

An Overview of English Aquaculture

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European Aquaculture

Finfish production volumes 2008

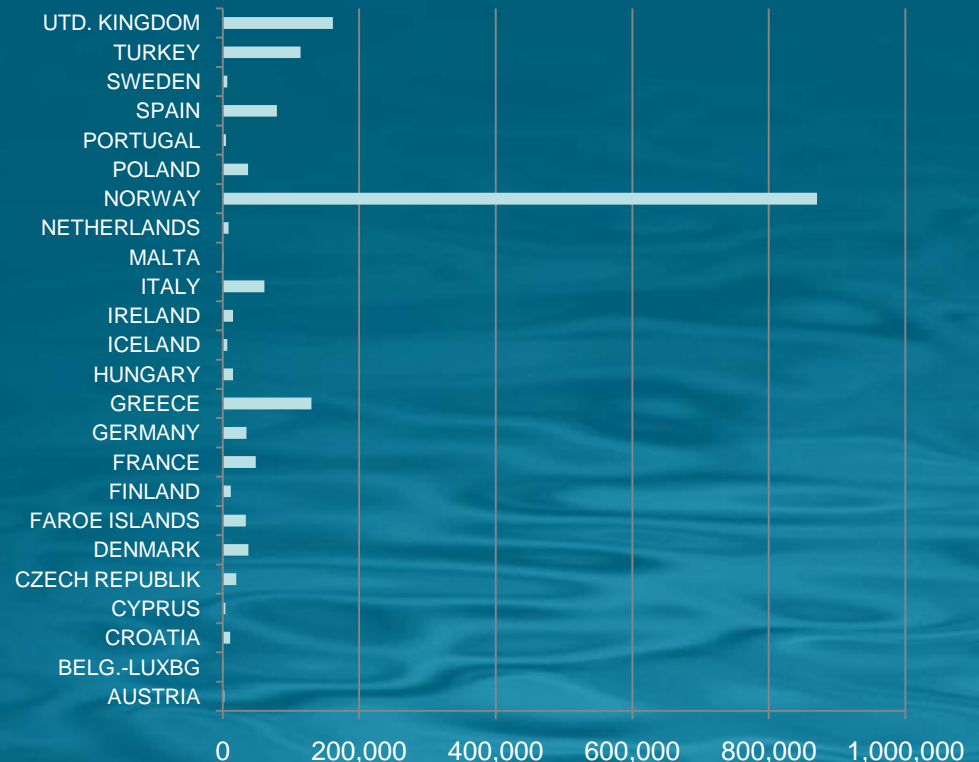
European 1,718,383

Norway 870,450

UK 161,367

Scot salmon 140,000

English finfish 7,500



UK Aquaculture

Scotland v England v Wales

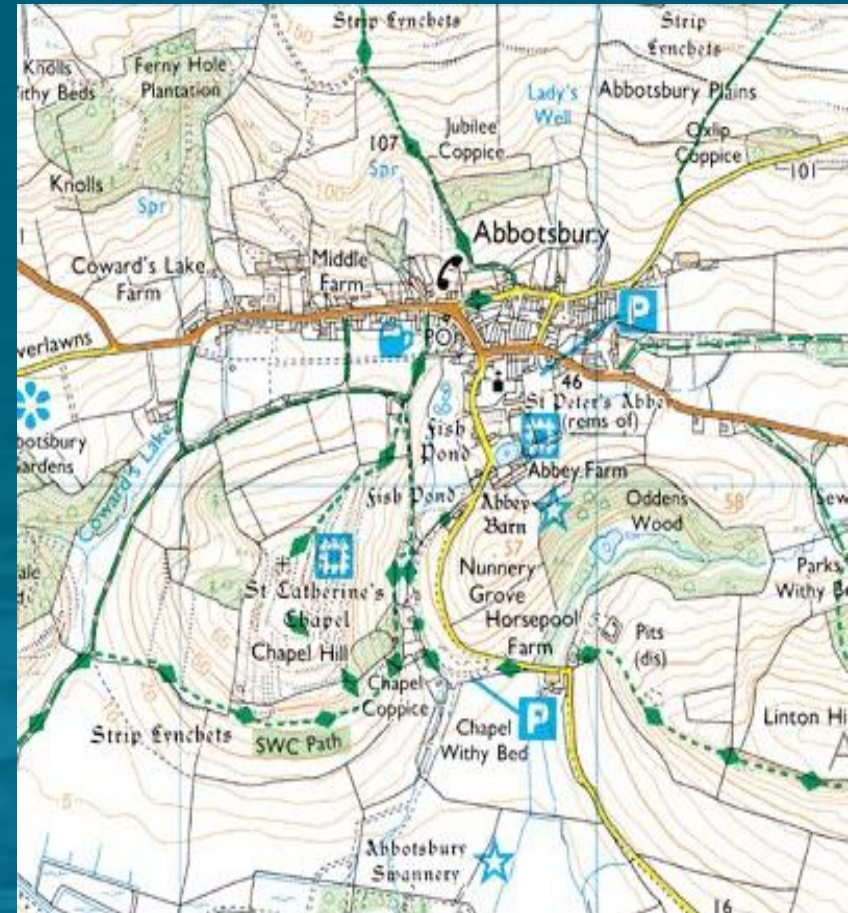
	Scotland		England		Wales	
	Business	Site	Business	Site	Business	Site
Salmon	72	391	7	7	7	8
Trout	54	101	130	202	25	28
Coarse/Orn	10	12	115	183	2	2
Recirc	1	1	16	16	3	4
Shellfish	176	339	87	111	11	13
TOTALS	313	844	335	519	48	55

