



Frank Buckland

1826 – 1880

A PIONEER of FISHERY RESEARCH

Fisheries and Aquaculture

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Are they conflicting or
complementary industries?

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Fisheries and Aquaculture

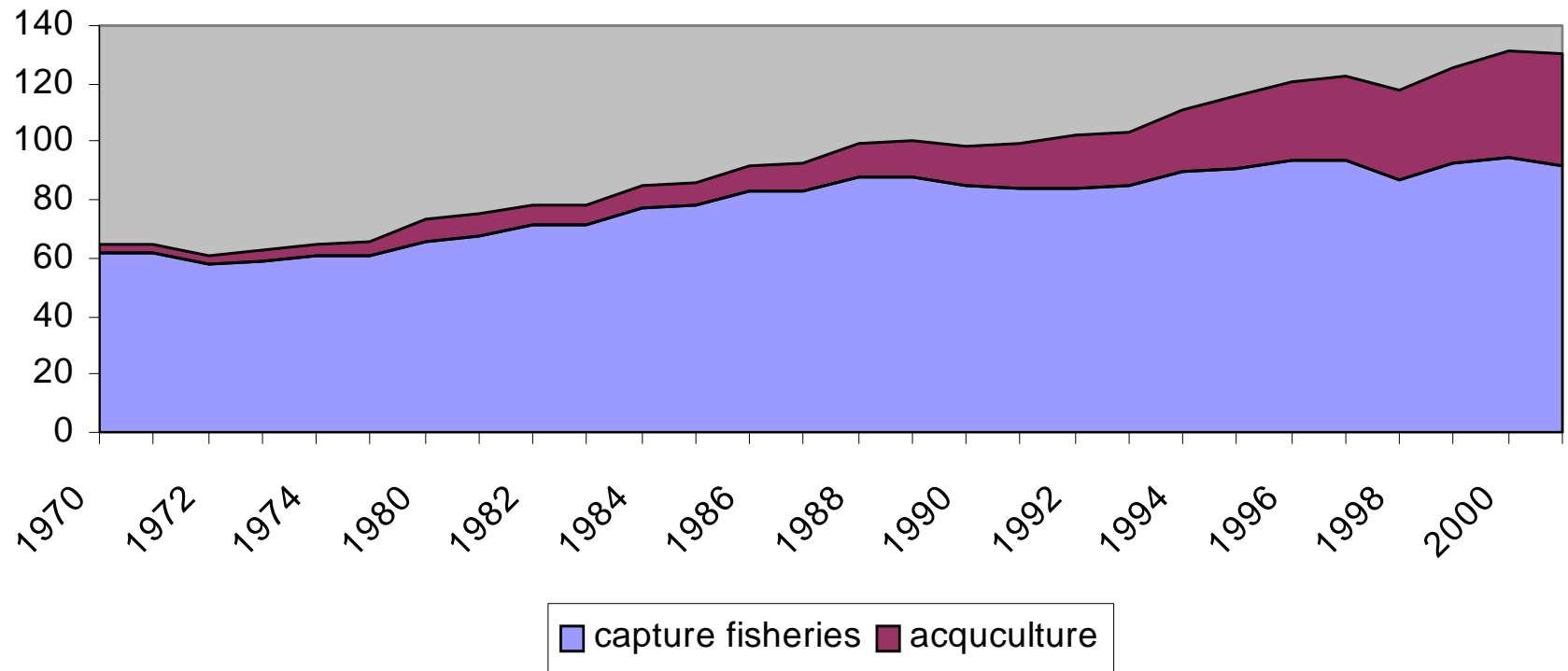


⌘ The growth of aquaculture

▣ global growth

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World capture fisheries and aquaculture production (million tonnes) Source: FAO



