

INFOMAR and fisheries; priorities for added value

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Fisheries Science Services

- 'To research, assess, advise on the sustainable exploitation of the marine fisheries resources'



Irish Sea Stocks					Scientific advice					
Species	Stock area	Landings (catches) 2009	TAC 2010	Catch in VIIfg	State of Stock			Catch/Advice options		
					F	SSB	Recruitment	ICES MSY	EC MSY	PA
Cod	VIIa	468	674		??	??	??	Zero		Zero
Haddock	VIIa	840	1,424		?	?	↑	→ effort ↓ discards		→ effort
Whiting	VIIa	100 (1500)	157		??	??	??	Zero		Zero
Plaice	VIIa	460	1,627					→ effort		→ effort
Sole	VIIa	320	402					< 366		Zero
Nephrops (FU15)	VIIa	9,200						<9500		
Nephrops (FU14)	VIIa	690				?		<680		

West of Scotland and Rockall Stocks					Scientific advice					
Species	Stock area	Landings (catches) 2009	TAC 2010	Catch in VIIfg	State of Stock			Catch/Advice options		
					F	SSB	Recruitment	ICES MSY	EC MSY	PA
Cod	VIIa	222 (1,623)	240		??	??	??	Zero		Zero
Haddock	VIIa	2,800 (~4,500)	2,673		↓ since 05	< Blim	Low →	< 2700	<3100	Zero
Whiting	VIIa	490 (900)	431		??	??	??	Zero		Zero
Anglerfish	VI, VIIa, IIIa, IVa	4,900	5,567		??	??	??	↓ catch & effort		↓ catch & effort
Megrim	VI and IV	1,350	3,079		??	??	??	→ catch & effort		→ catch & effort
Saithe	IV & VI and IIIa	9,682	11,106					< 103,000		<125,000

Celtic Sea Stocks					Scientific advice					
Species	Stock area	Landings (catches) 2009	TAC 2010	Catch in VIIfg	State of Stock			Catch/Advice options		
					F	SSB	Recruitment	ICES MSY	EC MSY	PA
Cod	VIIe-k	3,235	4,023	>80%	??	??	??	↓ catch & effort		↓ catch & effort
Haddock	VIIb-k	10,000 (17,100)	11,579	~70%	?	?	↑ 08	→ effort ↓ discards		→ effort
Whiting	VIIe-k	5,700	14,407	>80%	↓ since 07	?		→ effort		→ effort
Plaice	VIIfg	463	450	100%	↓ since 02	~ Blim	Low →	< 476 t		500 < 150 t
Plaice	VIIbc	20	80		??	??	??		No ICES Advice	
Plaice	VIIhjk	110	218		??	??	??	↓ catch		↓ catch
Sole	VIIfg	790	993	100%				< 1400 t		1200 < 1700 t
Sole	VIIbc	31	45		?	?	?		No ICES Advice	
Sole	VIIhjk	225 ?	498		?	??	??	→ catch		→ catch
Nephrops (FU19)	VIIg	830		>80%	?	?	?	↓ catch		< 800 t
Nephrops (FU20-22)	VIIfh	5,300		>80%	?	?	?	↓ catch		< 5300 t
Nephrops (FU17)	VIIb	625				?	?	<950 t		
Nephrops (FU16)	VIIck	825					↑ 09	Zero		Zero
Megrim	VIIb-k & VIIIabe	11,500 (13,500)	20,400	<10%	?	?	?	↓ catch & effort		→ catch & effort
Anglerfish	VII & VIII	~32,000	32,292	<10%	?	?	?	→ catch & effort		→ catch & effort
Hake	VI, VII, VIII	47,800	55,100	<5%	↓ since 05	↑ since 00		<44800		<44800

