The Future for Scotland's Marine Economy

WORKSHOP

MASTS ANNUAL SCIENCE MEETING
13th September 2012

AGENDA FOR THE SESSION

- Welcome and Introductions
- Purpose of the Workshop – Outputs
- The Scottish Marine Economy
- Some Global Trends
- How Can Scotland's Marine Economy Grow in order to Meet Future Needs
- Are There Opportunities for Interactions and Synergies
- Constraints and How to Address Them

- DISCUSSION POINTS:
  - Sectors with long term growth potential
  - Interactions and synergies between sectors
  - Strategic national impetus and funding/enabling mechanisms, knowledge constraints – role for research

- OUTPUTS

OUR GOAL

- This workshop is going to develop and publish a collective vision about:
  - Sectors of the marine economy we believe have high growth potential – current or new
  - Which could be individual – or which could be delivered by acting together with other sectors
  - The constraints we perceive, current or new, and our suggestions about addressing those constraints:
    - Which could be investment in research
    - Or investment in other ways: demonstration projects, business grants, etc

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INTRODUCTIONS

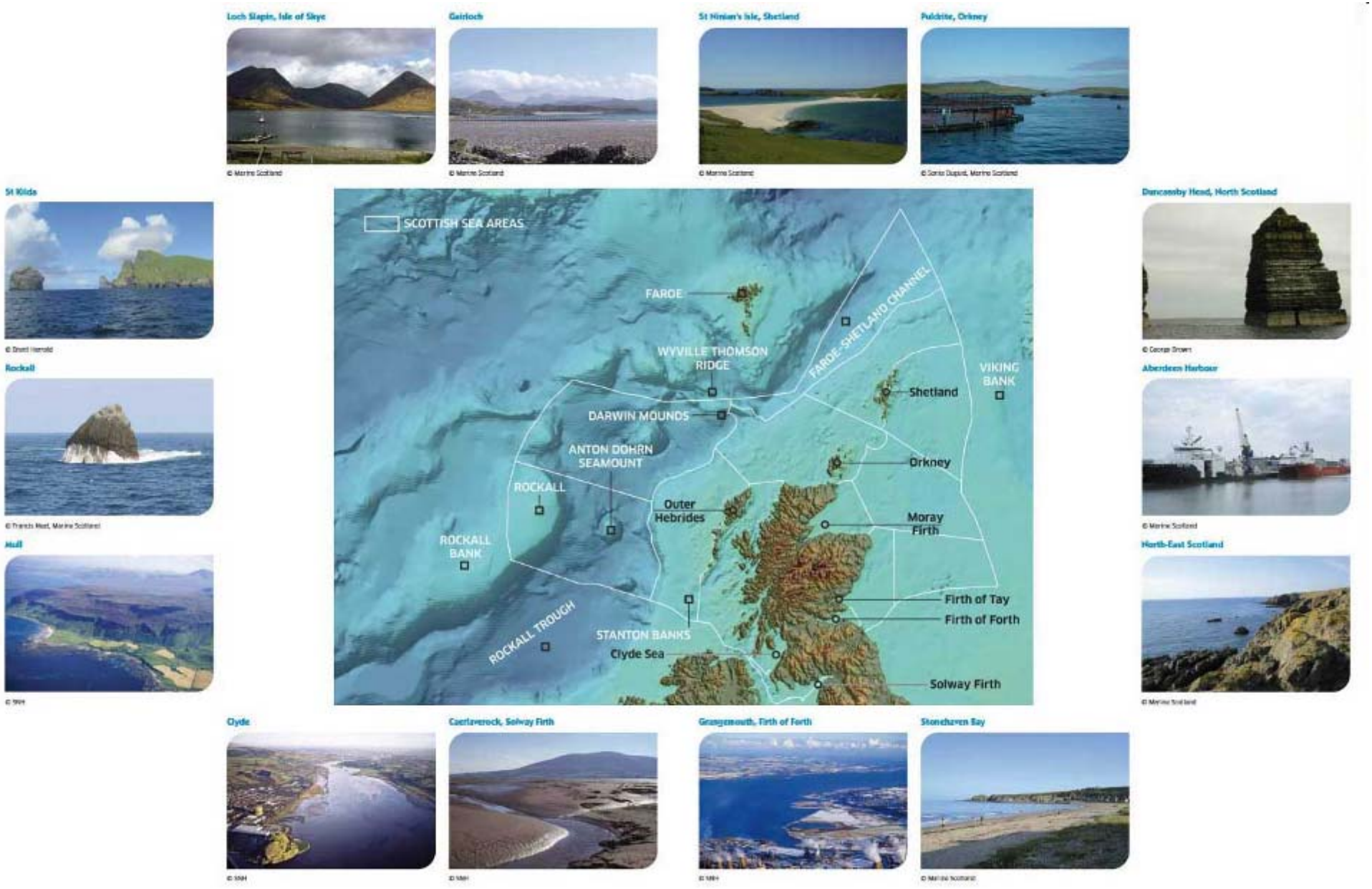
- **SARF Objectives:**
  - **To promote, encourage and support scientific research and development in aquaculture and related areas.**
  - **To enhance public understanding of aquaculture through the dissemination of research results in the public domain**
- **Focus on "and related areas"**
- **Considerable expertise amongst SARF Members**

Could we go around the room?

