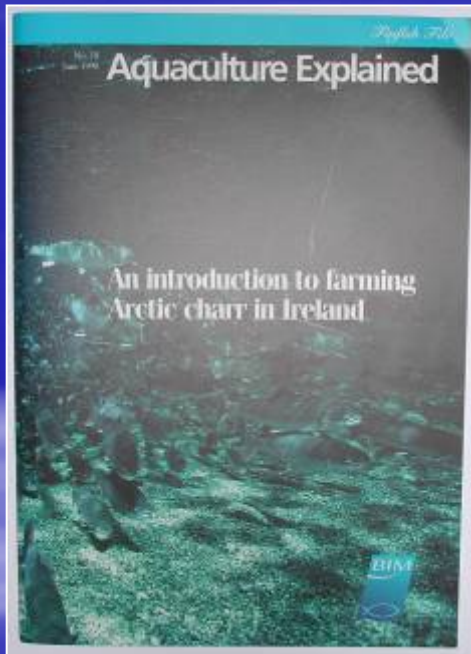


## Persons employed in aquaculture per mill. inhabitants



# Irish Species Diversification

- Three new species looked at in 1990's



Arctic Charr



Eels



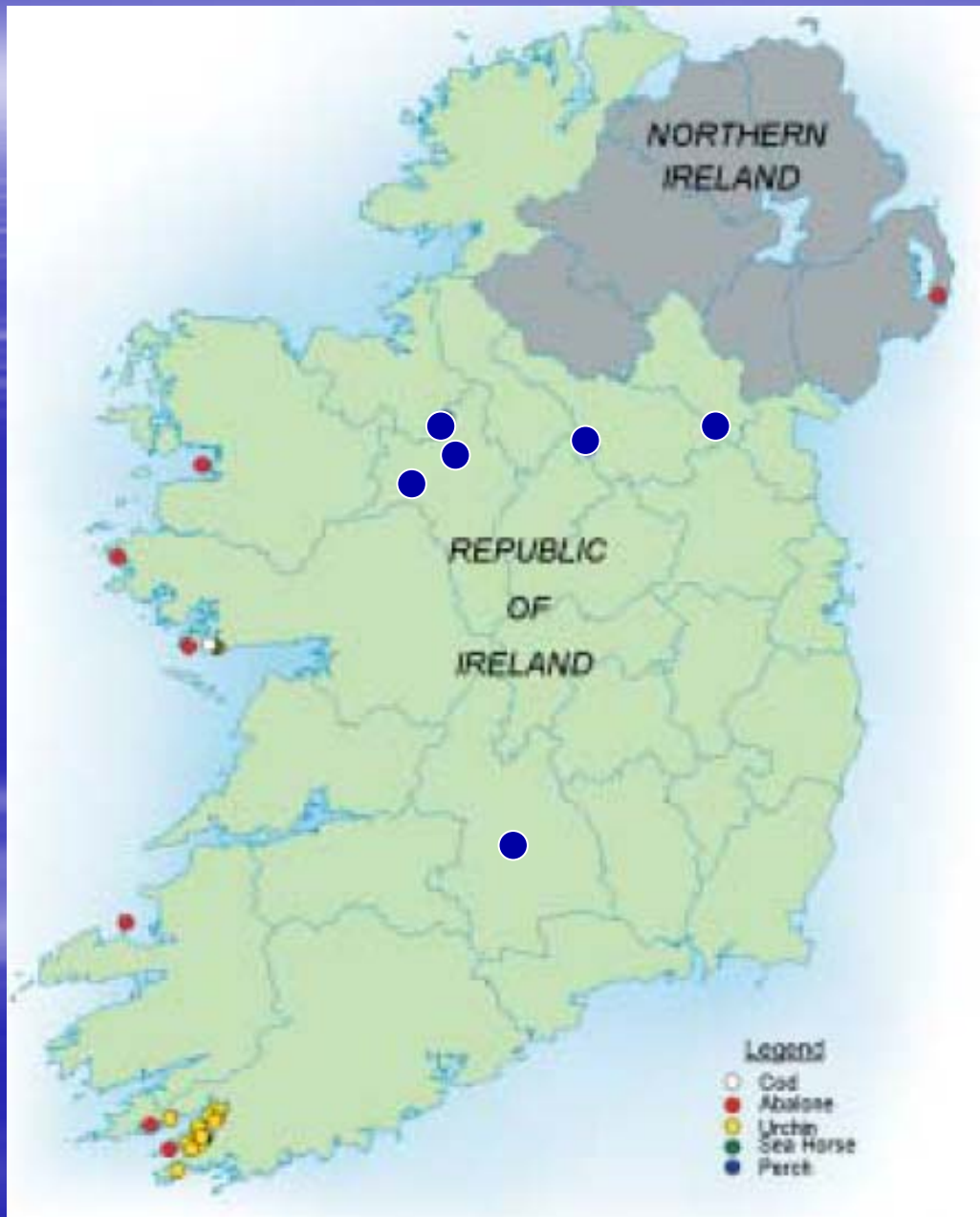
Perch



# Perch Farming in Ireland

- PDS established in 2000
- Key Water Fisheries 2001
- Extensive production initially, has developed into intensive and semi intensive.
- In 2008 we have two hatcheries and three ongrowing units (5 farms)
- Total juvenile demand exceeds 1.3 million per annum

# Existing New Species Sites



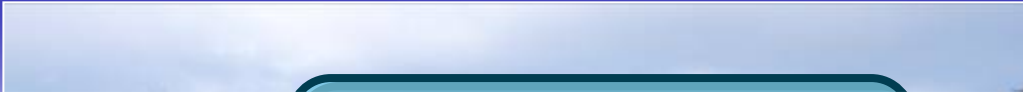
# Juvenile Production

- Hatchery sites – PDS & Key Water Fisheries
- Variety of production methods used.
- Talk will elaborate on systems and methods in use at both farms.

# PDS Irish Waters Perch Ltd

- Established in 2000
- Owner/Manager – Philip Simpson
- Site of 3 acres
- Grant Aided by BIM
- Pond based recirc farm with separate hatchery recirc facility





