

## **Option 7: Inshore Beaming Displaced in Area VIIe**



### **The Invest in Fish Bio-Economic Model**

**The IIF Bio-Economic model is designed to simulate the interactions between fish stocks, the size and effort of the fishing fleet and regional output and employment within the South West. The aim of the model is to provide a means of comparing the effects of different policy options for the management of the region's fisheries relative to the baseline of what is expected to happen if no action is taken.**

**It is important to recognise that the model is an 'OPTION COMPARISON' model NOT a forecasting model. The aim of the model is to compare what happens if a 'management' decision is taken to implement a particular policy and all other factors are assumed to stay the same. Thus the impacts of policies are examined 'relative to this FIXED baseline' where all variables are held constant over time.**

# IIF Bio-Economic Model of South-West Fisheries

## Option 7: Inshore Beaming Displaced in Area VIIe

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In addition to policies designed to reduce fleet size and/or effort and technical measure to reduce catch, there are also 'area based' measures that may be used. Option 7 investigates the impact of a policy designed to restrict beam trawlers ability to fish inshore in area VIIe. The main aim of this policy measure is to try and conserve stocks in this area. However, as shown in Graphs 7a to 7c it is estimated that in reality this measure would have only a minor impact upon fish stocks across the area. It does show however, the ability of the model to demonstrate 'fine scale' local effects where good data exists

The likely effects of this option are evaluated against a number of key measures as follows:

- ❖ The level of spawning stocks (Demersal, Pelagic and Crustacea/Shellfish)
- ❖ Overall impact on the environment
- ❖ The value of revenue by port
- ❖ Boat profitability (overall and by gear activity)
- ❖ The value of recreational angling expenditure
- ❖ Regional output and employment.

The graphs show the outcomes of each alternative option. The outcomes are shown '*relative to the baseline*'. This means that rather than showing actual values year by year, the graphs show how each different option impacts upon outcomes compared to what would have happened if nothing had been done (i.e. the baseline). This means that if the values are positive, the outcome is better than the baseline and if negative worse than the baseline.

It is important to recognise that the option outcomes are based upon a number of key assumptions;

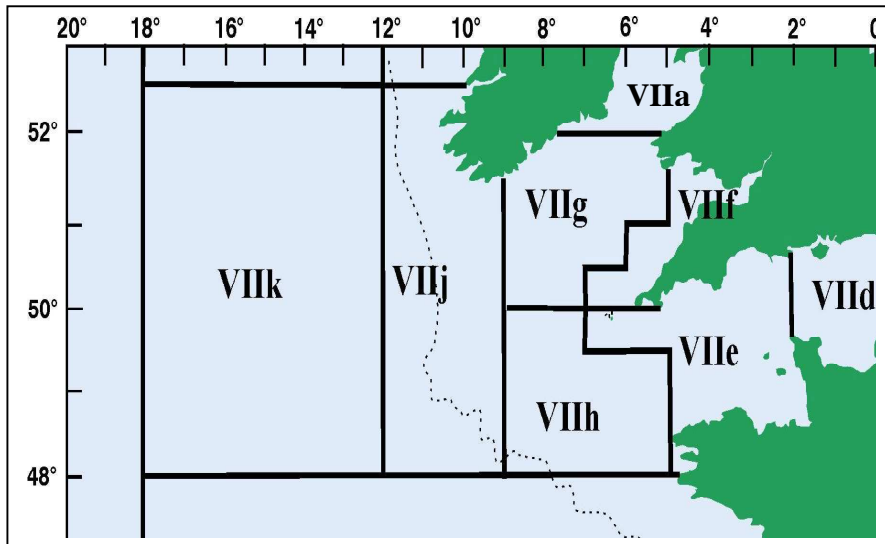
- ❖ In all cases (except where specified) options are applied 'unilaterally in the model' (thus most options are applied only to the UK fleet over which DEFRA has jurisdiction). It is therefore assumed that the effort of other EU fleets will remain at the level modelled in the baseline. The impact of the foreign fleet is modelled in terms of its effect on fish mortality/catch and this impact may be altered within the model as 'reduced effort' or days at sea (see option 3i), but technical changes cannot be applied to this fleet.
- ❖ Prices of all fish species caught and landed are 'fixed' so that changes in revenue are 'real' changes (due to catch size) rather than 'apparent' changes due to alterations in prices at sale.
- ❖ Estimates of spawning stock biomass are based on ICES data of recruitment observations over the past 20 to 30 years, which may be considered by some to be precautionary or pessimistic.
- ❖ Unless specifically stated as part of the option being considered, the size of the fleet is assumed to remain at its current level, with vessels continuing to fish even if they are unprofitable. (this assumption is modified in the 'natural attrition' modified baseline where unprofitable boats are assumed to leave the fleet.).