English Aquaculture

- Value of Restocking / Coarse / Ornamental underestimated
- Road miles = closer to markets
- More diversification (e.g. Exotic species, Polychaetes)
- English owned, smaller businesses

A Brief History of Fish Farming in England

- First evidence in monasteries & royal estates.
- Common carp possibly introduced by Romans ??
- First attributable record of carp in England in 1496
- Prior to 20th C a few brown trout hatcheries for restocking rivers for angling
- First “table trout” farm opened in Lincolnshire in 1950
- Trout farming developed rapidly in 1960's and 70's
- Now approx 200 trout farms in England



Trout farming in England

- Production primarily in freshwater
- Production dominated by rainbow trout for food (4095t) and for restocking (3000t)
- Some brown trout produced for restocking (359t)
- Specialist production sectors
 - Fry and fingerlings
 - Restocking
 - Table trout



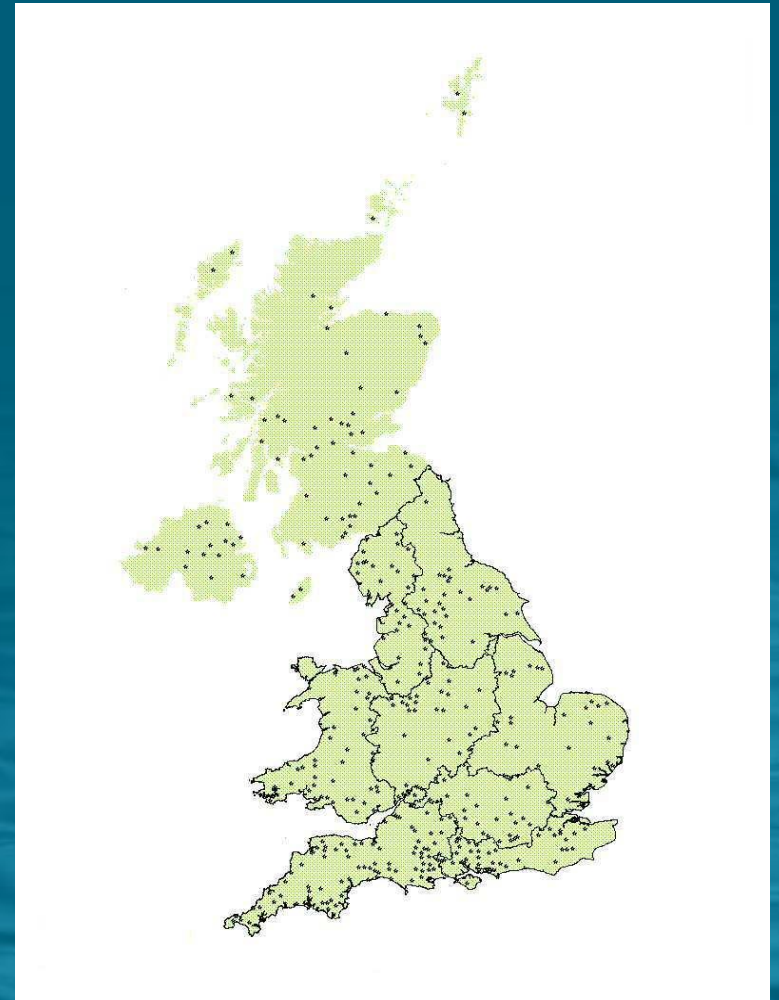
Trout Farming in England

- Production units vary in size from large 1000 tonne producers to <1 tonne.
- Earth ponds, raceways, tanks & cages.
- All SME's, mainly owner/operator, turnover of <£1m
- Some consolidation in recent years to fewer, larger farms.
- Estimated first sale value £19 Million