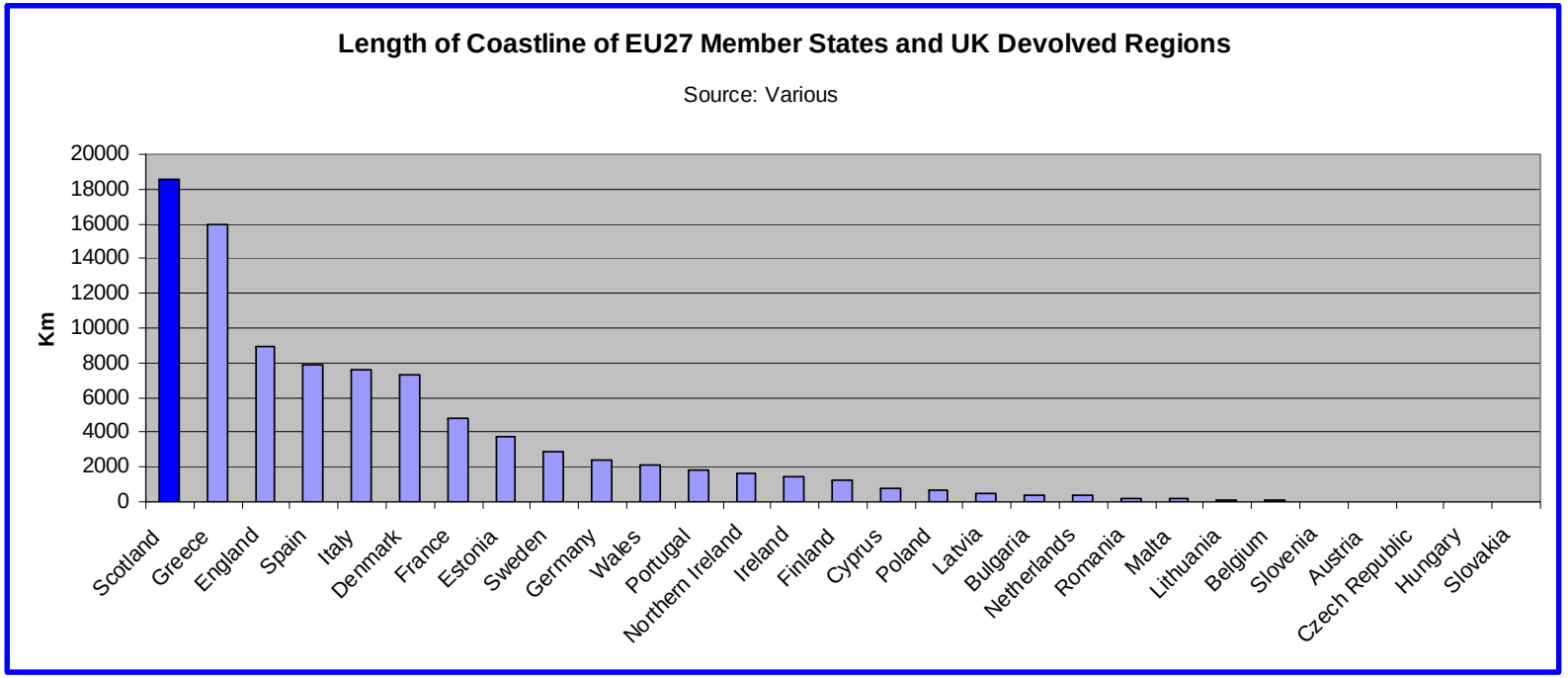
THE MARINE ECONOMY

Scotland's Marine Environment

http://www.scotland.gov.uk/Topics/marine/science/atlas



EXTENT



- **Scotland has 20% of the entire coastline of Europe**
- **And about 1% of Europe's population**

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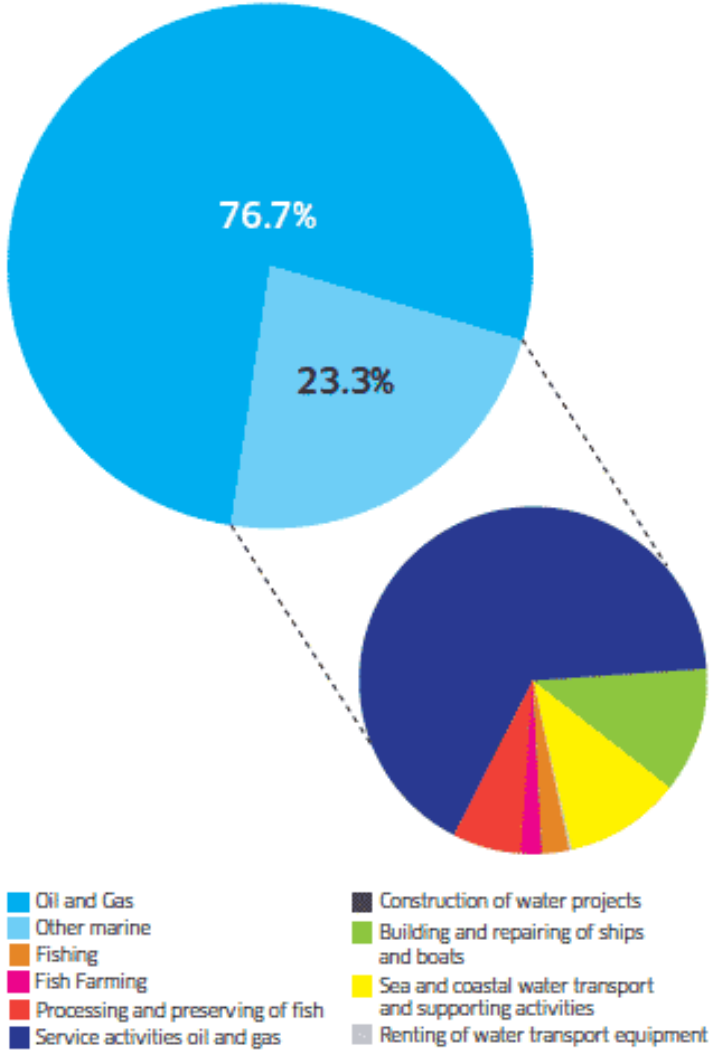
VALUE TO THE ECONOMY

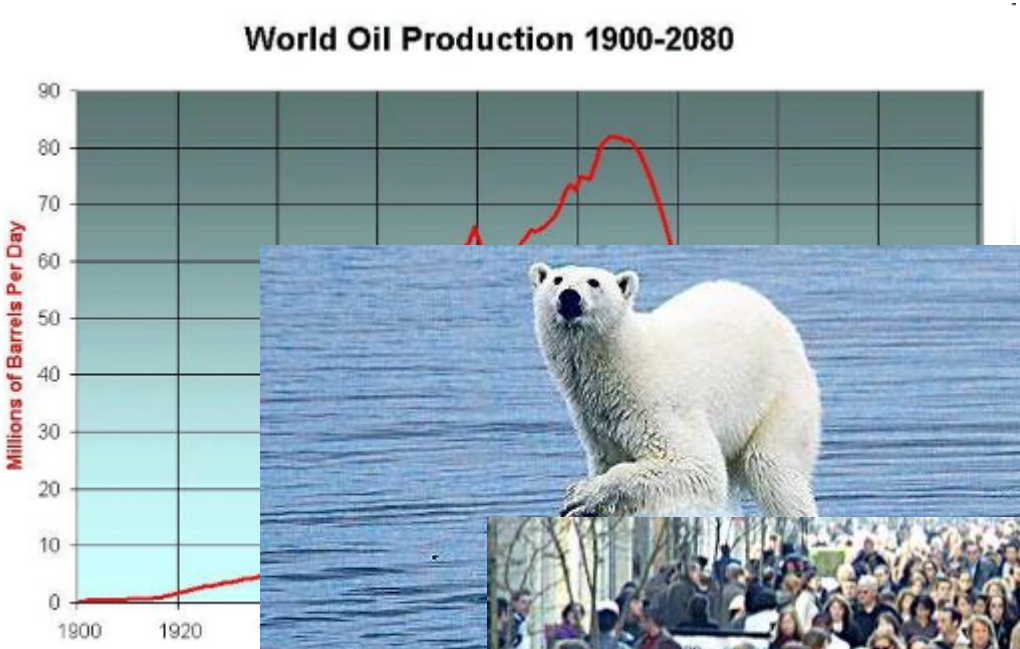
- Headlines:
  - £17.4 billion in GVA
  - 17% of total Scotland GVA
  - 45,300 in employment



We will come back to individual sectors shortly

GLOBAL TRENDS

WHAT DOES THE FUTURE HOLD?



