

## **Option 8: Trevoze Seasonal Closure**



### **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 8: Trevoze Seasonal Closure

### Option 8: Trevoze Seasonal Closure

In addition to policies designed to reduce fleet size, and/or effort and technical measures to reduce catch there are also ‘area based’ measures that may be used. Option 8 investigates the impact of a recently introduced policy designed to restrict access to the Trevoze fishing grounds during the first two months of the three month spawning season. The main aim of this policy measure is to try and protect the vulnerable aggregating spawning stocks and the juveniles found in this area for the future.

However, as shown in Graphs 8a to 8c the limited information available at the moment means that the bio-economic model shows no impact at all upon fish stocks.

In reality, any impact from this measure would not yet have worked through to stocks and landings data. In addition, information on catch and discard distributions are currently recorded at scales that are too large to allow for area effects to be detected. As a result, areas-based measures are elaborated further as a ‘non-modellable’ within the project.

It is suggested that this initiative continue and its impacts monitored to gather more information on potential medium to long term effects.

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

- ❖ The level of spawning stocks (Demersal, Pelagic and 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;

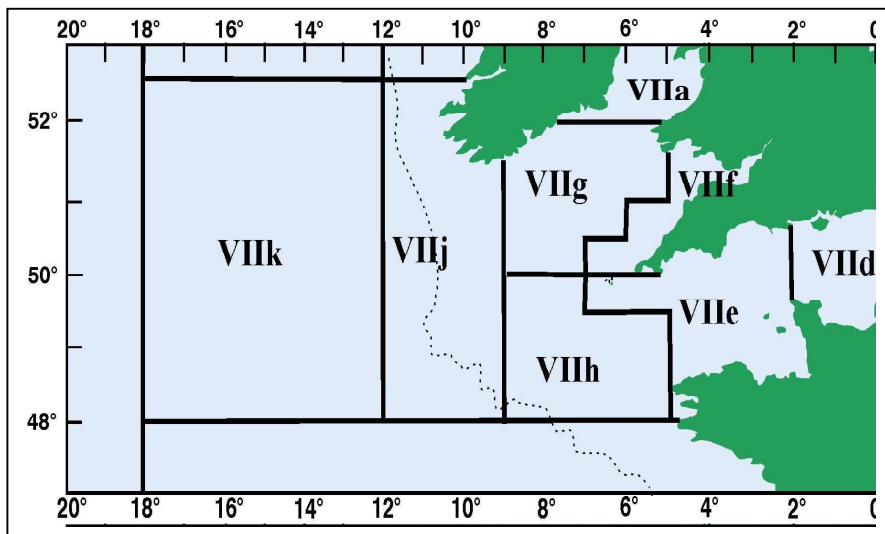
- ❖ In all cases (except where specified) options are applied ‘unilaterally in the model’ (thus most options are applied only to the UK fleet over which DEFRA has jurisdiction). It is therefore assumed that the effort of other EU fleets will remain at the level modelled in the baseline. The impact of 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.
- ❖ 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