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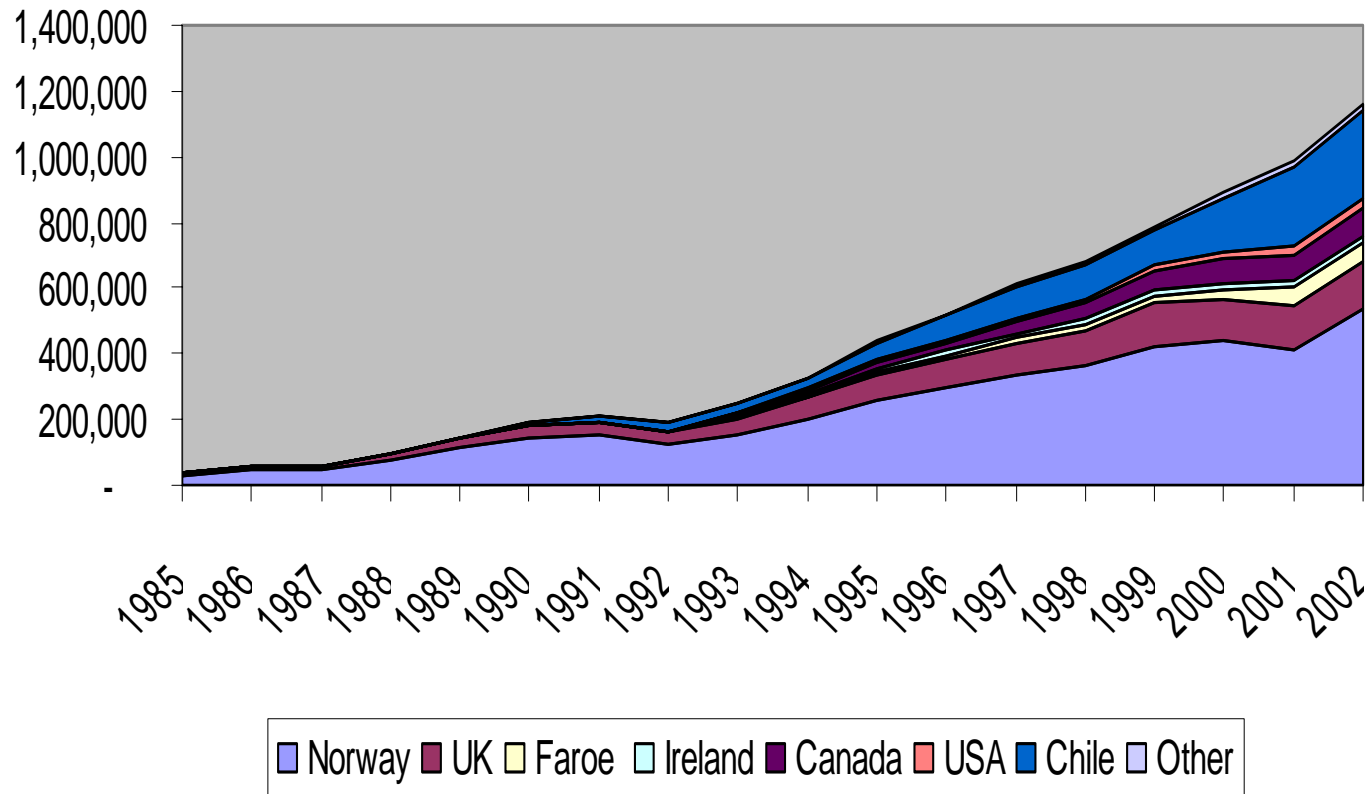
⌘ The growth of aquaculture

- ▣ global growth

- ▣ the dramatic rise of farmed salmon

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World production of farmed Atlantic Salmon (tonnes)



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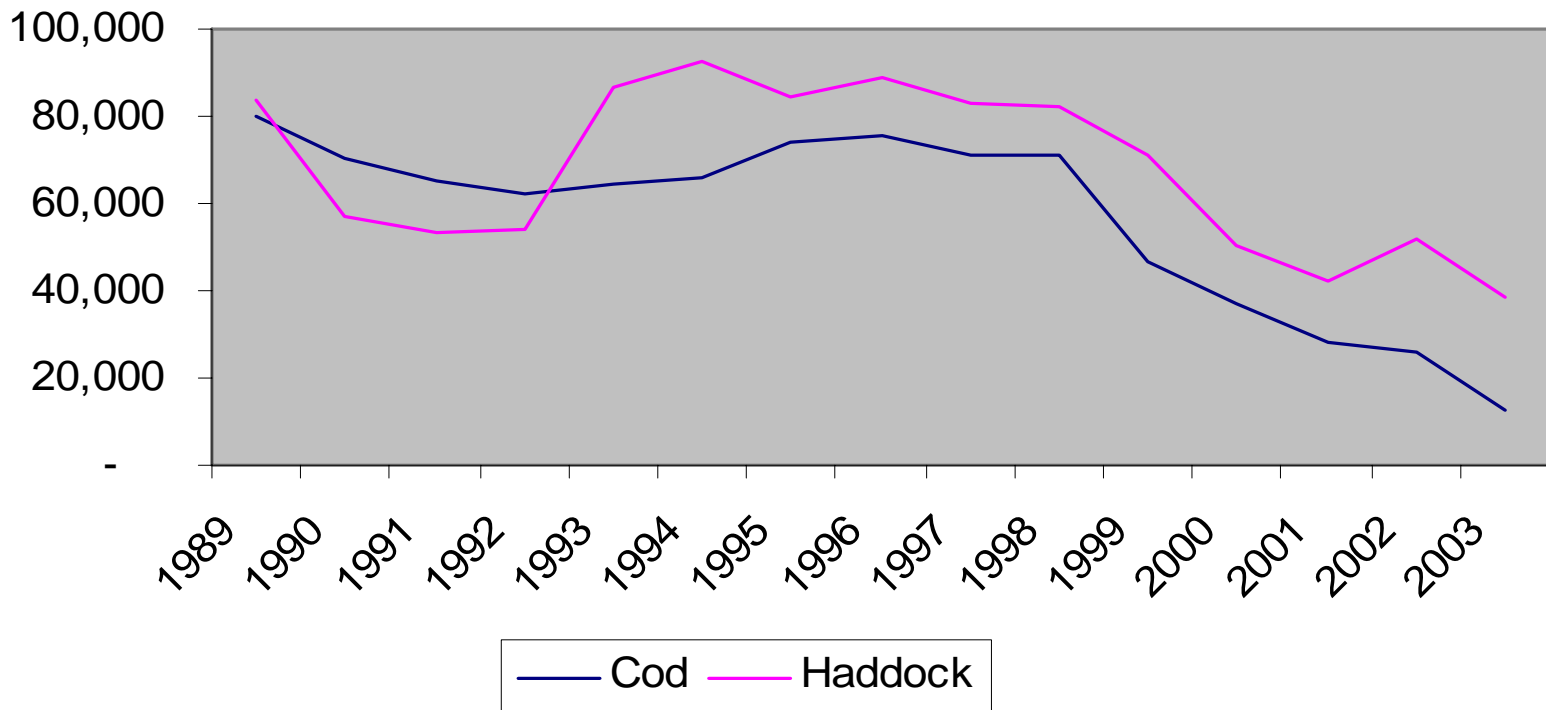