Peak oil

Climate change

Population growth

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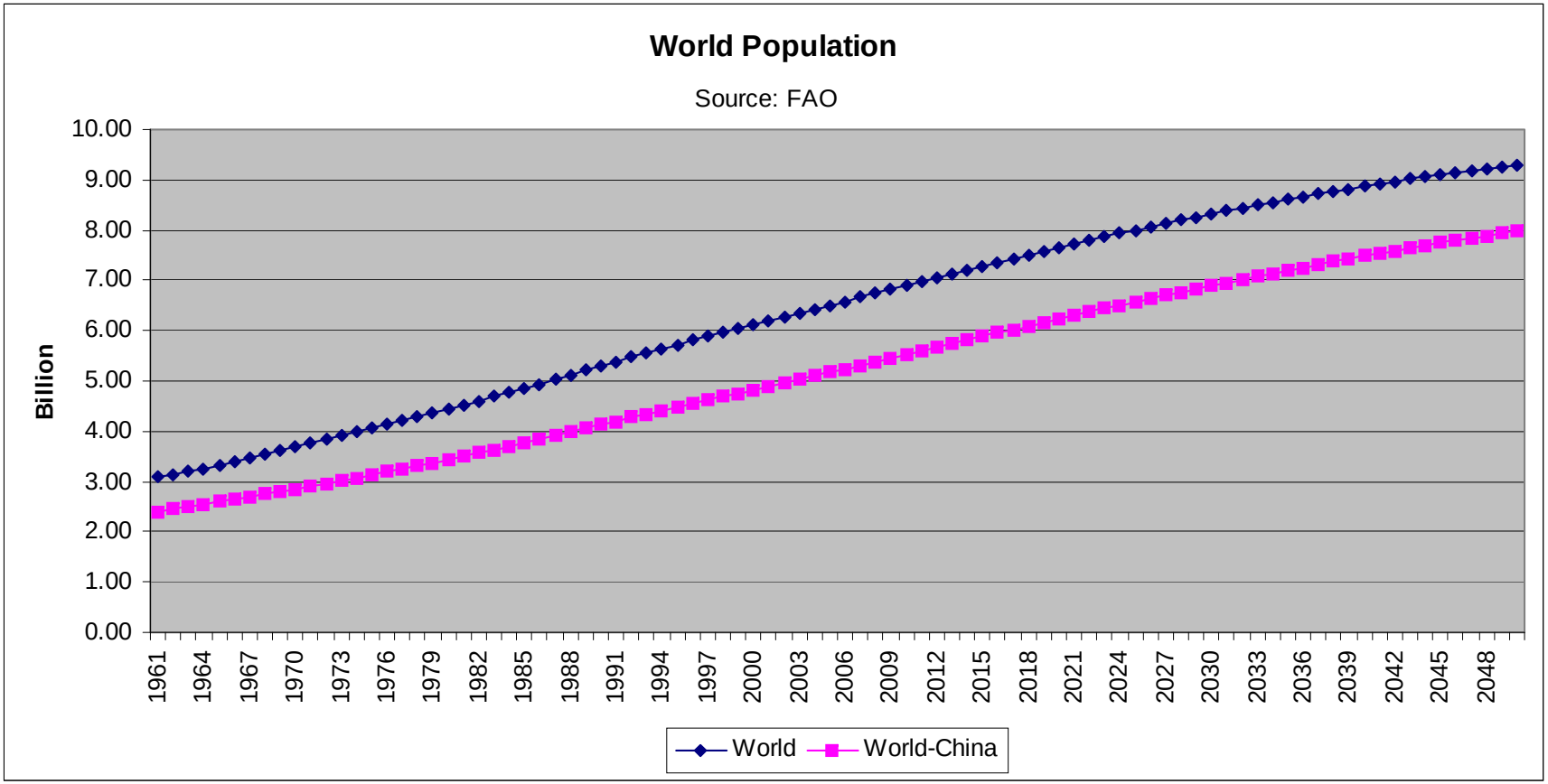
POPULATION GROWTH



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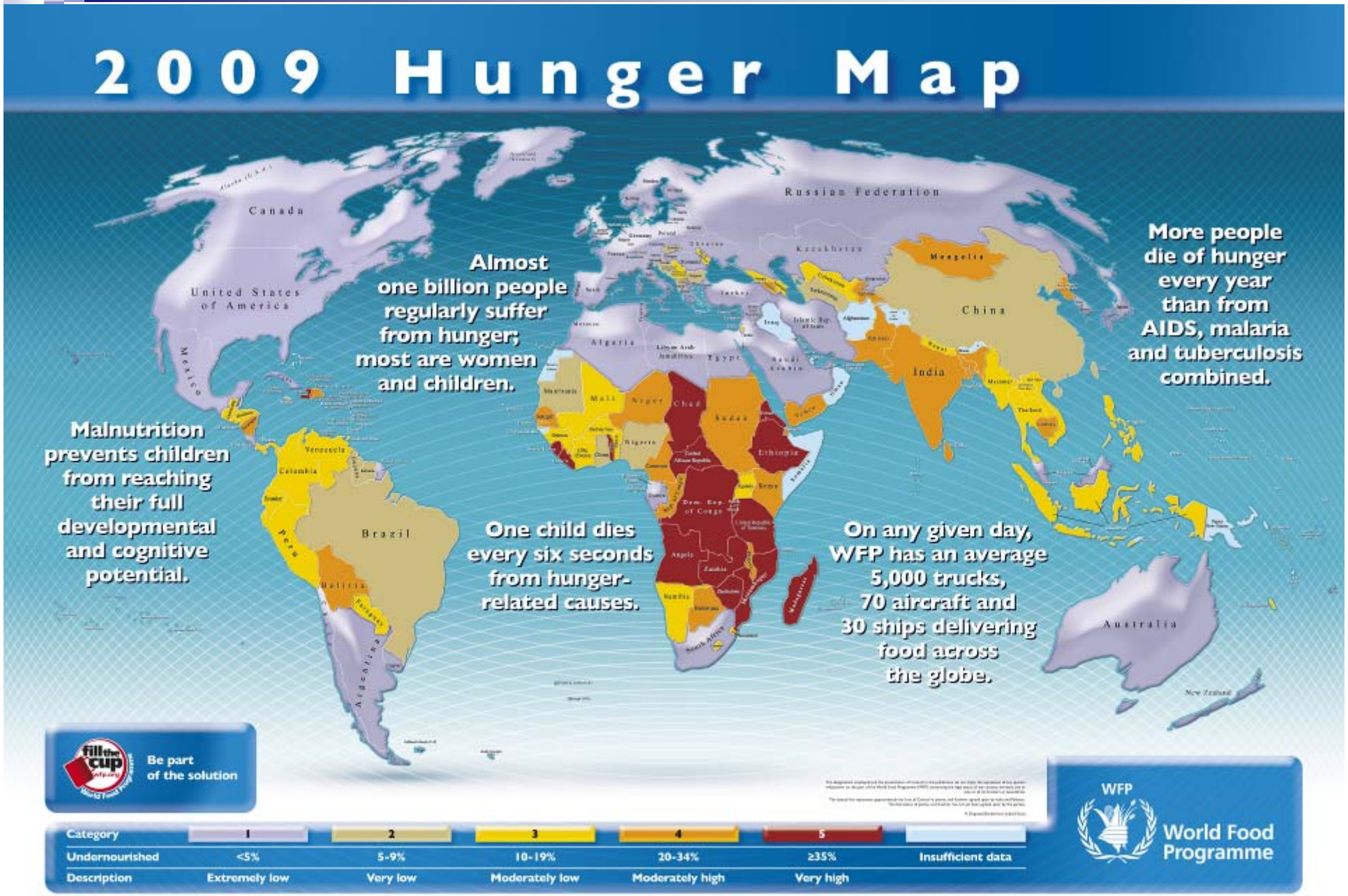
2009 Hunger Map