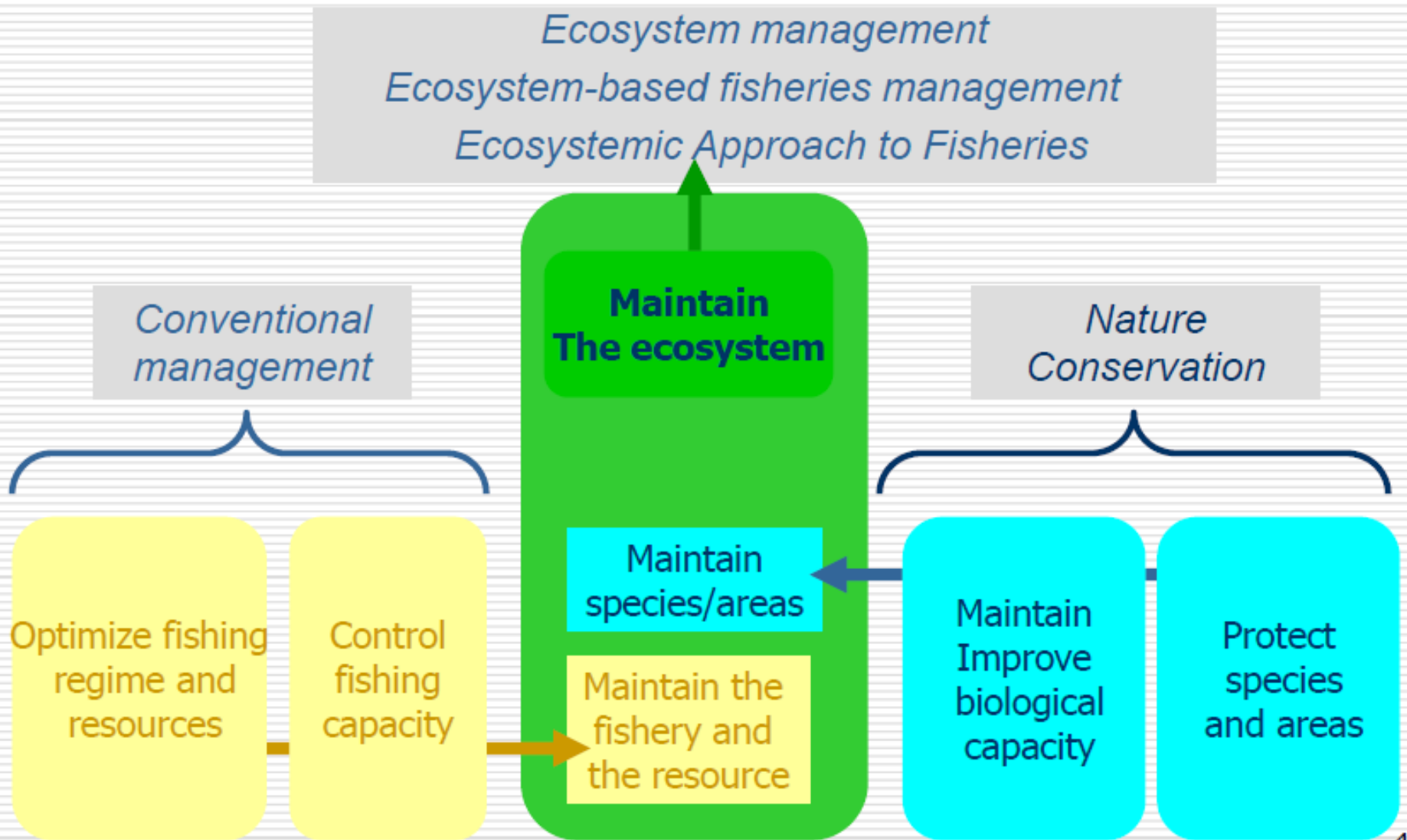
Widely distributed highly migratory					Scientific advice					
Species	Stock area	Landings (catches) 2009	2010 TAC/catch	Irish Catch	State of Stock			Catch/Advice options		
					F	SSB	Recruitment	ICES MSY	Mgt plan	PA
NEA mackerel		735,000	930,000	61,056				672	592-646	672
Blue whiting		636,000	548,000	8,776				50.7-223	40.1	0
Western Horse mackerel		177,000	185,000	40,748				229	181	NA
Atlanto Scandian Herring		1,687,000	1,483,000	10,014				1.17	0.998	1.17



