



Engaging in seafood industry systems - issues and experiences

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Contents

1. Challenges and hurdles in addressing GHG emissions
2. Experiences in North East Scotland
3. Lessons learned

A path forward some initial steps in a collective action

- **Action 1 Methods (expertise and engagement)**

- Methods and boundaries
- Common methodological approach

- **Action 2 Standards development**

- Draft and final specification (seafood interpretation of BSI PAS2050)

- **Action 3 Understanding seafood systems**

- Review of existing studies to date in seafood
- New research (Whitefish, Shellfish, Pelagic, Salmon systems – emissions & drivers)

- **Action 4 Sharing data**

- Data sharing rules
- Quality assurance for collating and pooling

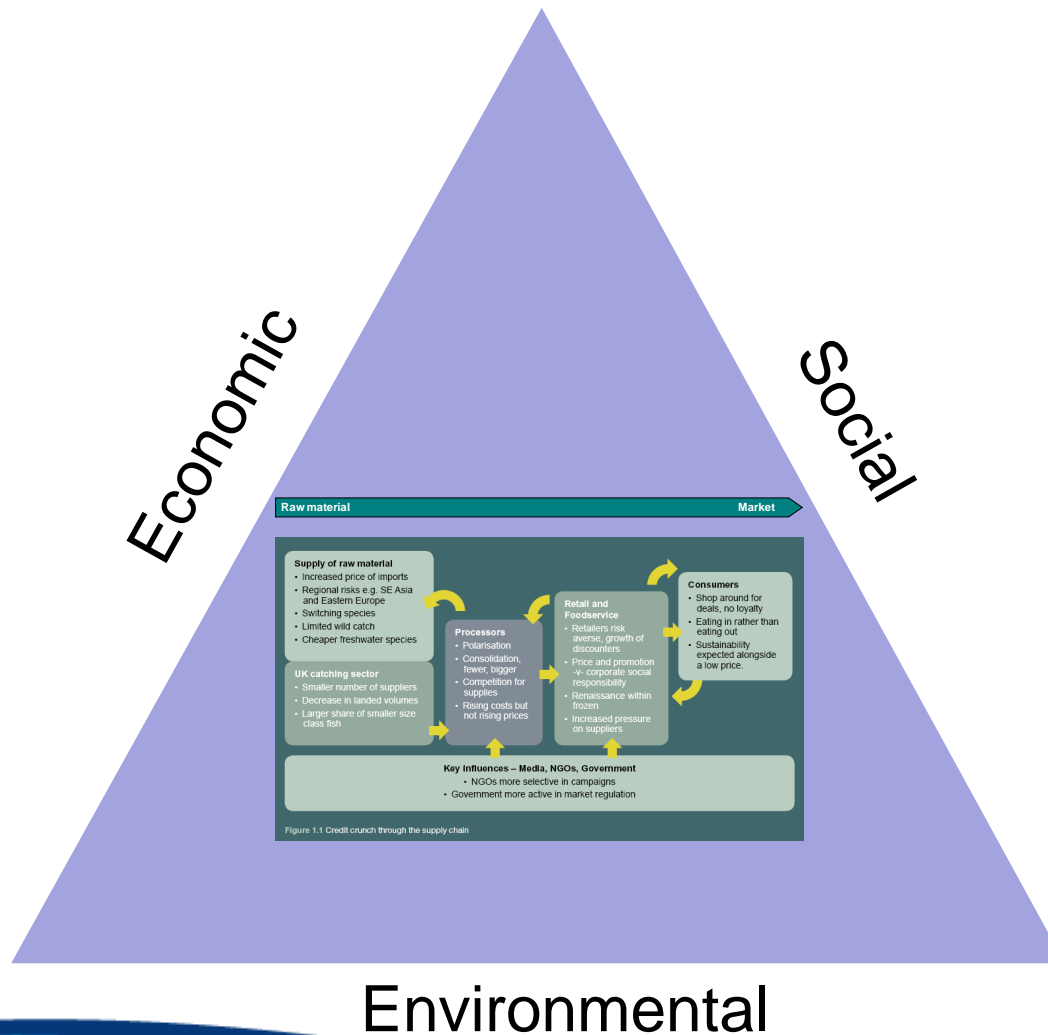
Month 1
Year 2012

5

10

15

Challenges & hurdles – GHG down the agenda

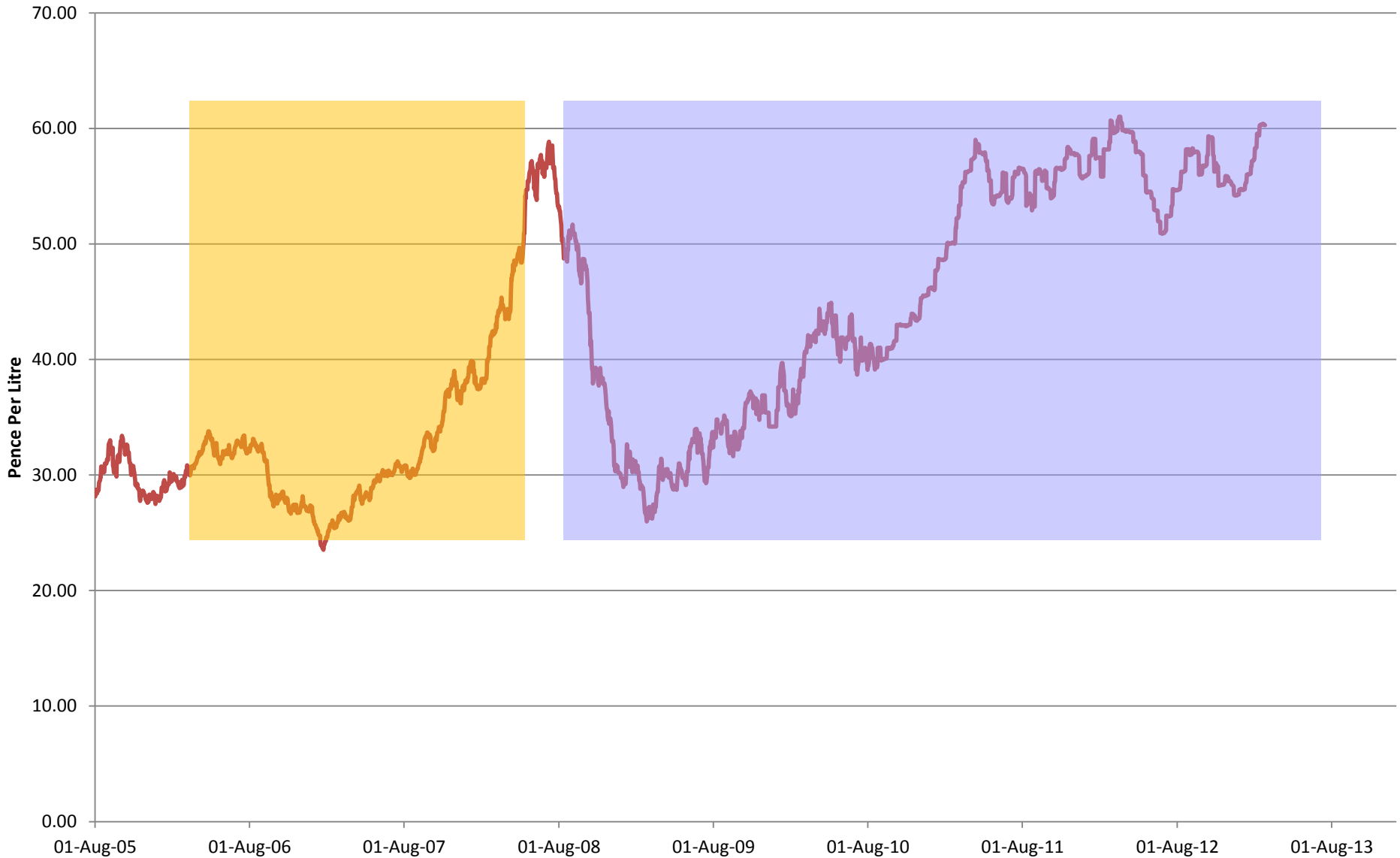


Challenge

1. Not viewing this as a 'technical problem'
2. Seafood as complex dynamic open systems
3. Three strategies:
 - Authoritative
 - Competitive
 - Collaborative
4. *"People like change but don't like to be changed"*
5. Engaged approach with different groupings