fill the cup — Be part of the solution

Category	1	2	3	4	5	
Undernourished	<5%	5-9%	10-19%	20-34%	≥35%	Insufficient data
Description	Extremely low	Very low	Moderately low	Moderately high	Very high	

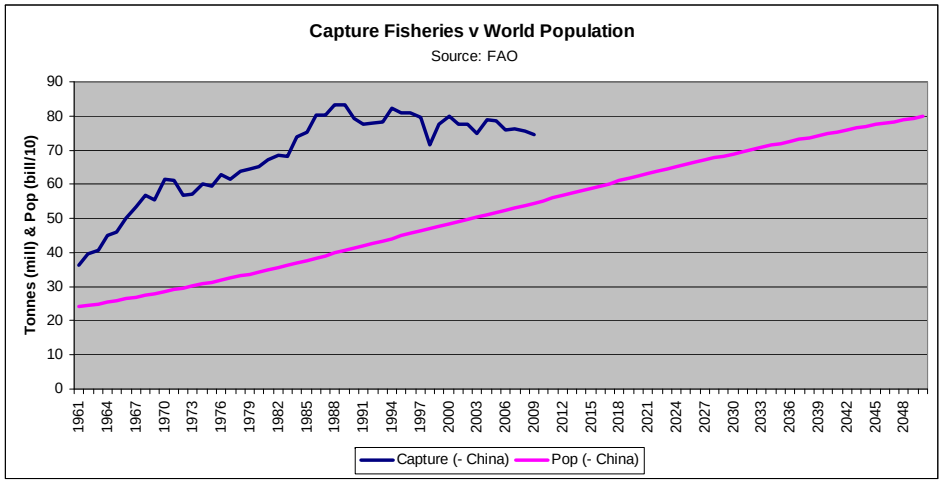
WFP World Food Programme

Sources: *The State of Food Insecurity in the World 2008*, Food and Agriculture Organization of the United Nations and FAOSTAT.