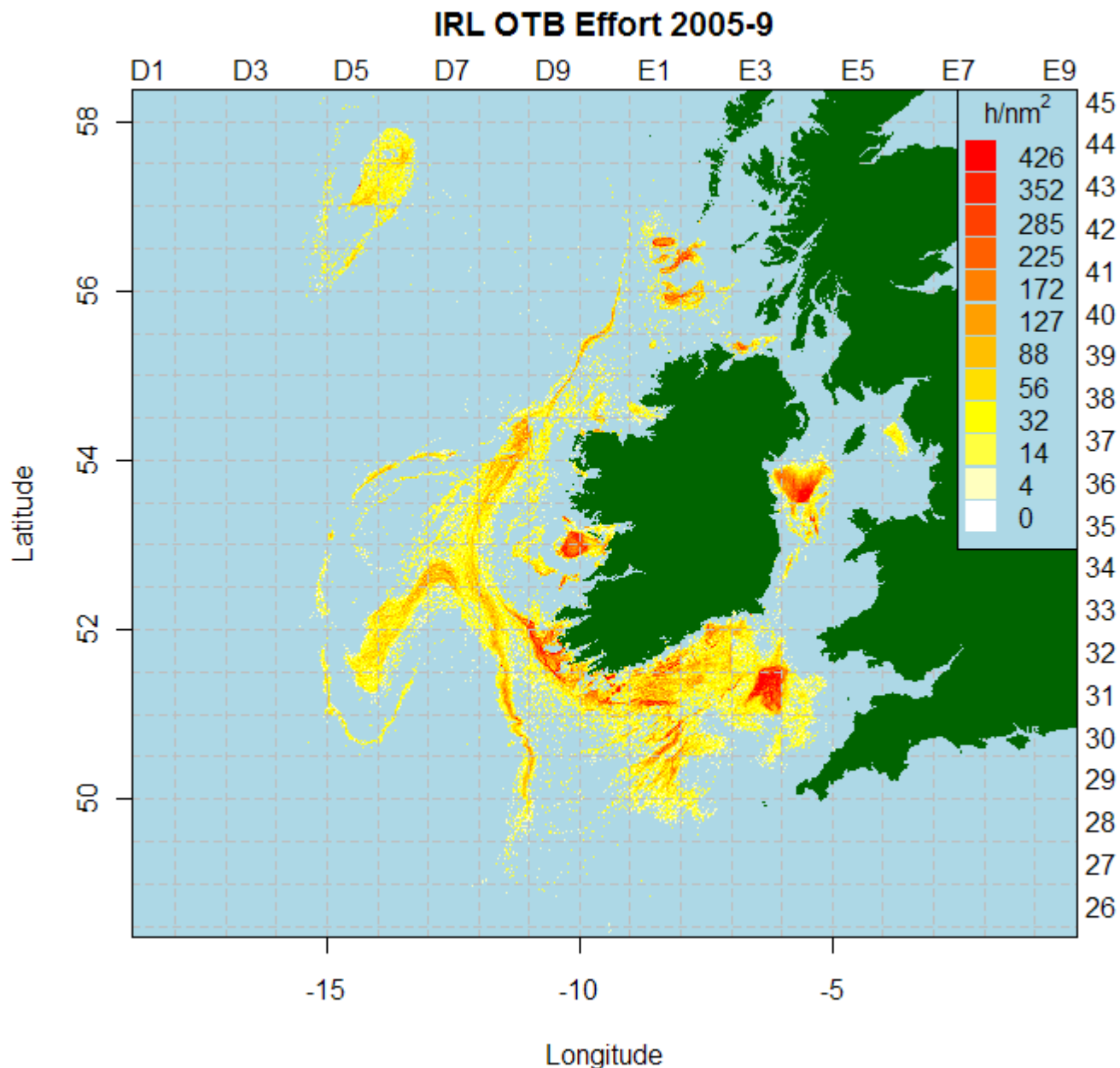
Policy and Regulatory Drivers

- Common Fisheries Policy
- Marine Strategy Framework Directive (GES)
 - 1) Biodiversity, 3) healthy stocks, 4) food web, 5) Sea-floor integrity
- Habitats Directive
- Birds Directive
- Water Framework Directive
- Convention on Biological Diversity
- Data Collection Framework