Challenge

Red Diesel Average Price 2005-2013



Options for improving fuel efficiency in UK fleet

Fuel efficiency measure	Indicative industry uptake	Barriers to uptake	Costs	Benefits
Change target species	X	Regulation	££	£
Stop fishing temporarily	X	Cost	£	£
Change fishing method	X	All	£££	£
Change landing port	XX	Knowledge/uncertainty	£	££
Reduce crew costs	X	Practicality	-	£
Change trip planning practices	XXX	-	£	££
Modify gear	XXX	All	£	£££
Replacing engine	X	Cost	£££	££
Fit gear monitoring unit	X	Cost	££	£
Preventative maintenance	X	Knowledge/uncertainty & cost	£	££
Reduce steaming speed	XXX	Knowledge/uncertainty	-	££
Reduce towing speed	XXX	Knowledge/uncertainty & practicality	-	£

Options for improving fuel efficiency in UK fleet

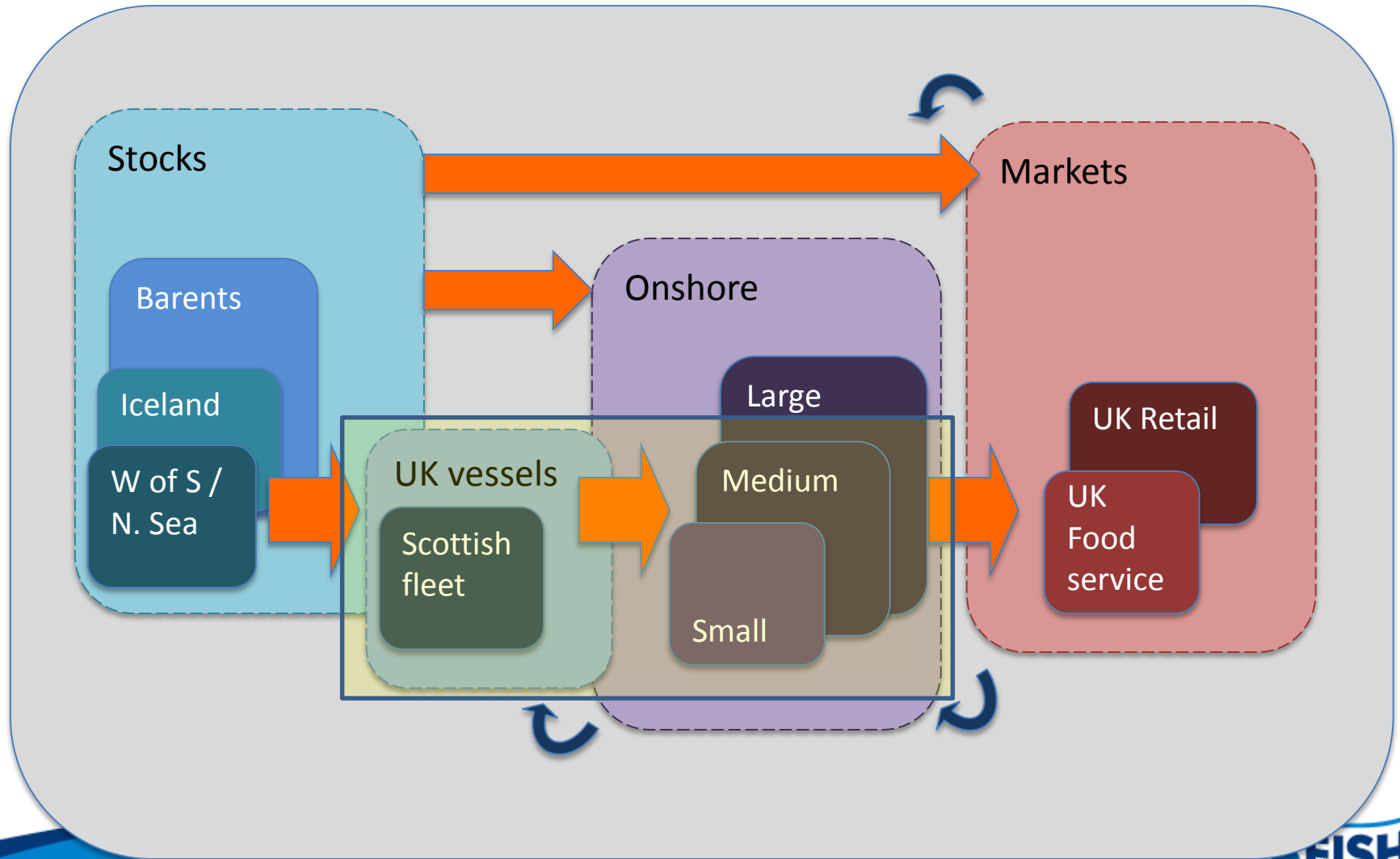
1. Although many of these options were widely known, despite financial benefits, many of these changes were not adopted
2. A number of reasons why - main barriers to increased uptake being:
 - Regulation
 - **Knowledge gaps***
 - Practicality
 - Capital availability