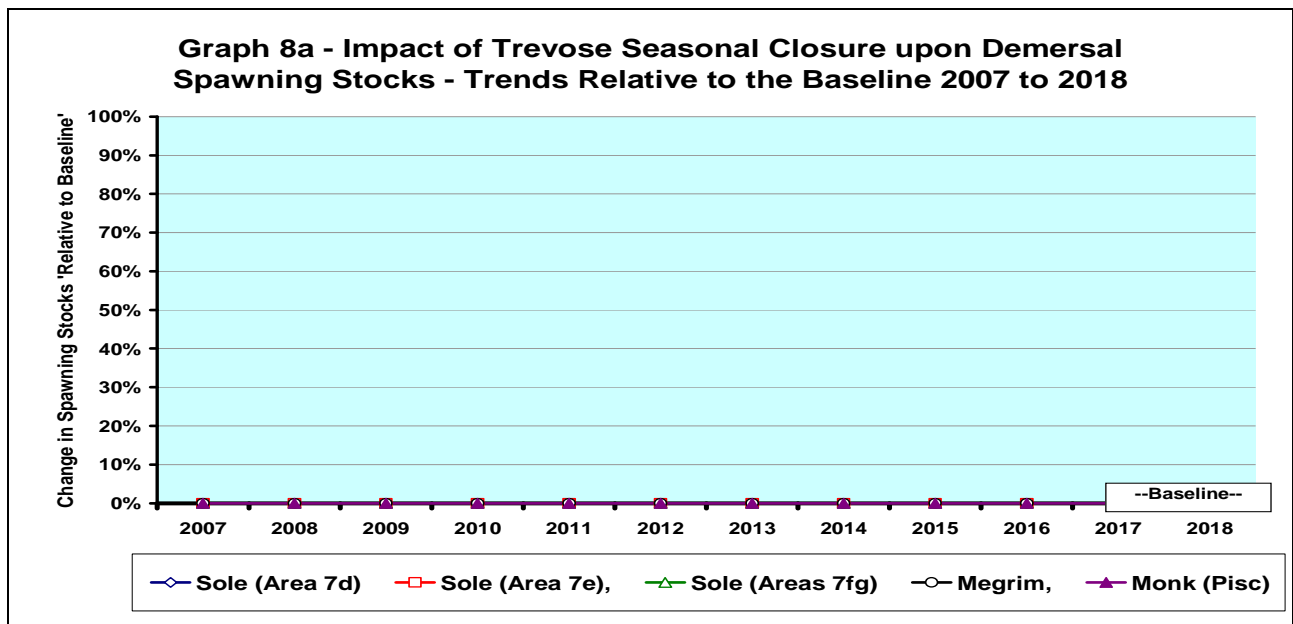
The following graphs show how level of spawning stocks are forecast to change within the IIF Bio-Economic model if the size of the fishing fleet is reduced by 10% (UK only). For a number of species the volume of spawning stocks is shown for specific fishing areas (metiers) within the South West region.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

**Figure 1: ICES Fishing Areas modelled**



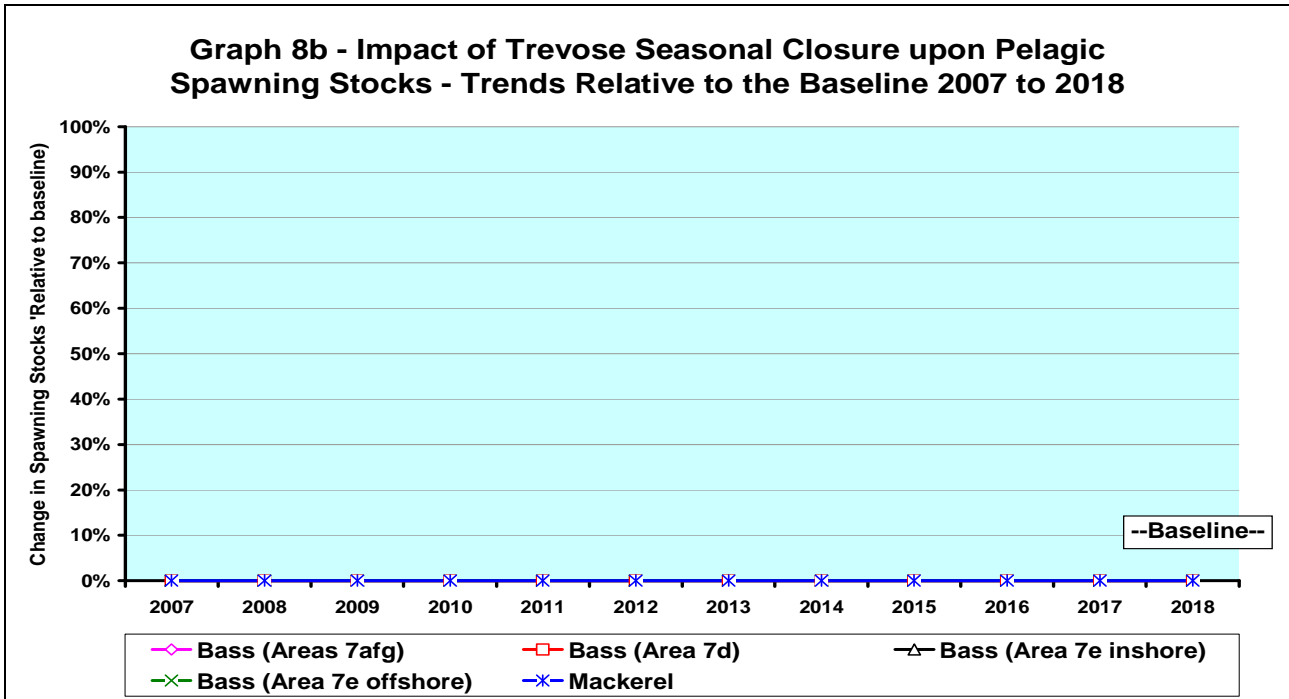
### Spawning Stocks – Demersal Fisheries