⌘ Decline in capture fisheries?

☑ North Sea cod and haddock

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Total landings into the UK by UK vessels (tonnes liveweight) Source: Seafish



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⌘ The new species

Cod

Haddock

Halibut

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⌘ Catching or Farming - The debate

- ☒ Fish farming is in conflict with capture fisheries and is unsustainable. It should therefore be banned.
- ☒ 'The potential of the aquaculture industry on a global basis is so vast that it defies human comprehension'.....it will eventually replace fishing.

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⌘ The Issues

- ☒ Locational conflict
- ☒ Competition for market share
- ☒ Is there enough fish meal and oil?
- ☒ Political differences
- ☒ Market cooperation
- ☒ Can aquaculture help rebuild fish stocks?
- ☒ Part fisherman - part farmer

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⌘ The Conflicts

- ☑ Locational conflict

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⌘ Market conflicts? - Cod

☒ Production Costs

- Farming
 - £1.50 to £2.00 per kg
- Fishing
 - £1.45 per kg (200 boxes)
 - £1.16 per kg (300 boxes)
 - £1.01 per kg (400 boxes)

☒ Prices

- Peterhead Market (Oct. 2002 to March 2003)
 - 1 to 4 kg = £1.34 to £1.85 per kg
 - 4 to 7 kg = £2.14 per kg
 - Over 7 kg = £2.49 per kg

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⌘ The Conflicts

- ☒ Locational conflict
- ☒ Market Conflict
- ☒ Is there enough fishmeal and oil?

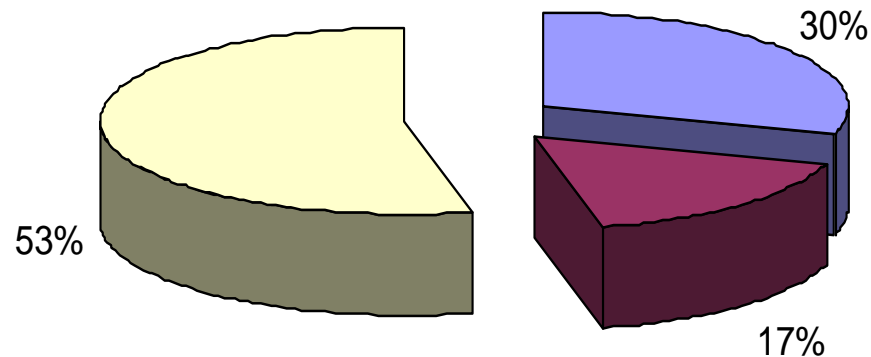
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⌘ Sources of fish for fish meal production (IFFO)