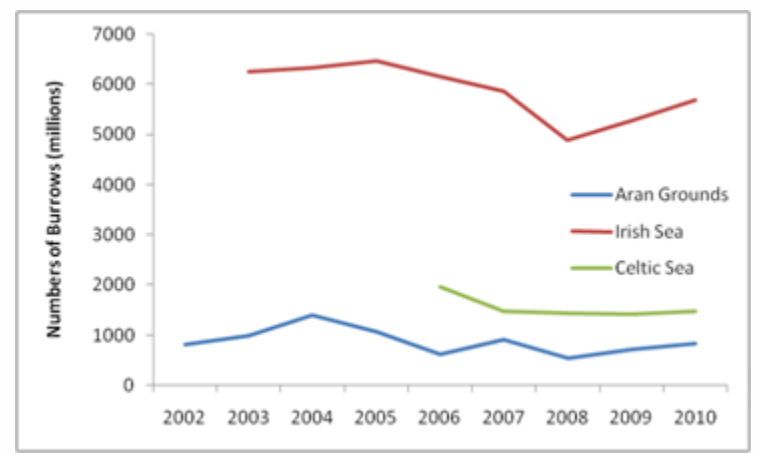
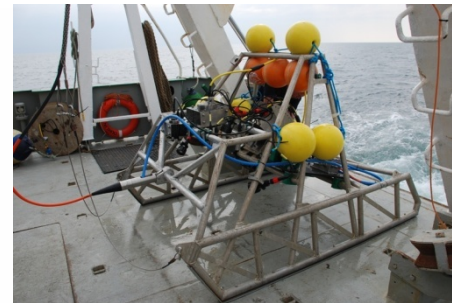