Trout Farm Distribution

- Wide geographic distribution
- Areas dictated by availability of water of required quality
- Suitable sites limited
- Numbers steady but declining
- Investment ?



Salmon farming in England

- Very small in comparison to Scotland
- No on-growing units
- Either Environment Agency farms re-stocking rivers (benefit to angling)
- Or smolt production units for Scotland.
(£6 Million pounds)



Coarse and Ornamental Aquaculture

- Approx 185 fish farms
- Generally produced in extensive systems
- Some specialist hatcheries producing fry for on growing
- Little food production, Common carp for the table (10 t).
- Increase in agricultural farm reservoirs



Coarse and Ornamental Aquaculture

- Farming of coarse and ornamental species increasing
- Primarily carp and koi, but also goldfish, tench, barbel, roach and other native species (7.1million)
- Estimated value £10,000,000



New and Exotic Species

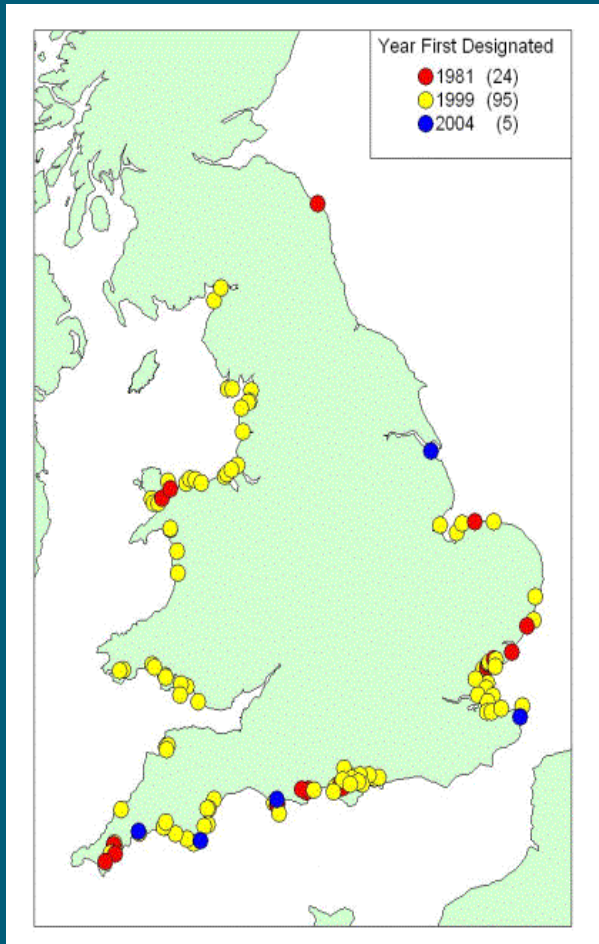
- Recent interest in warm water species in land based recirculation systems
- Controlled environment, highly technical, increased set up costs.
- Lower environmental footprint (minimal discharge, no escapees, bio-secure, no predator problems)
- Systems for the intensive production of species such as bass, turbot, tilapia, striped bass, barramundi, catfish & prawns.



Recirculation systems



Shellfish culture



Shellfish Harvesting Areas

Farms (E&W) 89 Businesses
114 Farm 'sites'
247 employees

Industry Strategy

Site selection – CZM

Water quality



Weight and value of cultivated shellfish production in England

<u>Species</u>	<u>Tonnes</u>	<u>UK</u>
Mussels	3,800	(26,113)
Pacific oysters	811	(1,169)
Native oysters	54	(77)
Scallops and Queens	None	(55)
Clams	13	(22)
Cockles	12	(10)
Total ~ tonnes	4690	(27,500)
Estimated value ~ £ million	7.0	(22.7)