☒ Peruvian Anchovy	9.8 m. tonnes
☒ Chilean Jack Mackerel	1.2 m .tonnes
☒ North Atlantic Capelin	1.7 m. tonnes
☒ North Atlantic blue whiting	1.1 m. tonnes
☒ North Sea sand eel	0.9 m. tonnes
☒ Menhaden	0.8 m. tonnes
☒ South American sardine	0.4 m. tonnes
☒ North Sea Sprat	0.3 m. tonnes
☒ Norway Pout	0.1 m. tonnes
☒ Thailand (various)	1.7 m. tonnes
☒ China (various)	1.5 m. tonnes
☒ Japan (pollack and sardine)	1.9 m. tonnes
☒ Spain (sardines)	0.3 m. tonnes
☒ Morocco (sardines)	0.3 m. tonnes
☒ Mexico (sardines)	0.3 m. tonnes
☒ Russian Federation (various)	0.7 m. tonnes
☒ Others	4.5 m. tonnes
☒ By-products from fish processing industry	5.6 m. tonnes
☒ TOTAL	33.1 m tonnes

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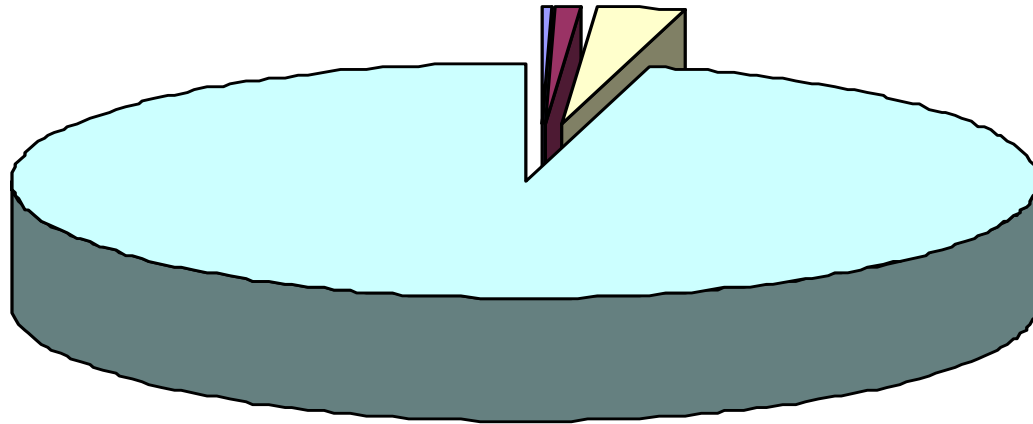
SOURCES OF FISH FOR FISH MEAL PRODUCTION



- Peruvian Anchovy
- By-products
- Others

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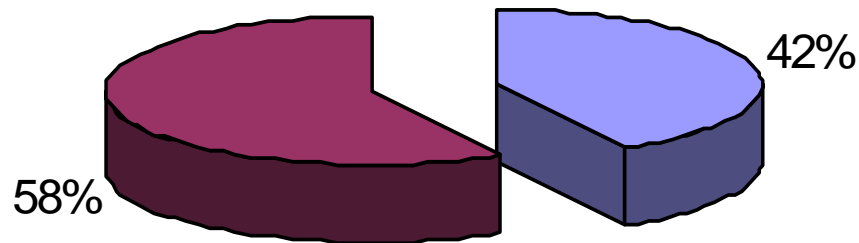
**HOW IMPORTANT ARE THE NORTH SEA
INDUSTRIAL FISHERIES ?**



■ Norway Pout ■ North Sea Sprat ■ North Sea Sandeel ■ All other sources

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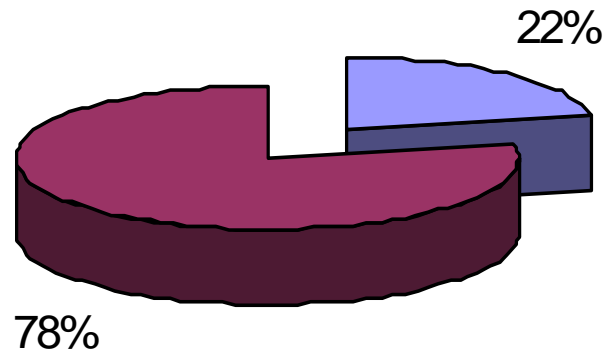
USEAGE OF FISH OIL IN A NORMAL YEAR (Total fish oil production = 1,370,000 tonnes)



■ non acquaculture useage ■ Aquaculture useage

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USEAGE OF FISH OIL IN AN EL-NINO YEAR (Total fish oil production = 975,000 tonnes)



■ non acquaculture useage ■ Aquaculture useage

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⌘ The Conflicts

- ☒ Locational conflict
- ☒ Market Conflict
- ☒ Is there enough fishmeal and oil?
- ☒ Political differences

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⌘ Room for Cooperation

- ☑ Marketing
- ☑ Rebuilding fish stocks
- ☑ Part fishermen - part fish farmer

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