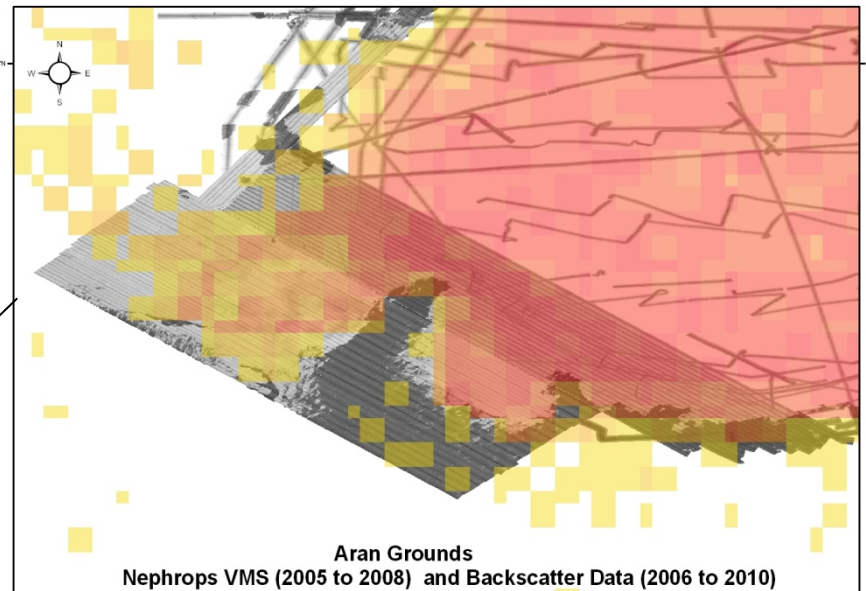
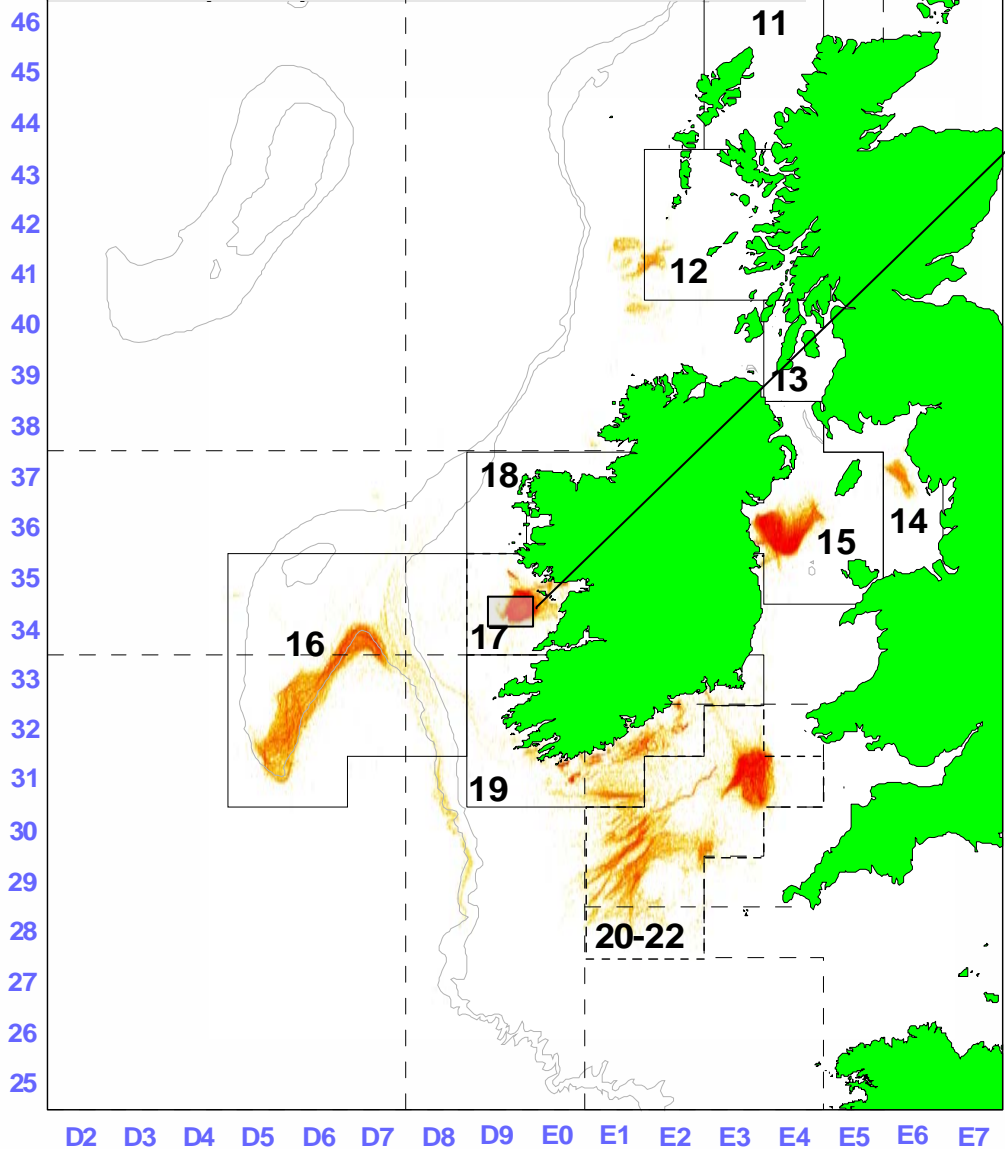
The encounter of two concepts