Pacific & Native oysters



- Seed from hatcheries / On-grow inter-tidally in bags
- Some on-bottom cultivation / *Natural recruitment*
- Part grown stock / managed fisheries
- On-bottom cultivation
- *Bonamia*



Clams & Mussels



- Seed hatcheries / Cultivation under netting /
- *Alien species / Natural recruitment*

- Seed from wild beds
- Relayed in Fishery Order areas
- Some rafts / long-lines
- *Demand for seed*



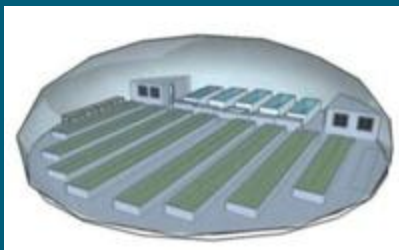
Hatcheries

- Sea-salter (Walney and Reculver) – Pacific oyster and clam seed



- National Lobster Hatchery –
- Juvenile lobsters for stock enhancement





Other Sectors

- Aquaponics - Demonstration – Hobby –
- Water Cress Industry £60m
- UK announces world's largest algal bio-fuel project. Carbon Trust launches £26m project to develop transport fuels made from algae by 2020
- Pharmaceuticals
- Sea baits - Ragworm
- Tropical Ornamental – Clownfish



English Aquaculture 2009

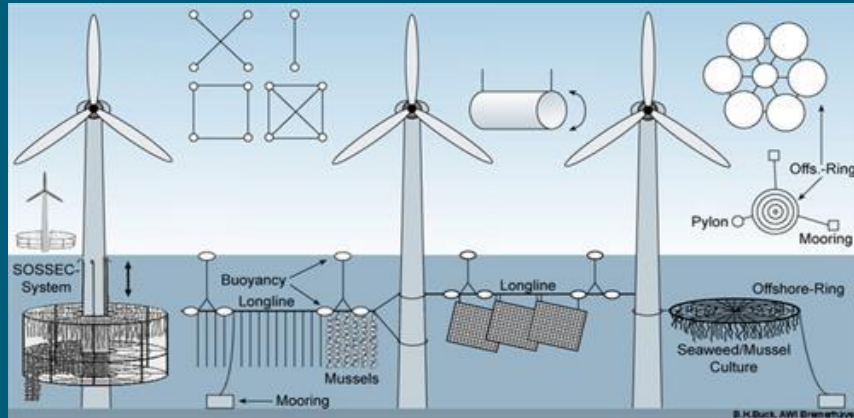
Production & Values

	Quantity	Farm gate
Rainbow Trout Table & restock	7095t	£17,028,000
Brown Trout	359t	£ 1,795,000
Salmon (Smolt to Scotland)	6.033m	£ 6,033,000
Salmon (Fry, Parr, Smolt Re-stocking)	0.700m	Env gain
Carp Table	10t	£ 25,000
Coarse restocking and ornamental	7.000m	£10,000,000 Est
Tilapia	112t	£ 246,000
Catfish	7t	£ 5,500
Turbot	1.2t	£ 7,500
Shellfish Native Oysters	54t }	
Pacific Oysters	811t }	
Mussels	3800t }	£ 7,000,000
Clams	13t }	
Cockles	12t }	
Total		<u>£42,140,000</u>

Finfish = 800 FTE Shellfish = 135 FTE + 64 PTE

What's over the Horizon ?

and how will England Deliver serious volumes ?



Wind-farms (Rounds 1,2 & 3) by 2030 = 25,000 km²
 20% = 5,000 km² Off-shore shellfish,



Offshore finfish & IMTA



What's over the Horizon ?

Oil and Gas rig Decommissioning - use of platforms ?

Farmers barns ?

- 200,000 agricultural holdings
- 30,000 intensive livestock rearing operations

Fish follows poultry (but 15 years behind !)



What's over the Horizon ?

Aquaculture follows horticulture ?

- Low water use (recirculation; RAS)
- Fingerling and spat production: sanitary control
- Grow out production: microbial ecology control
- Energy, climate and air control



BLUEHOUSE FARMING



What's over the Horizon ?

Large Scale re-circulation farms (500 to 10,000 tonnes)

- 1 ha = 1000 tonnes

Increase in number of water storage ponds

- Fenland areas (abstraction in summer)

Moving existing trout farms over to recirculation ?

- Danish model trout farms

WE CAN FIND WAYS FORWARD

Thank You