wfp.org

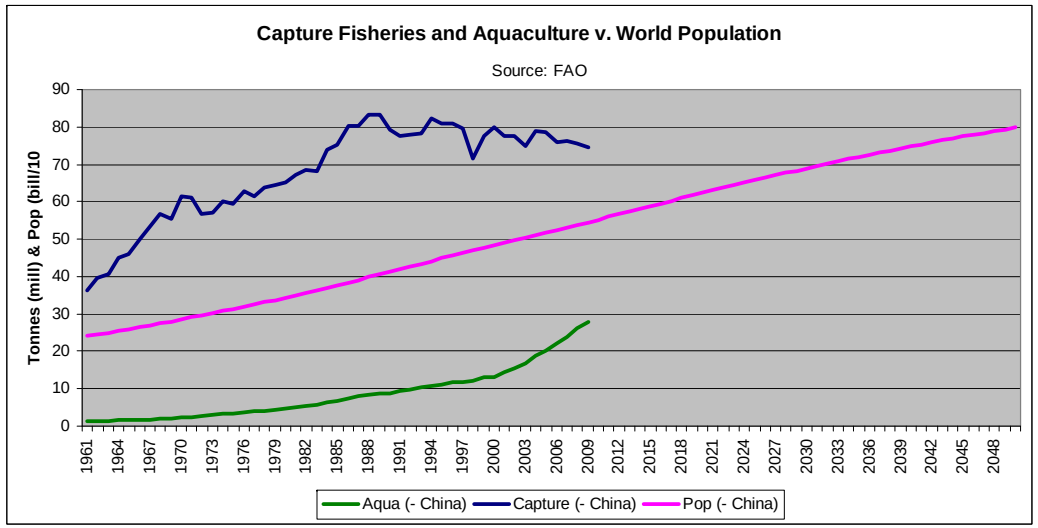
MARINE FOOD

Seafood as part of our diets

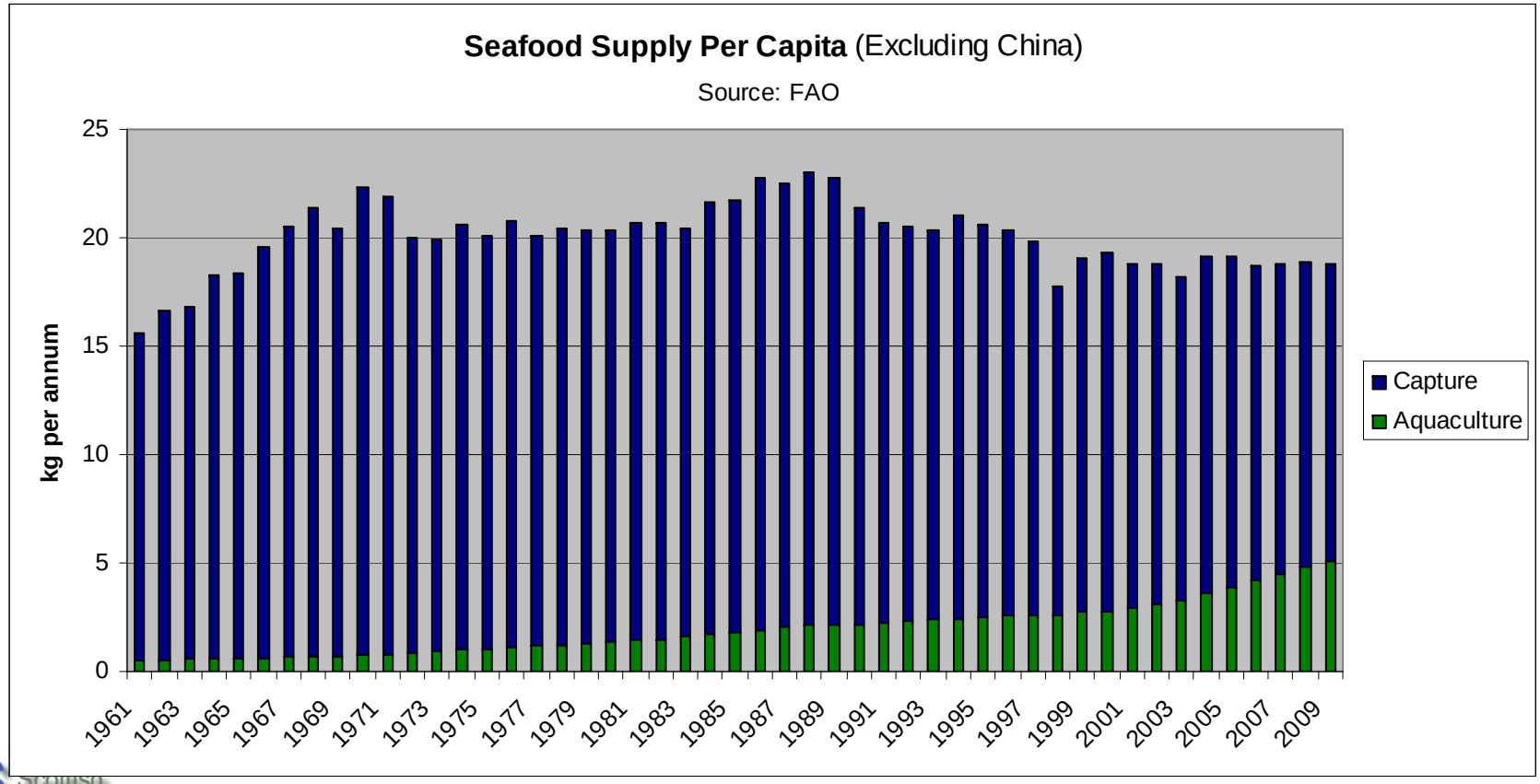


Plateau since mid 1980s

Importance of aquaculture



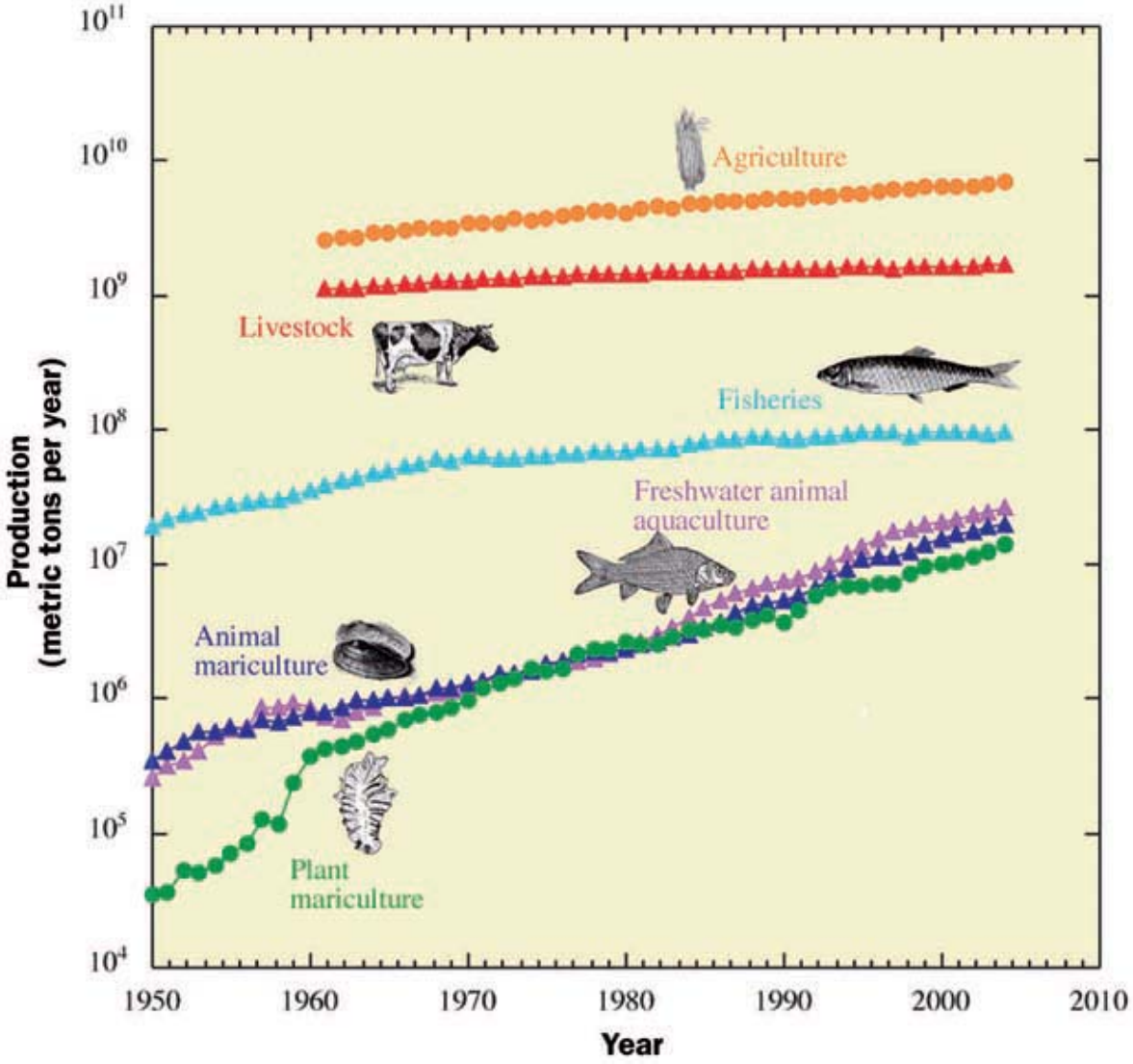
MARINE FOOD 2



Holding our own because of aquaculture
But population is still growing….