Options for improving fuel efficiency in UK fleet

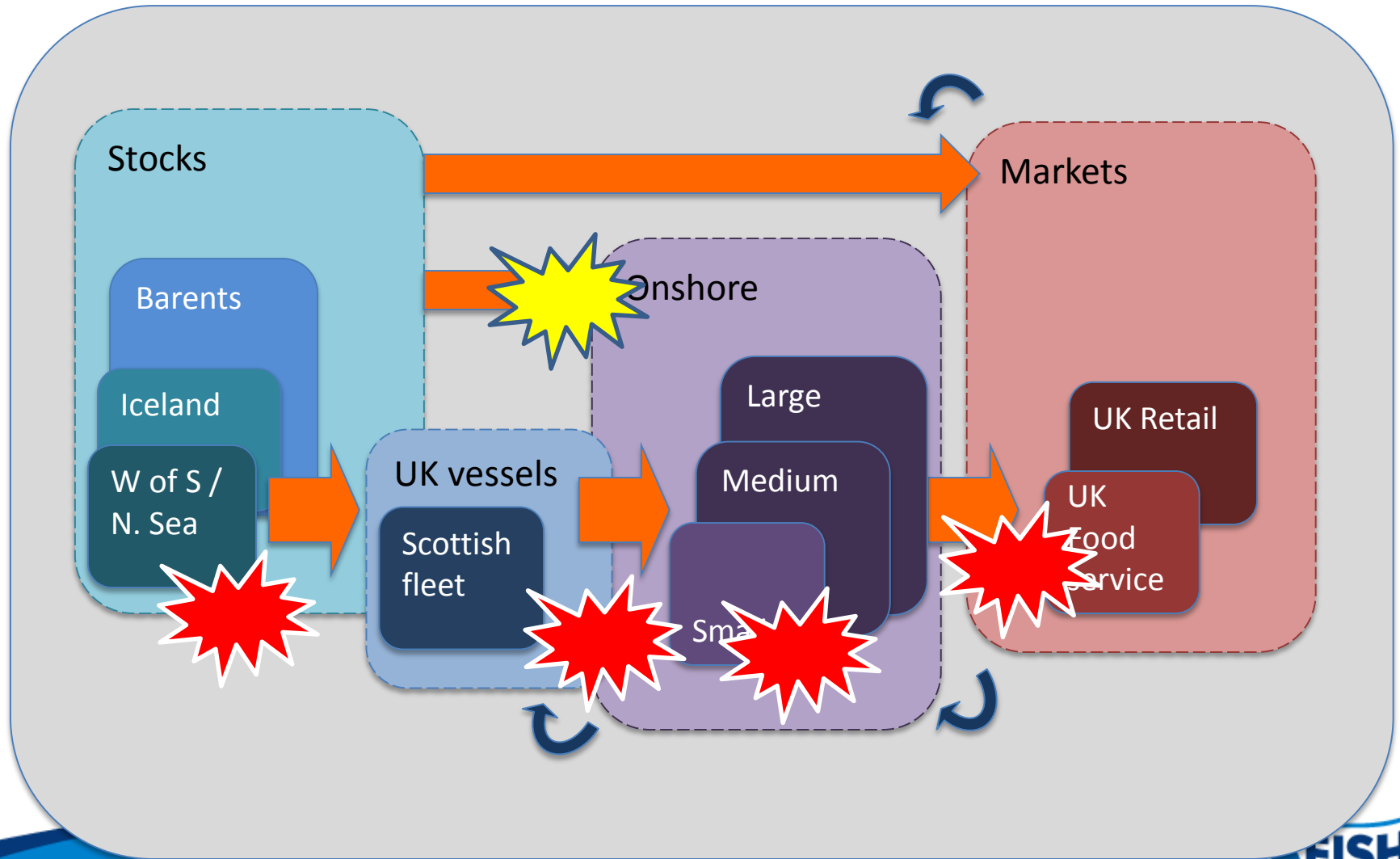
Lessons learned

1. Engagement - get people involved!
2. Co-develop the solutions, and the process builds capability
 - Set the challenge
 - You come up with the plan, we'll give you 50%
 - We'll facilitate the process
 - Contrast to our past practices – we've designed the solution now you go and use it.

