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Integrated Ecosystem Assessment in support of ecosystem based fisheries management in the Irish Sea - a case study with cod (*Gadus morhua*).

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The results of an Integrated Ecosystem Assessment (IEA) of the Irish Sea, initially undertaken for a workshop on the impact of ecosystem and environmental drivers on Irish Sea fisheries management (WKIrish1) are presented. The Irish Sea is a data rich region with time-series for many biotic and abiotic components extending back to the early 1970's. The results of IEA analysis showed that the area has undergone considerable change, in common with many neighbouring sea regions. Key abiotic drivers of this change include the increasing trend in SST over the time-series, associated with the positive phase of the AMO and increasing influence of global climate warming. Declines in key copepod species have also been observed, while increases in phytoplankton may represent reductions in grazing pressure. Meanwhile observed increases in gelatinous zooplankton are thought to be linked to anthropogenic disturbance and climate. Concurrent with these trends are declines in recruitment and spawning stock biomass of cod and sole, while the biomass of pelagic forage species have shown signs of increase. Fishing activities have also shown response to the changes in the biotic and abiotic environment with *Nephrops* landings increasing over the period in response to declining opportunities in other traditional whitefish species. The IEA suggests that the Irish Sea ecosystem transitioned to its current new state during the mid 1990's. Links between the ecosystem and fisheries are explored for Irish Sea cod (*Gadus morhua*) in context of key abiotic and biotic drivers and subsequent ecosystem advice for fisheries management.

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