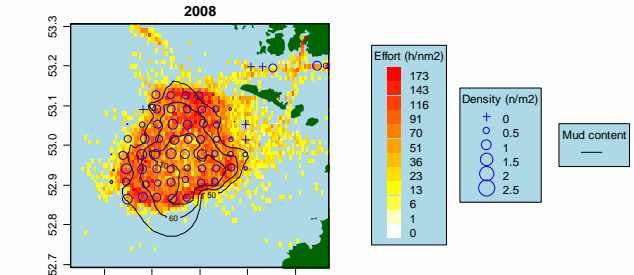
VMS data can improve the resolution of fisheries data dramatically



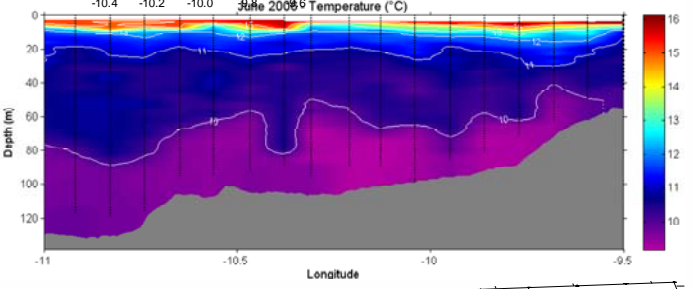
48 The distribution of Irish fishing effort
 47 for Nephrops between 2005-2008



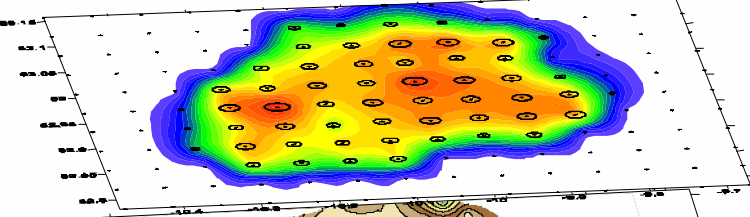
Integration of physical habitat, biological and fishery data



Fishery Effort and LPUE



Oceanographic process

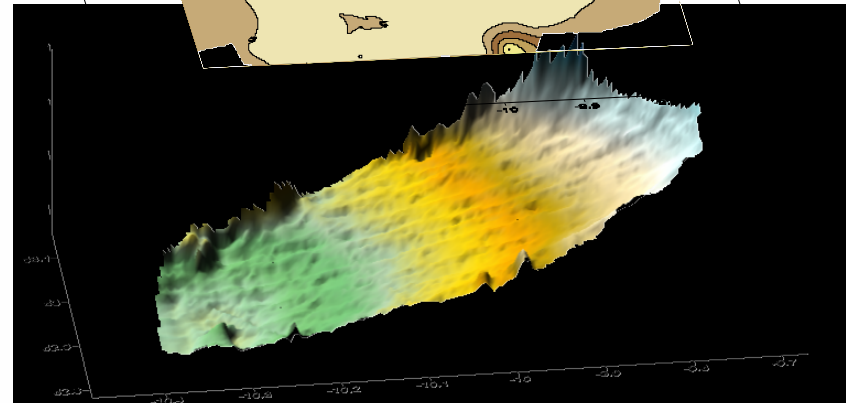


Density of *Nephrops*

Size distributions



Sediment Backscatter signature



Bathymetry

Irish Sea Explanatory Variables

- Mean mixing depth
- Mean potential energy anomaly
- Stratification probability density function
- Sediment parameters mud (silt/clay) fraction
- Median grain size
- Maximum sea surface temperature
- Near-bed tidal current (Max U & V)

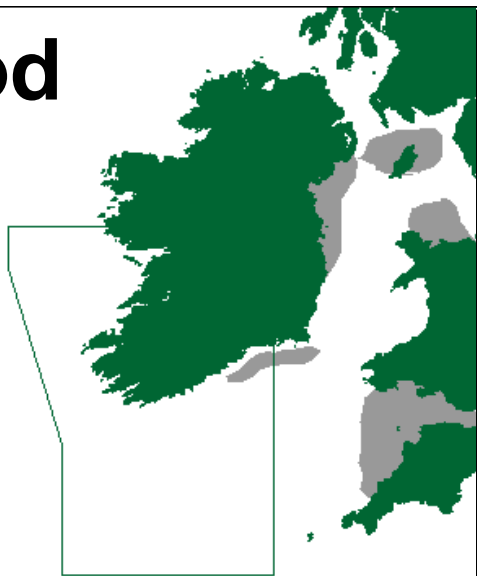


“essential fish habitat”

- “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.”
- Umbrella term for all sorts of research:
 - Biological
 - Behavioural
 - Gear technology
 - Habitat work