North East Scotland Whitefish

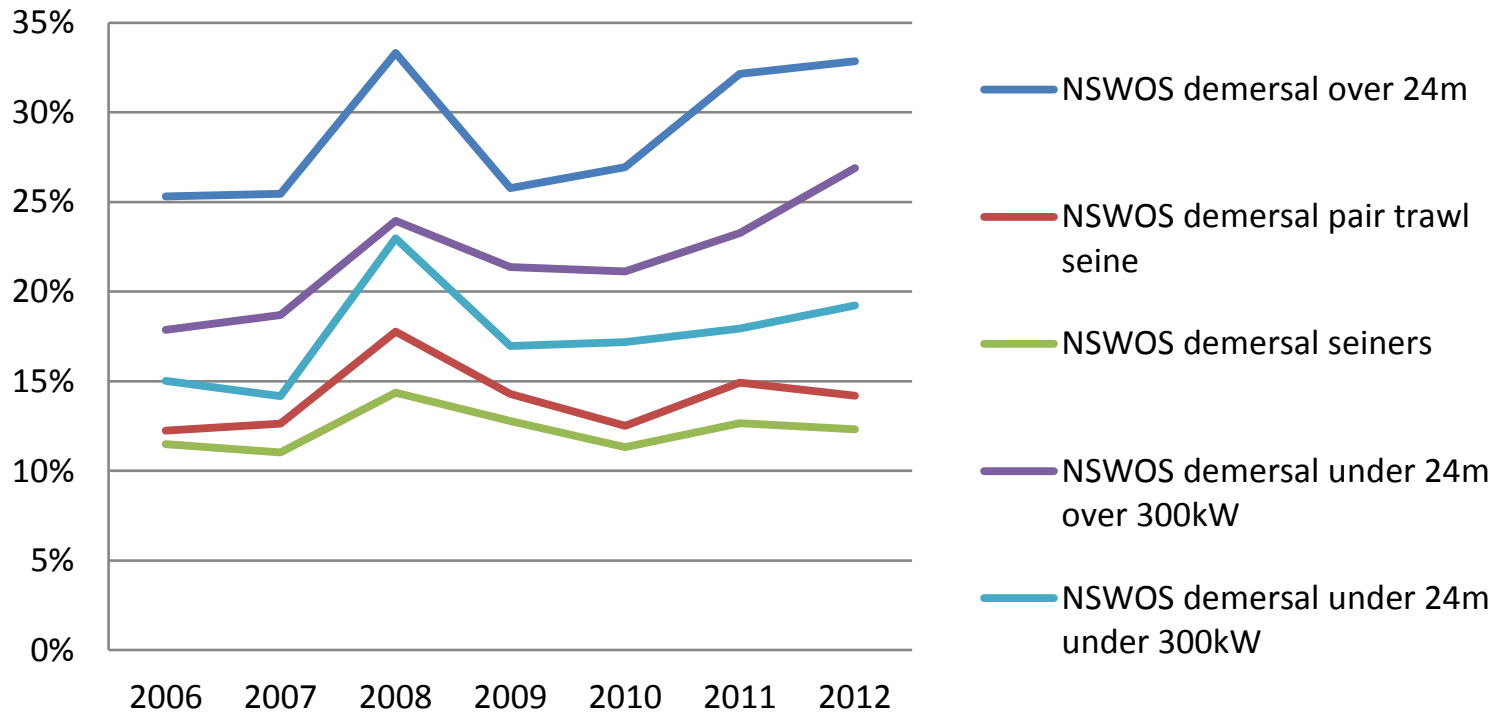


North East Scotland Whitefish

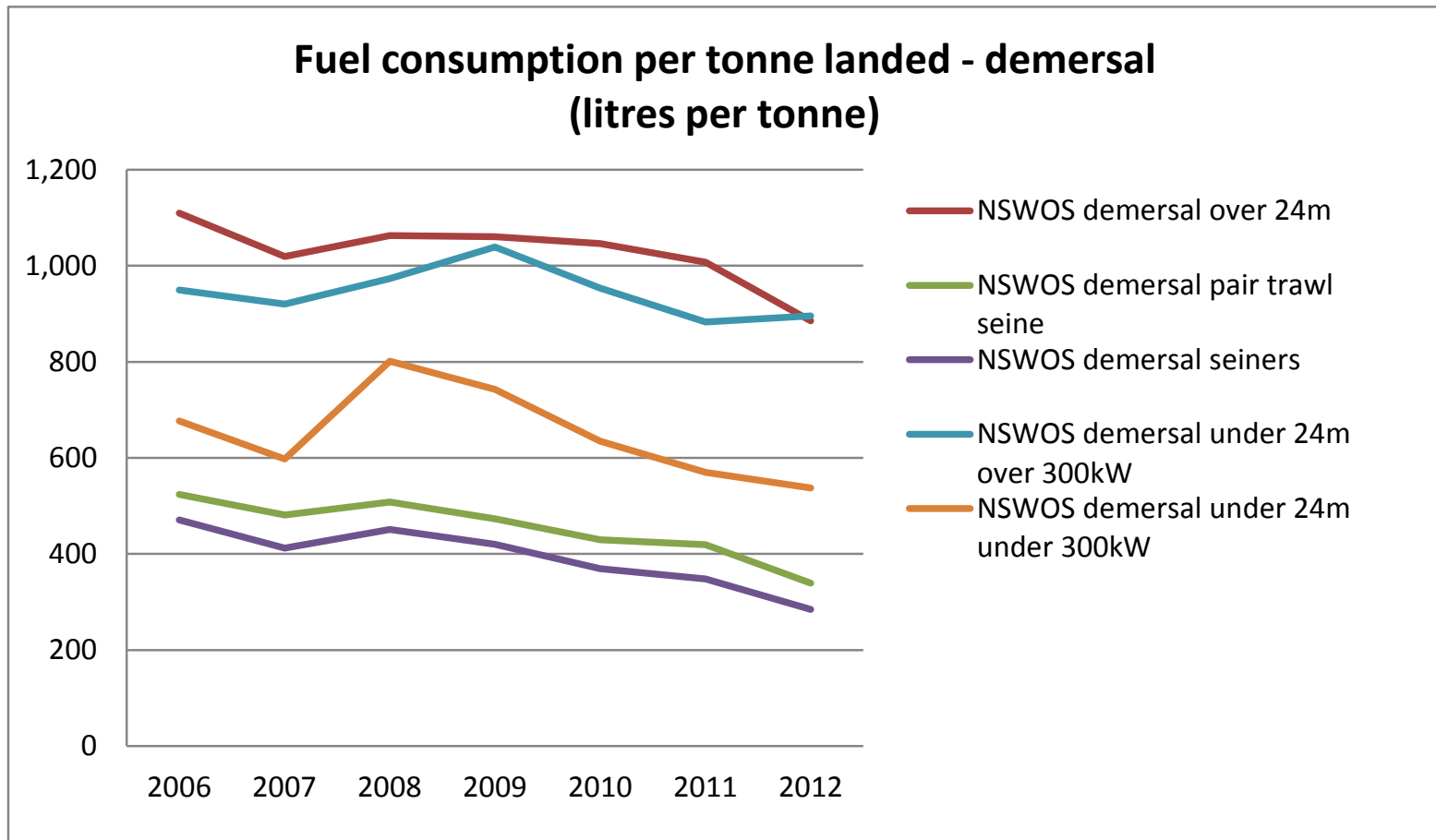


North East Scotland Whitefish

fuel cost as % fishing income - demersal



