

Clupeids in the Irish Sea: Evidence of food mediated density-dependent control of an abundant forage species.

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Herring (*Clupea harengus*) and sprat (*Sprattus sprattus*) are the most common planktivorous clupeid species in the Irish Sea, with sprat biomass the greater of the two in the more recent period. While herring have historically been prosecuted by targeted fisheries, a fishery for sprat has operated only intermittently in the Irish Sea. Concurrent with this period increasing trends in key abiotic drivers (SST, AMO) and declines in secondary production (copepods) have been observed. Meanwhile commercially and ecologically important fish species in the region such as cod (*Gadus morhua*) and whiting (*Merlangius merlangus*) have seen dramatic declines in SSB. Against this background we analysis temporal patterns in condition factor and weight at age of sprat and herring during the last 15 years. Our analysis suggests that sprat condition is influenced by density-dependent factors associated with sprat biomass and food competition. A negative correlation between sprat biomass and copepod abundance suggests top-down processes on zooplankton communities. Contrasting trends in sprat and herring populations suggest that inter-specific competition for common food resources may exist between the species. Finally the role of abiotic drivers is explored in regulating the population dynamics of Irish Sea sprat.

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