Graph 8a shows that the impact of the Trevoise Seasonal Closure upon spawning stocks in demersal fisheries is negligible. The graph shows demersal stocks would remain at baseline levels. However, as this initiative is in its early stages any potential benefits would not yet be apparent.



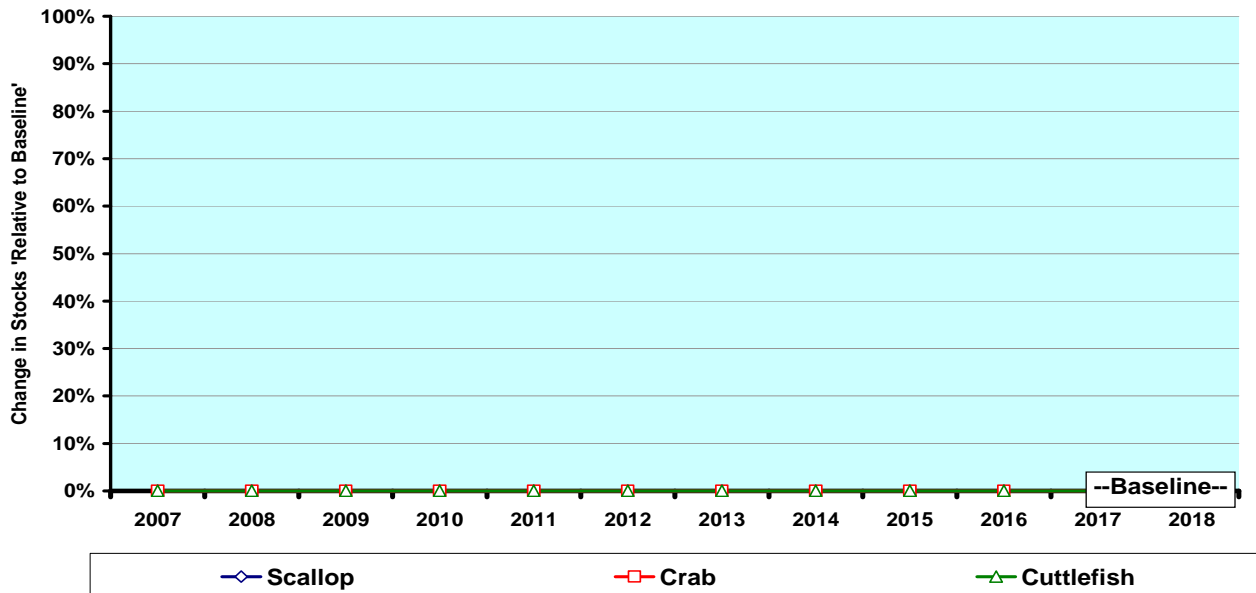
### Spawning Stocks – Pelagic Fisheries

Graph 8b provides a summary of the impact of option 8 upon pelagic spawning stocks. The graph shows that, according to the information currently available, bass and mackerel stocks in area VIIe would be unaffected.



**Stocks – Shellfish** Graph 7c provides a summary of the impact of option 7 upon stocks of crustacean and shellfish. The graph shows that the impact would in fact be almost zero with only a very minor decline in crab stocks

**Graph 8c - Impact of Trevoze Seasonal Closure upon Shellfish Stocks - Trends Relative to the Baseline 2007 to 2018**



**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.*