Spawning areas

Cod



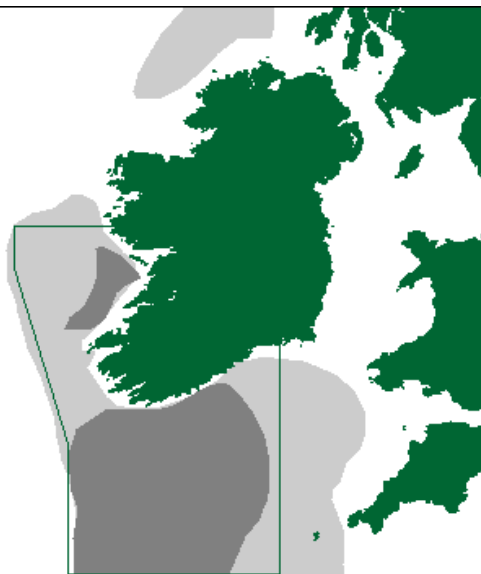
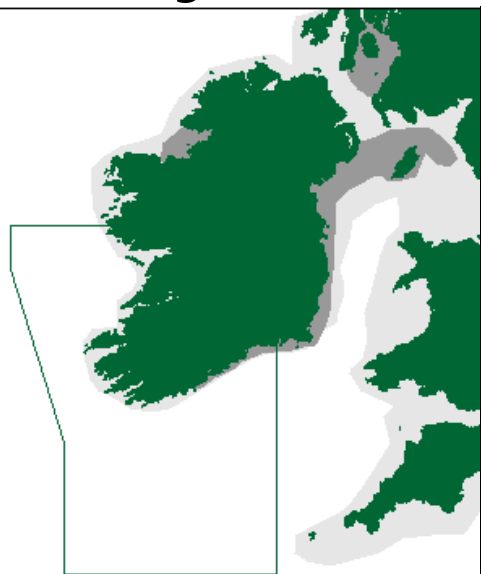
Hake