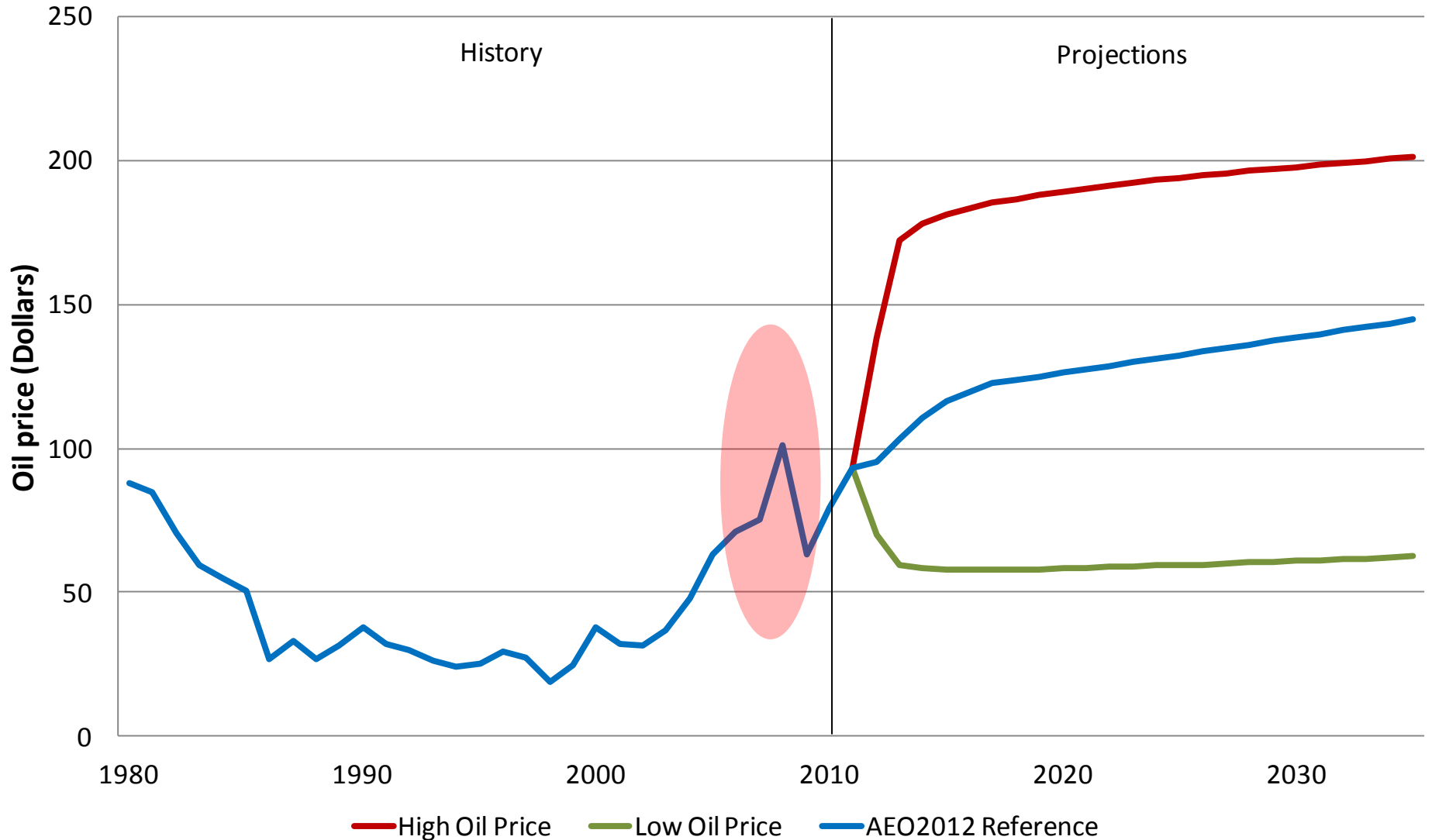
North East Scotland Whitefish



Energy efficiency perspective

Average annual world oil price in three cases 1980-2035 (real 2010 dollars per barrel)

Source: EIA Energy Outlook 2012



Lessons learned

1. Multiple, interacting, challenges
2. Importance of relevant problems so need ongoing engagement
3. Dynamic modelling, collaborative solutions, learning & building capability over time
4. Solutions need to be in context - find 'win-win's'