Farm  
Phil

Hatch  
Phil

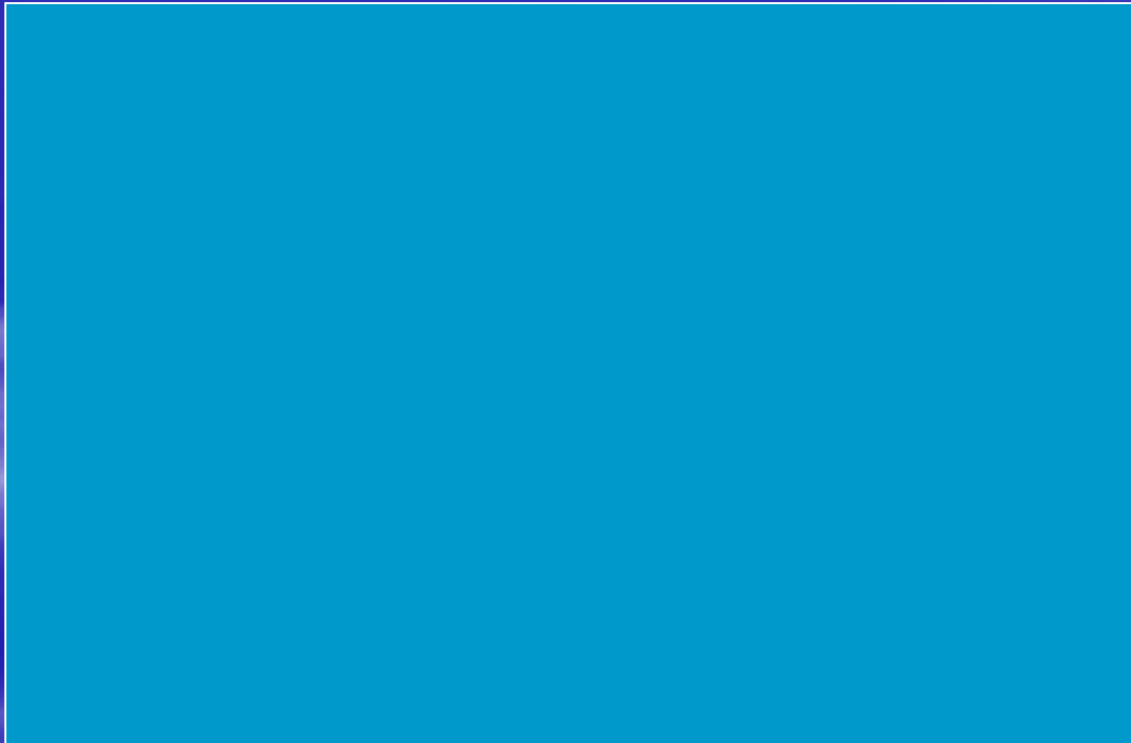
Manager  
Ponson

Technician  
Ponson



# Key Water Fisheries

- Paul Kearney Owner/Manager
- Jean Thomas Vuillard – Hatchery Technician



# PDS Irish Waters Perch Ltd

- Systems at PDS have evolved over years and are evolving.
- 5 separate recirculation systems ( 4 intensive and 1 extensive)
- Each system has been designed around requirements of the fish.
- Hatchery capable of producing 400,000 fish per cycle



Please be careful whilst walking around the ponds.

# Pond Recirculation System

- 11 ponds covering 3 acres
- Ponds range in size from 20m<sup>3</sup> – 1,500m<sup>3</sup>
- Total volume 9,000 m<sup>3</sup>
- Ponds used for juvenile production and broodstock
- Intensive fertilization used



# Pond Production

- Ponds used from March until August.
- Each pond filled with water 3-5 days before spawning.
- Ponds fertilized with Horse & poultry Manure and inorganic fertilizers.
- Each pond stocked with fertilised ribbons (approx 10 per pond).
- Aeration important to maintain O<sub>2</sub> levels.

# Pond Production

- Daily check of chemical and biological parameters.
- Fish harvested when 6-8 weeks old (0.3-1g).
- Harvesting carried out before cannibalism takes over.
- Fish removed using flow traps and catchment channel (lift nets).
- Fish weaned in recirculation system.



# Mesocosm System

- Trial carried out in 2007
- Four systems of 20m<sup>3</sup> each (2008)
- Cheapest way to produce large numbers of juveniles in season
- Control of temperature, food levels and chemical factors such as pH and O<sub>2</sub> critical
- Artemia supplemental feeding required
- Fish removed after 3-4 weeks for weaning

# Intensive Production

- Spawning carried out in January, April/May and September (2008).
- Eggs also imported from New Zealand (Mahurangi) and Denmark (Bornholm)
- Broodstock range from 1<sup>st</sup> to 4<sup>th</sup> generation
- Held in Broodstock unit on separate recirculation system.
- Temperature and light control.

# Broodstock Unit

- Insulated Polytunnel
- 8 \* 3,500l circular tanks
- Brush Filter
- Uv sterilisation
- Each bank of two tanks has own lighting
- Temperature controlled 4-21°C