- ❖ Spawning stock to recruitment relationships were analysed in conjunction with CEFAS in order to determine the appropriate stock-recruitment relationships for the model.

## Fish Spawning Stocks

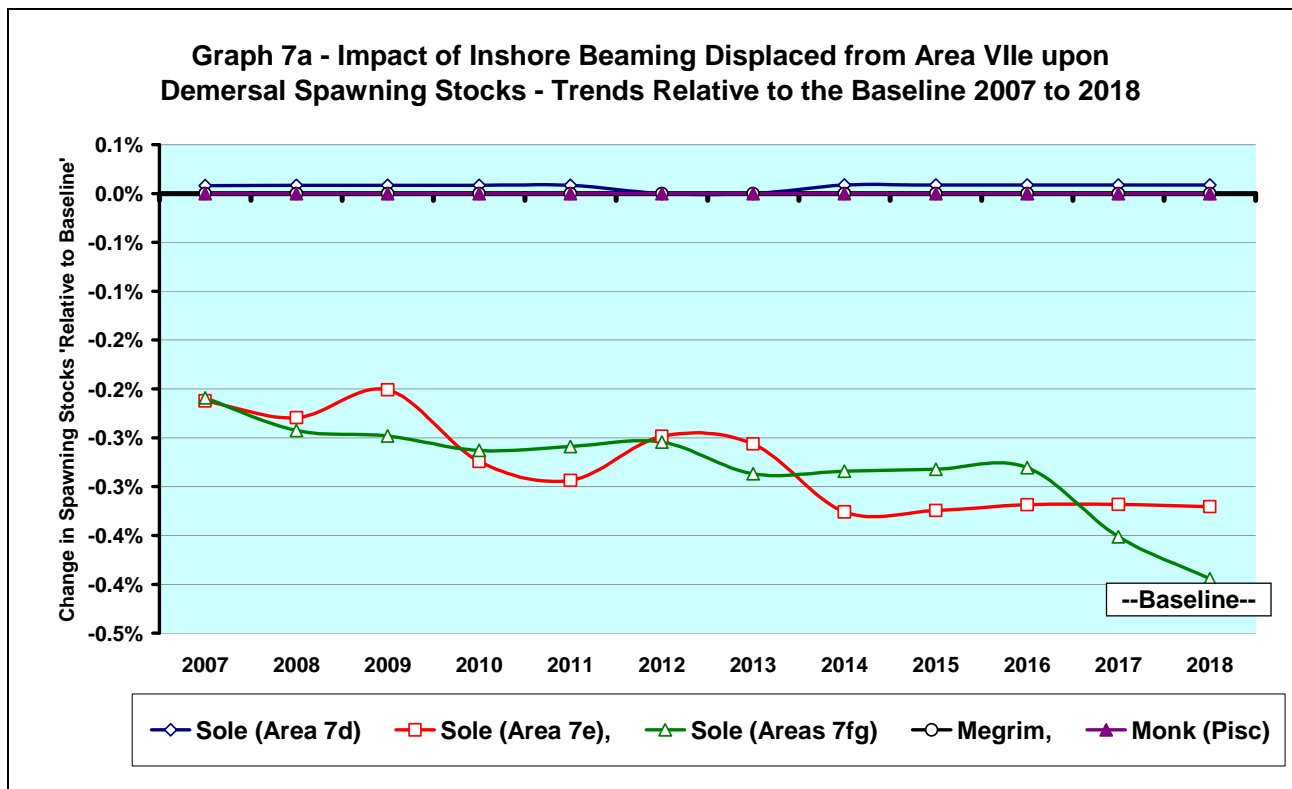
The following graphs show how level of spawning stocks are forecast to change within the IIF Bio-Economic model if the size of the fishing fleet is reduced by 10% (UK only). For a number of species the volume of spawning stocks is shown for specific fishing areas (metiers) within the South West region. These areas are referenced as 7a to 7g as shown in Figure 1 below:

**Figure 1: ICES Fishing Areas modelled**



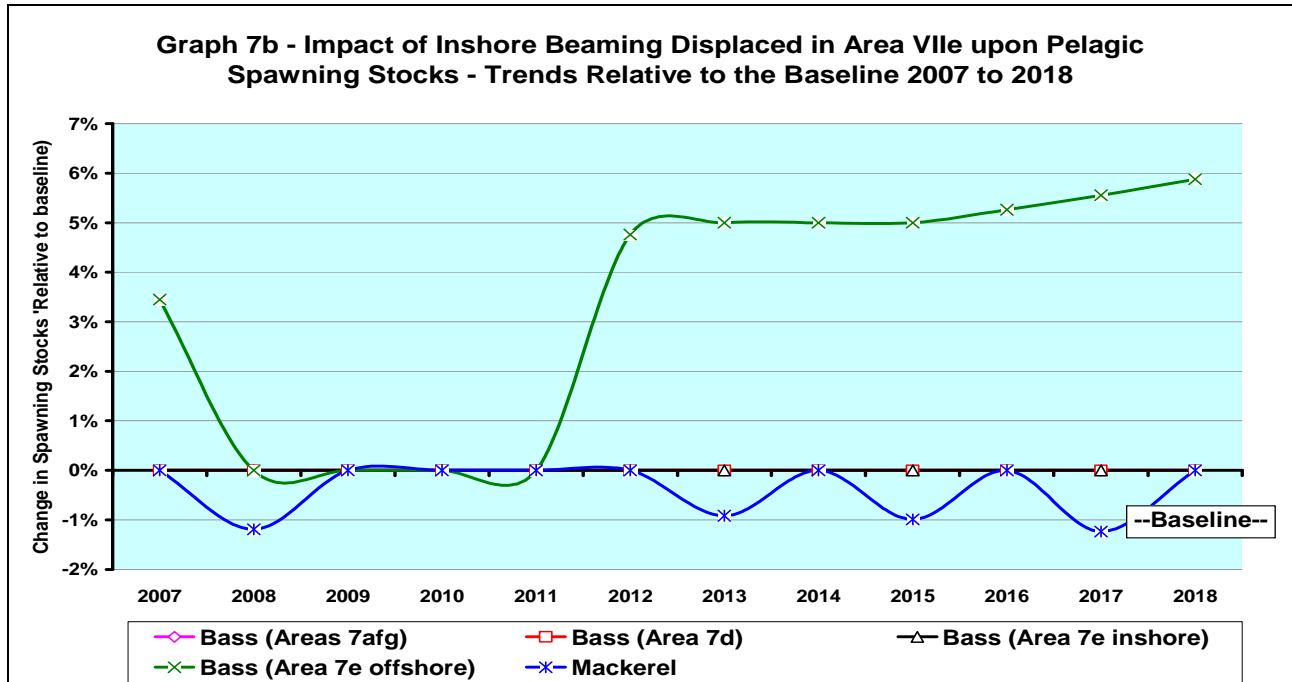
## Spawning Stocks – Demersal Fisheries

Graph 7a shows the effect of inshore beaming being displaced in Area VIIe upon demersal fish stocks. The graph shows that the estimated effects of this measure ‘relative to the baseline’ would be minimal. The graph shows a very slight decline in sole stocks in VIIe and VII f and g as beam effort moves elsewhere out of VIIe inshore.

