



Fisheries governance in the UK: Challenges and opportunities in a changing climate

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- Climate change impacts in the UK
 - Government approach to adaptation
- Stylised examples of adaptation challenges:
 - Species abundance, access and quotas
 - Securing sustainable biomass
 - Marine conservation and protection
- Conclusions

An overview of UK climate change impacts

- By 2100 the UK's marine area is expected to see:
 - An increase in average temperatures of 1.5–4°C
 - A sea level rise of 0.18–0.59 metres
 - A doubling of ocean acidity (a decrease in pH of 0.3)
 - Changes in storm intensity and ocean circulation
- This is expected to result in:
 - Shifts in the distribution of fish species
 - The loss of fisheries and localised extinction events
 - New species moving into UK waters

The UK's approach to adaptation

- “Autonomous adaptation to climate change will be undertaken when it is in an individual’s interest and power to do so”
- Government’s role is to support individuals and businesses in adapting appropriately
- Where autonomous adaptation would not be expected to deliver the socially optimal adaptation outcome government may wish to intervene

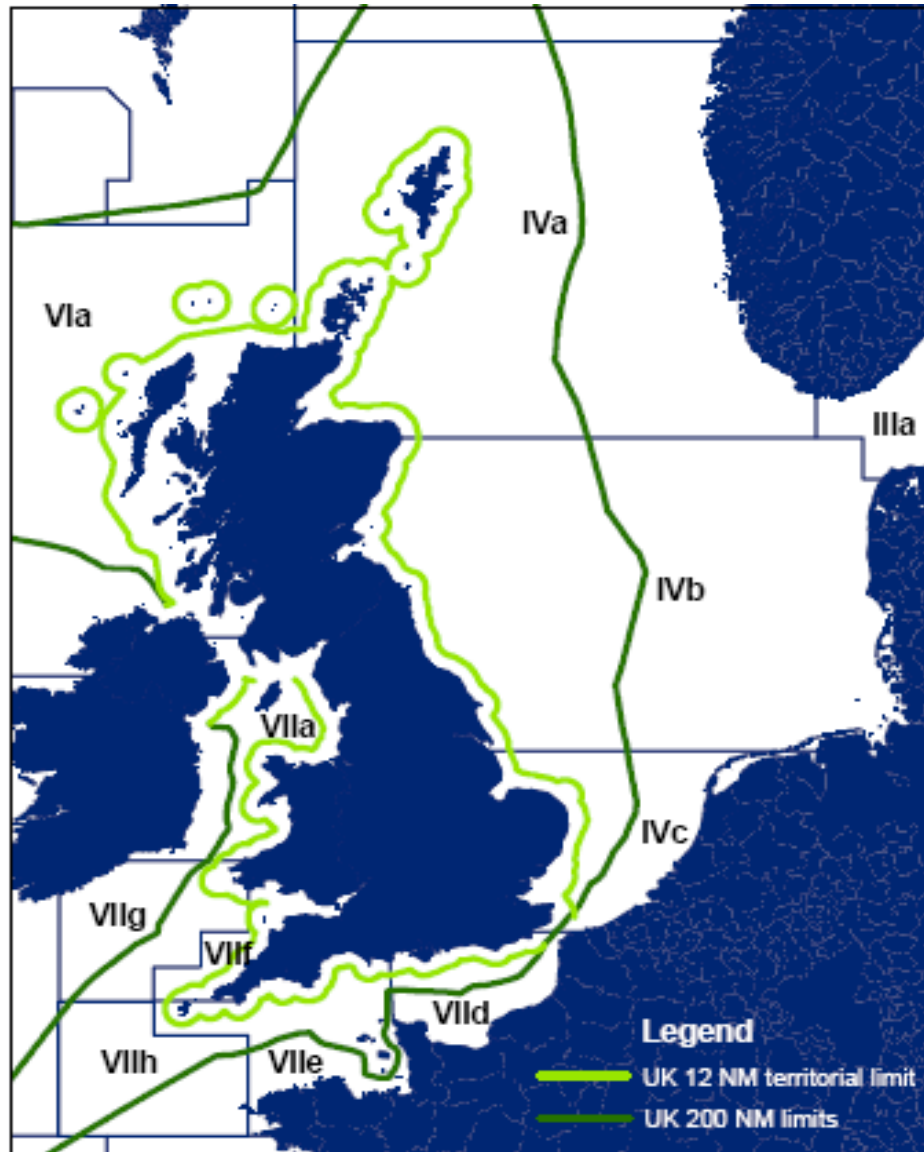
Institutional barriers to adaptation: Species abundance, quotas and access

- The distribution of fish species is changing.
How will fishers adapt? Responses include:
 - Following the fish
 - Travelling further distances, more time at sea, greater fuel consumption
 - Targeting new species as they move into the fishers' traditional fishing grounds
 - Investment in new gear and licences

Institutional barriers to adaptation: Species abundance, quotas and access

- Do governance structures facilitate efficient adaptation?
 - For non-quota species – yes
 - For quota species – maybe not
- The domestic quota market is:
 - Illiquid
 - Lacks transparency, and
 - Is subject to high transaction costs

Institutional barriers to adaptation: Species abundance, quotas and access



A role for government: Species abundance, quotas and access

- Potential solutions to address the movement of (and access to) species include:
 - The creation of efficient markets for trading quota both domestically and internationally
 - The allocation of quota and access rights based on bio-geographically defined Fisheries Management Units, rather than on the traditional geo-political location of the species
- These could embed considerations eg maintenance of ‘relative stability’ in the Common Fisheries Policy

Institutional barriers to adaptation: Securing sustainable biomass

- The maximum sustainable yield for cod and some other species in UK waters is eroding
 - Appropriate adaptation requires a commensurate decrease in the harvest
- Quota setting in the EU reflects a combination of scientific advice, political negotiation and the achievement of ‘social’ objectives
 - Not necessarily conducive to quota reductions

A role for government: Securing sustainable biomass

- Advancing the political economy of fisheries management:
 - Building trust between fishers, scientists and government
 - Securing buy-in, improving compliance
 - Reconciling catch limits and fishing mortality
 - Addressing discards
 - Boosting ecosystem resilience to climatic shocks

A role for government: Marine conservation and protection

- Resilience in marine ecosystems may be considered a public good
- This is delivered through:
 - Fisheries spatial protection measures
 - Marine protection aimed at promoting ecosystem resilience more widely
 - An integrated approach to marine management

A role for government: Marine conservation and protection

- The legislative process for introducing marine protection depends upon the location of the restrictions
 - Within 6nm the process is ‘light touch’
 - Beyond 6nm the process is more protracted
 - May act as a disincentive to appropriate adaptation
- Protection measures should be periodically reviewed to avoid incentivising mal-adaptation

A role for government: Integrated marine management

- An ecosystems-based approach to marine management:
 - Strategic marine planning system
 - The Marine and Coastal Access Act (2009)
 - Integration of business and environmental objectives
 - The Marine Strategy Framework Directive
 - Explicit incorporation of environmental quality into policy design
 - The ecosystem services approach

Concluding thoughts (1)

- The adaptive strategies employed by individuals will depend upon the personal and institutional incentives they face
- The localised effects of climate change remain uncertain and the marine environment may become more volatile as the marine climate changes
- Government will need to ensure that institutions are sufficiently flexible to adjust and maintain the incentives to adapt appropriately

Concluding thoughts (2)

- To ensure efficient adaptation government should:
 - Identify and remove institutional barriers to autonomous adaptation
 - Provide information so that fishers are well placed to autonomously adapt to climate change
 - Fully integrate fisheries management within the wider text of marine biodiversity