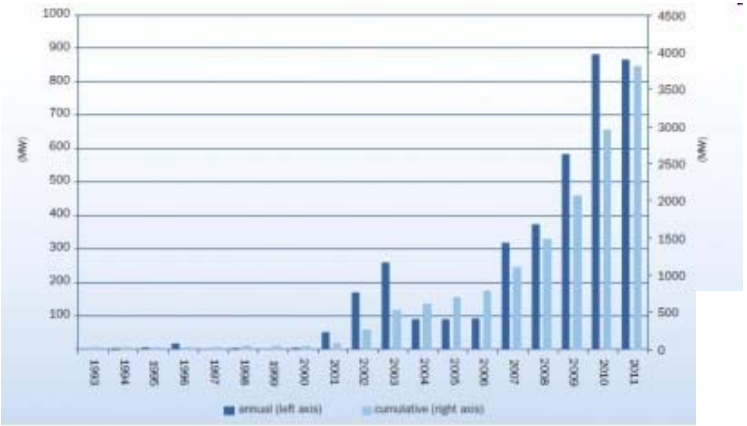
A MARINE AGRONOMY

- A view that the marine environment will become increasingly important
- Not just fish & shellfish
- Algae:
  - Food
  - Animal Feed
  - Bio-fuel
  - Speciality chemicals



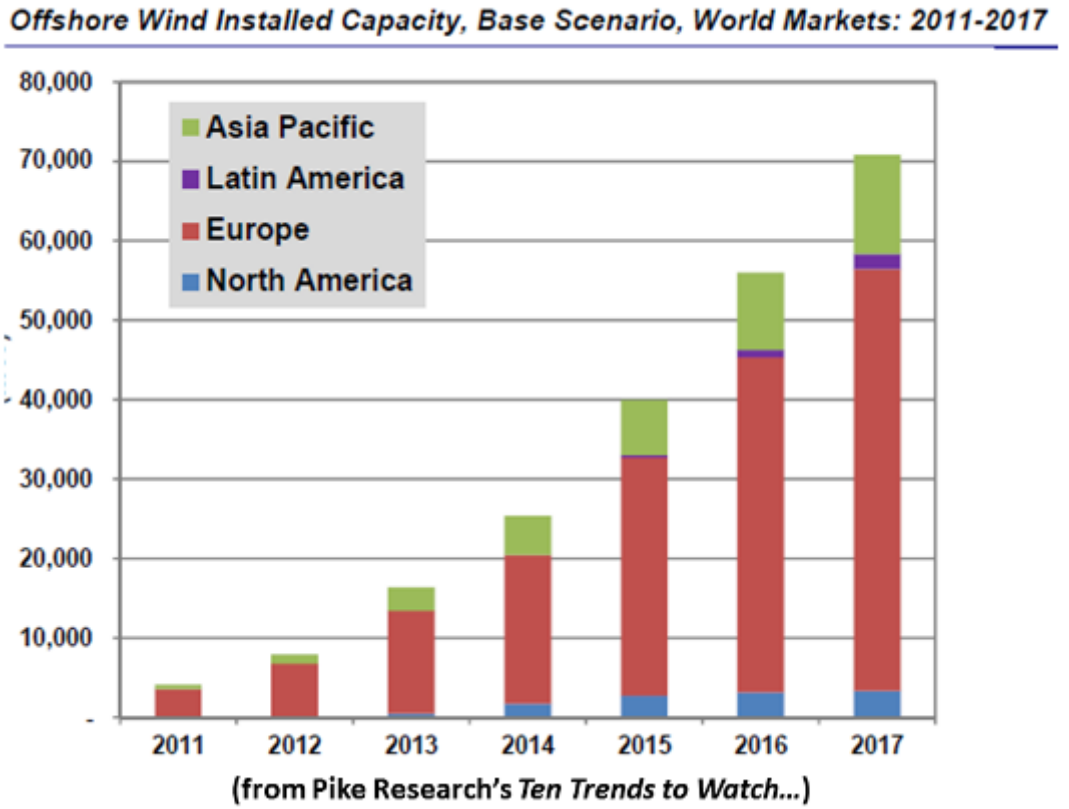
http://www.aquafeed.com/documents/1259799636_1.pdf

MARINE ENERGY

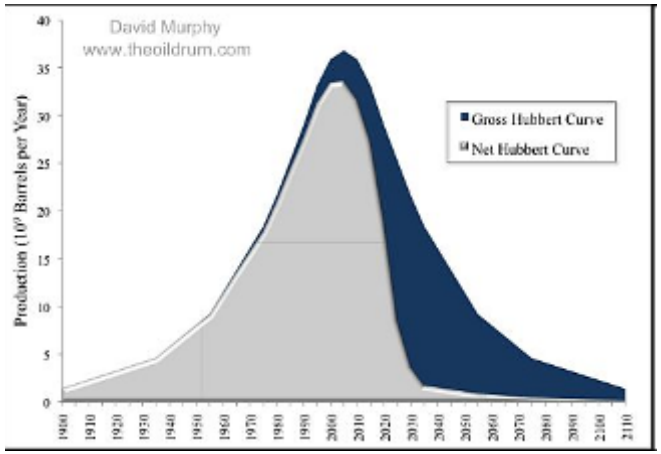


Historically growing fast

Projections for yet more growth



Remind ourselves about oil



WHERE DOES THE SCOTTISH MARINE ECONOMY FIT IN?

DISCUSSION 1

- An opportunity to pause and discuss ‘sectors’ in Scotland’s marine economy
- We have perhaps identified FOOD, ENERGY (and perhaps chemicals) as clear drivers
- What else is strategically important in a “Productive Seas” sense?
- What have we not spoken about yet?
  - We’ll come on to specific ‘constraints and challenges’ later
  - But are there generic issues we need to speak about now?

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DISCUSSION 1

2. Which of the following sectors do we think will grow significantly – and/or which of them should grow, if we had our way?

DISCUSS.

	Will grow anyway	Should be actively encouraged
Coastal defences		
Renting of water transport equipment		
Aquaculture: salmon; marine trout; mussels; oysters; scallops;		
Commercial Fishing: inshore, deep water		
Processing and preserving of fish and fish products		
Sea and coastal water transport and supporting activities		
Marine leisure and tourism: natural heritage; tours; diving; sea angling; leisure craft		
Building and repairing of ships and boats		
Service activities incidental to oil and gas extraction excluding surveying		
Extraction of crude petroleum and natural gas		
Offshore renewable energy: wind; wave; tidal		
Offshore algae: bio-fuels; food; animal feeds; chemicals		
Offshore aquaculture: species?		
?		