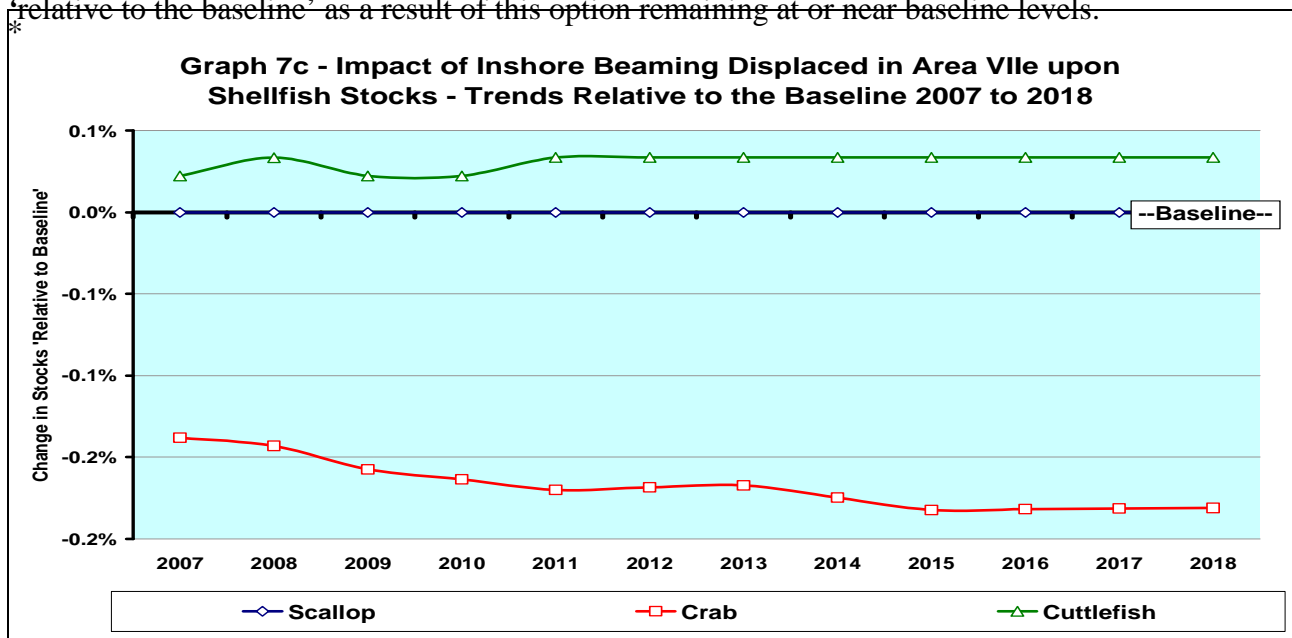


## Spawning Stocks – Pelagic Fisheries

Graph 7b provides a summary of the impact of option 7 upon pelagic spawning stocks. The graph shows a slight medium to long term improvement in bass stocks in area VIIe. The graph shows that bass stocks in this area are estimated to improve by around 5 to 6% long term. In contrast, mackerel and other stocks are relatively unaffected remaining at around baseline levels. This is a very difficult option to model as the impact of a policy limited to a particular vessel type in a segment of a fishing area is very difficult to model and estimate.



**Stocks – Shellfish** Graph 7c provides a summary of the impact of option 7 upon stocks of crustacean and shellfish. The graph shows that these stocks are expected to change very little relative to the baseline as a result of this option remaining at or near baseline levels.



### Important Note:

*Given the insignificant impact of this option upon fish stocks, the remainder of the analysis is not shown as the outcomes are all at or near baseline. This is to be expected as fish stocks are the main driver of changes relative to the baseline scenario. If fish stocks do not change in response to the policy option being investigated then there can be no impact upon the other measures of revenue, profits, output and employment relative to the baseline.*