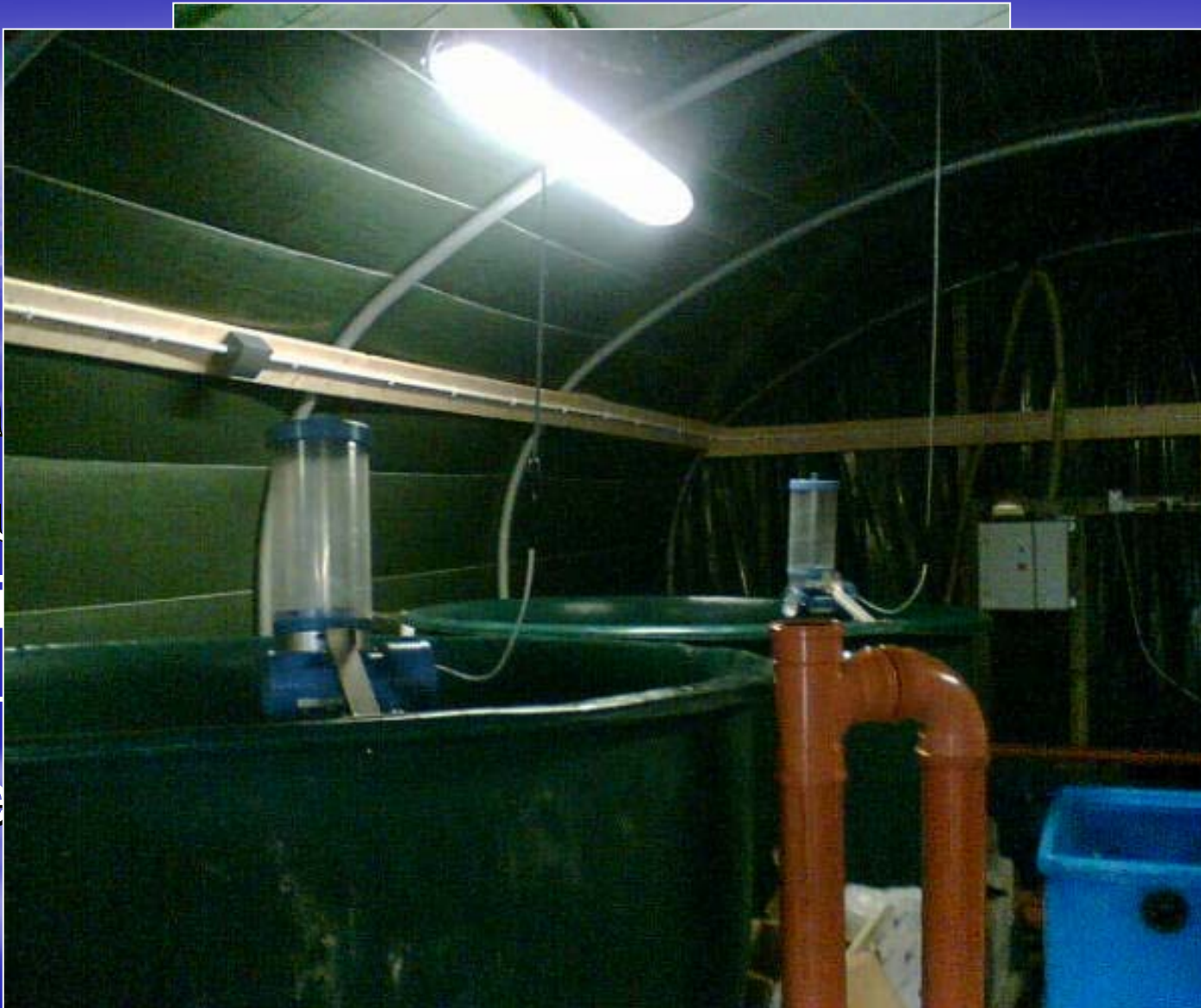


# Hatchery System

- 15 \* 600l Circo-conical tanks
- 40um Drumfilter
- 3,000l biofilter
- Degassing
- UV
- Protein Skimmer
- Oxygen generator
- Back up electrical generator



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# Live Feed Unit

- Rotifer and Artemia Systems
- Trial Copepod system
- Can produce 920 million artemia per day
- Separate water supply



# Intensive production

- Fish spawned at 12-14°C.
- Fertilisation assessed under microscope and ribbons placed in hatchery in floating trays.
- Hatching at 16°C.
- Larvae stocked at 100/l (60,000 per tank)
- Upwelling flow and degassing to aid swim bladder inflation.
- Artemia/rotifers introduced when yolk sac exhausted.

# Spawning



# Intensive Production

- Artemia fed 6 times per day
- 18:6 light cycle (800 lux)
- Water exchange starts at once every 90 mins and increased as larvae grow
- Swim bladder inflation first important milestone.
- Water checked for bacterial content
- Temp brought up to 20°C

# Intensive Production

- First grading at 3 weeks and every week after.
- Weaning on to 300um diet at 3 weeks.
- Weaned at 20 ind/l
- Juveniles reach 0.5g by week 6 and are dispatched to ongrowing unit between week 6-8.



# Technology



# Ongrowing Unit

- 3 ongrowers in Ireland
- Emlagh Fisheries, Clune Fisheries & Ballybay Perch Ltd
- Clune Fisheries 100t unit
- Ballybay 50t (under construction)
- Emlagh Fisheries 20t



# Grasping the Potential

- Ireland has the highest number of perch farms and hatcheries in Europe.
- Industry has received significant funding.
- Academic research through PERCATECH
- Ongoing capacity has arrived.
- Pressure on hatcheries to deliver numbers.

# Grasping the Potential

- Must learn from Sea bream, Sea Bass and Cod sectors with technical innovation
- Future research on a pan European level essential
- Research must be SME driven and based at commercial facilities with commercial quantities
- Commitment of Promoters key ingredient to success!



“People are the single most important factor in the development of Europe's perch sector”