Hand-out Sheet 1

INTERACTIONS AND SYNERGIES

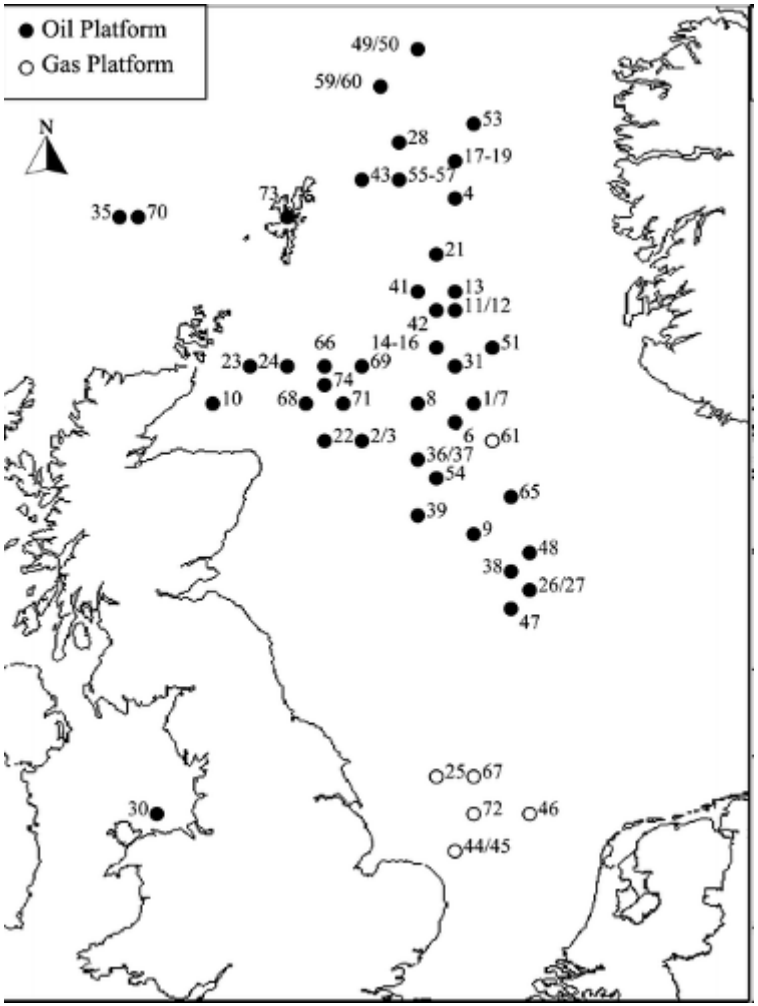
CURRENT STATUS

- No suggestion that there is anything amiss with the current status of all the sectors:
  - Salmon farming and shellfish farming in relatively sheltered sites, relatively close to the coast
  - A few newer salmon sites in slightly more exposed locations
  - Both successful, salmon especially (on a global scale!)
  - Both with a vision for growth, at least to 2020
  - Probably capacity for salmon to do so, in 'familiar' locations
  - Slightly more concern about sites for shellfish:
    - 'Bathing Waters' issues
    - Invasive species issues
  - Scotland leading the world in offshore renewables
  - Other sectors OK, within their current market situations
- But there really are only 2 or 3 'growth' sectors: aquaculture, offshore renewables, and (hypothetically) offshore algae

MAIN POINT:
Not suggesting that any one sector needs to change right now – we are looking to the future.

Or is true?
What did Discussion 1 reveal?

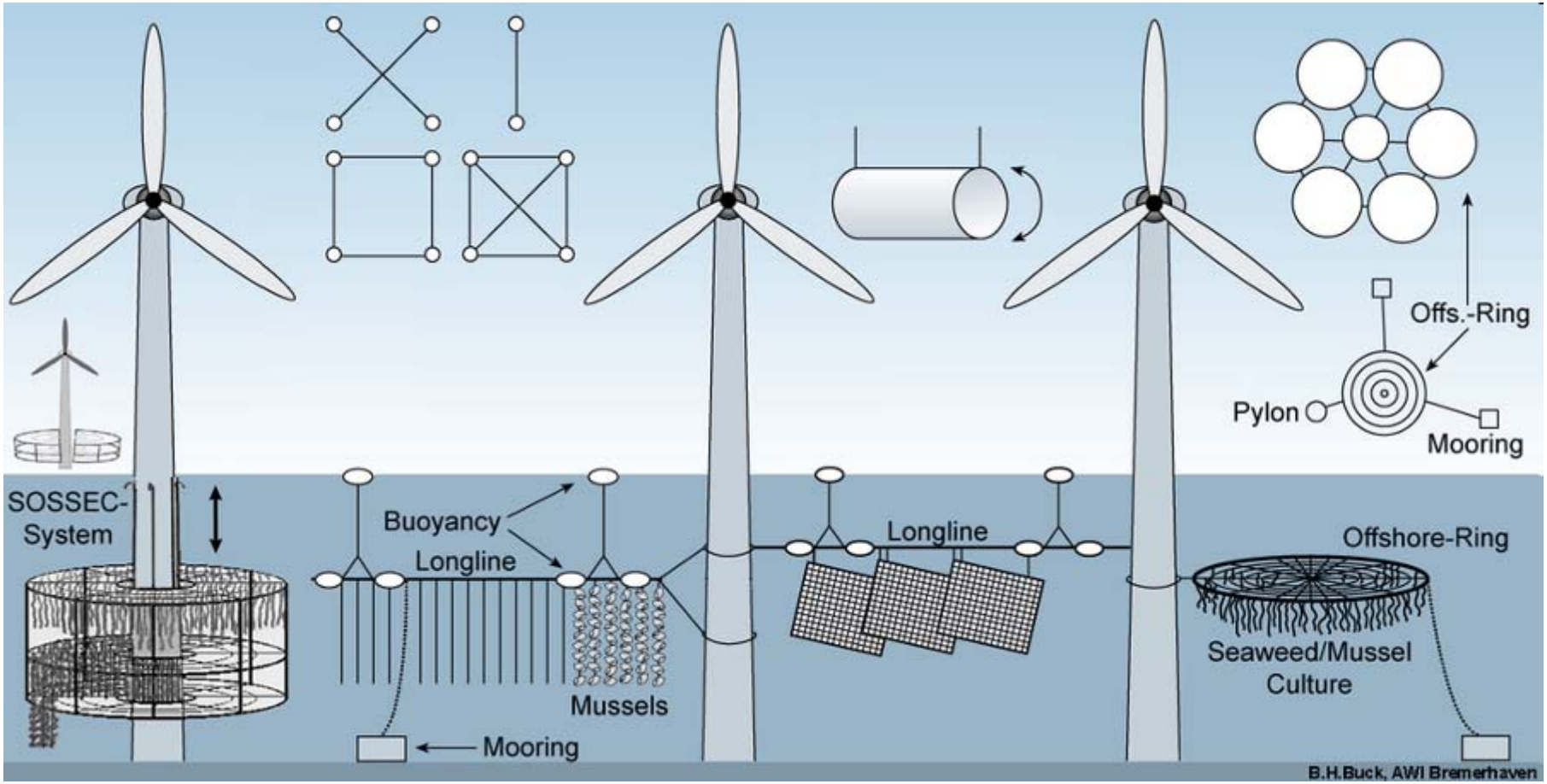
DISTANCES OFFSHORE



Oil & Gas

Offshore Wind Turbines

IDEAS THAT ARE BEING EXLORED
(But not in Scotland yet)



http://www.awi.de/en/research/new_technologies/marine_aquaculture_maritime_technologies_and_iczm/projects/marine_aquaculture_projects/roter_sand/

INTERACTIONS AND SYNERGIES

- **Much depends on what our discussions agreed the 'growth sectors' were**
- **They can continue to grow on their own – why interfere?**
- **But could they work together?**

SOME THOUGHTS:

SECTORS	WHY	WHY NOT	PARTNERS
Finfish and Shellfish + Oil & Gas	Large potential; Away from public; etc	Too far away; Old oil infrastructure	Who???
Finfish (salmon) + Energy renewables	Large potential; accessible distance, discrete; replace lost fishing; *others?*	High energy seas = design + biological issues; feed sustainability; *others?*	No clear champion; existing multinationals eventually; role for fishermen?
Mussels + renewables (what type of renewable?)	Large potential; accessible distance, discrete; replace lost fishing; good growth in experiments; *others?*	High energy = attachment & management issues; *others?*	No clear champion; fishermen & vessels used to these conditions; skill transfer with shellfish farmers;

Just some ideas to stimulate discussion……

DISCUSSION 2

1. We decided that WHAT were the decadal growth areas for Scotland. Is there any synergy between these and each other or any other marine sector, old or new?

DISCUSS:

- Identify pairs
- Why is there a chance of synergy, and why is it desirable?
- What could go wrong with this idea?

DISCUSSION 2 (Page 2)

SECTORS	ADVANTAGES	CHALLENGES	PARTNERS

Hand-out Sheet 2

CONSTRAINTS

HOW TO DRIVE NEW SECTORS FORWARD

Government

- Business identifies a new opportunity and moves forward anyway
  - The State helps or hinders in terms of regulatory landscape
  - The State might share in the investment in innovation:
    - Funding for research
    - Funding for pilot scale development
    - Funding for commercial development – one-off
    - Funding for interim subsidy while sector develops

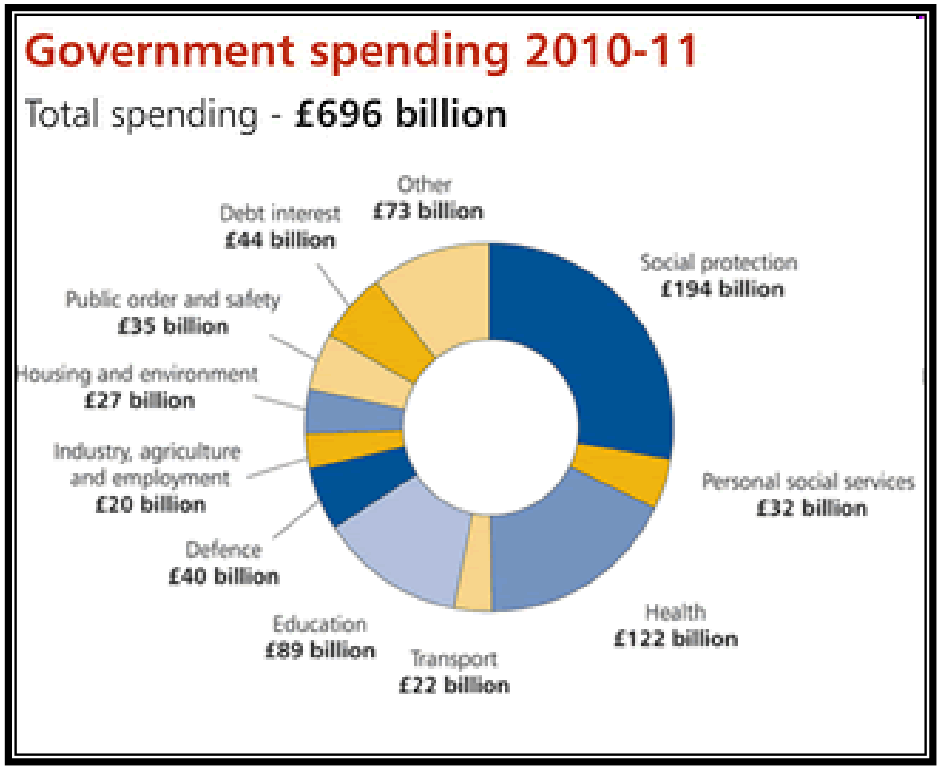
This is obvious, for government, once it understands the proposition

OR

- Current business does not champion a new opportunity, although it clearly *seems* to exist
  - Too busy with 'core business'
  - Would like to move, but too small to take a risk
  - Lack of skills
  - Lack of complete faith in the 'idea' – credibility gap
- OR
- Anything in between: which is the most likely scenario.

These scenarios are more challenging.
Government can help by:
a) Funding pure research
b) Funding applied research
c) Funding pilot studies
d) Encouraging knowledge-sharing

GOVERNMENT SUPPORT – R&D; INNOVATION; GENERAL



Net Government Spending on R&D
(2008/9)
-Research Councils £2.98 billion
- HE Funding Councils £2.27 billion
- Civil Departments £2.17 billion
- Defence £1.99 billion

TOTAL: £9.37 billion

TSB
-Avg. £0.23 billion p.a.
(2008 – 2011)

Of which EFF:
-Avg. £0.02 billion p.a.
(2007 – 2013)

EU Structural Funds
-Avg. £1.3 billion p.a.
(2007 – 2013)

Key point is that there is capacity for government to fund innovation in the marine economy, in various ways – if we can demonstrate potential

http://www.bis.gov.uk/assets/biscore/innovation/docs/a/11-p188-annual-innovation-report-2010

DISCUSSION 3

1. We've identified WHAT as possible growth areas for Scotland's marine economy, whether integrated with others or independent. Why should government support development and innovation in these sectors:
    1. Through science funding
    2. Through pilot scale commercial development
    3. Through structural/development support mechanisms

DISCUSS:

- 4 reasons why government (or anyone else, even us) might be cautious about support or investing effort & resources
- For each, 3 things we should/could do to improve credibility/confidence or encourage seed/pilot investment

DISCUSSION 3 (Page 2)

Sector/Opportunity: _____

Knowledge or credibility or strategic investment gap	Action to Bridge Gap - 1	Action to Bridge Gap - 2	Action to Bridge Gap - 3
1.			
2.			
3.			
4.			

Hand-out Sheet 3

SUMMARY & OUTPUTS

- We have covered a lot of ground
- We have:
  - Identified growth areas in the Marine Economy for Scotland
  - Identified opportunities for synergy and integration
  - Identified constraints – and suggested some solutions
- Next Step:
  - SARF will collate and summarise your 3 hand-out sheets
  - SARF will prepare a short paper on the workshop
  - It will be published on the SARF website (as well as included in the MASTS event proceedings)
  - <u>If appropriate</u>, SARF will actively disseminate it to key Scottish Government policy teams

Thank you all, and a safe journey home

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