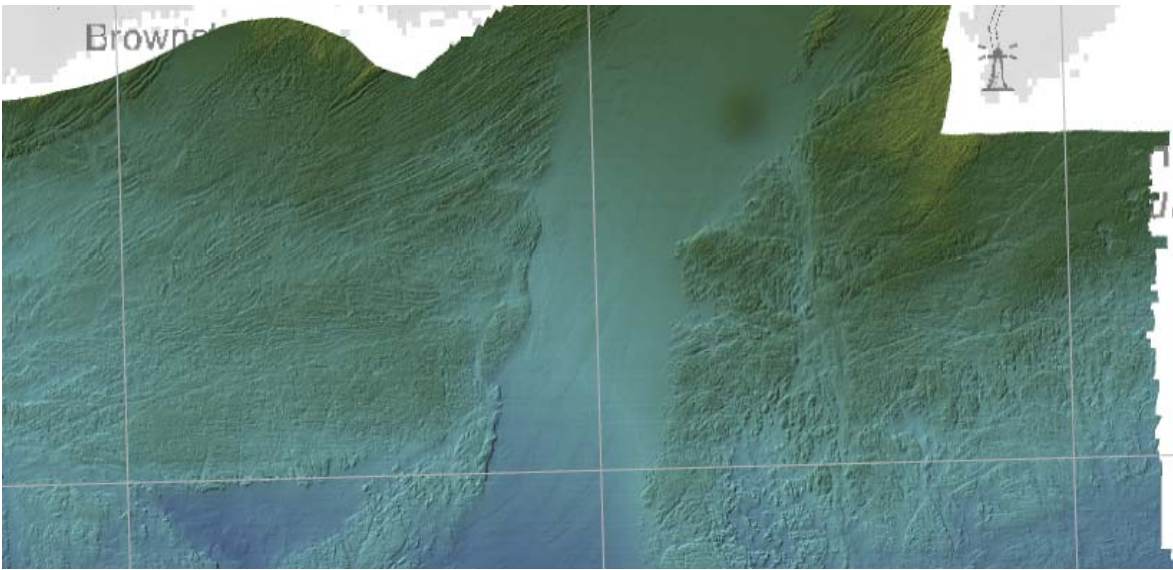
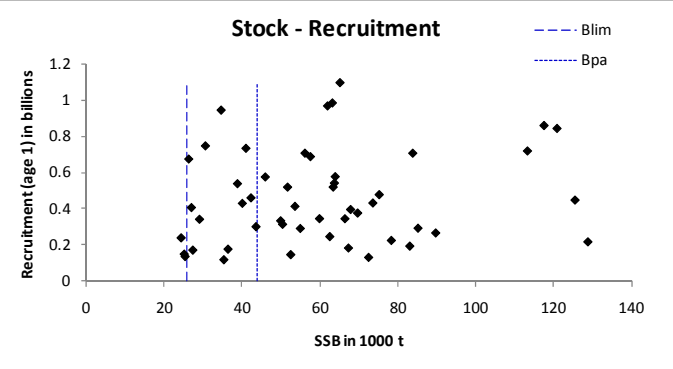
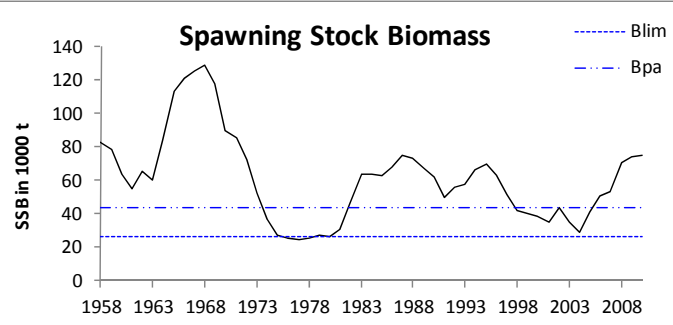
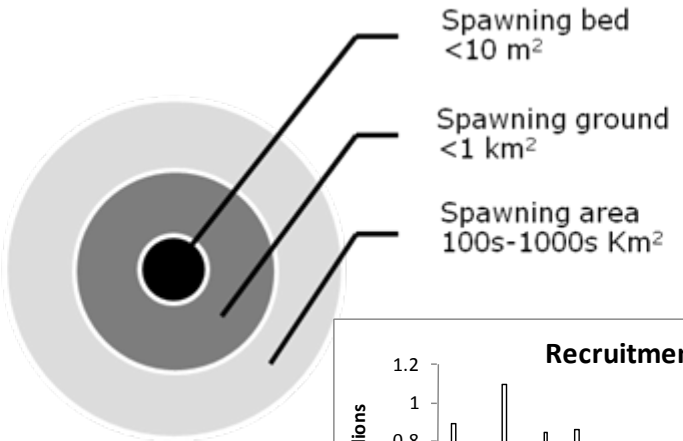
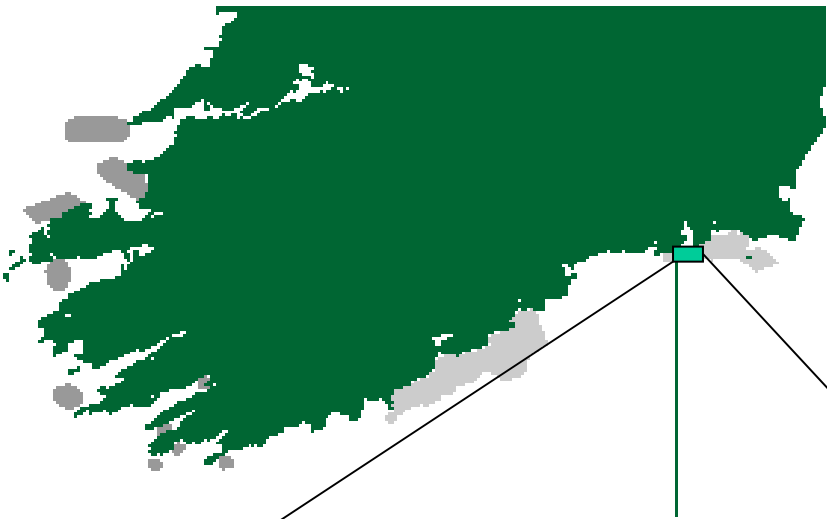
Herring



Nursery areas



Celtic Sea Herring





Responsible use of INFOMAR data

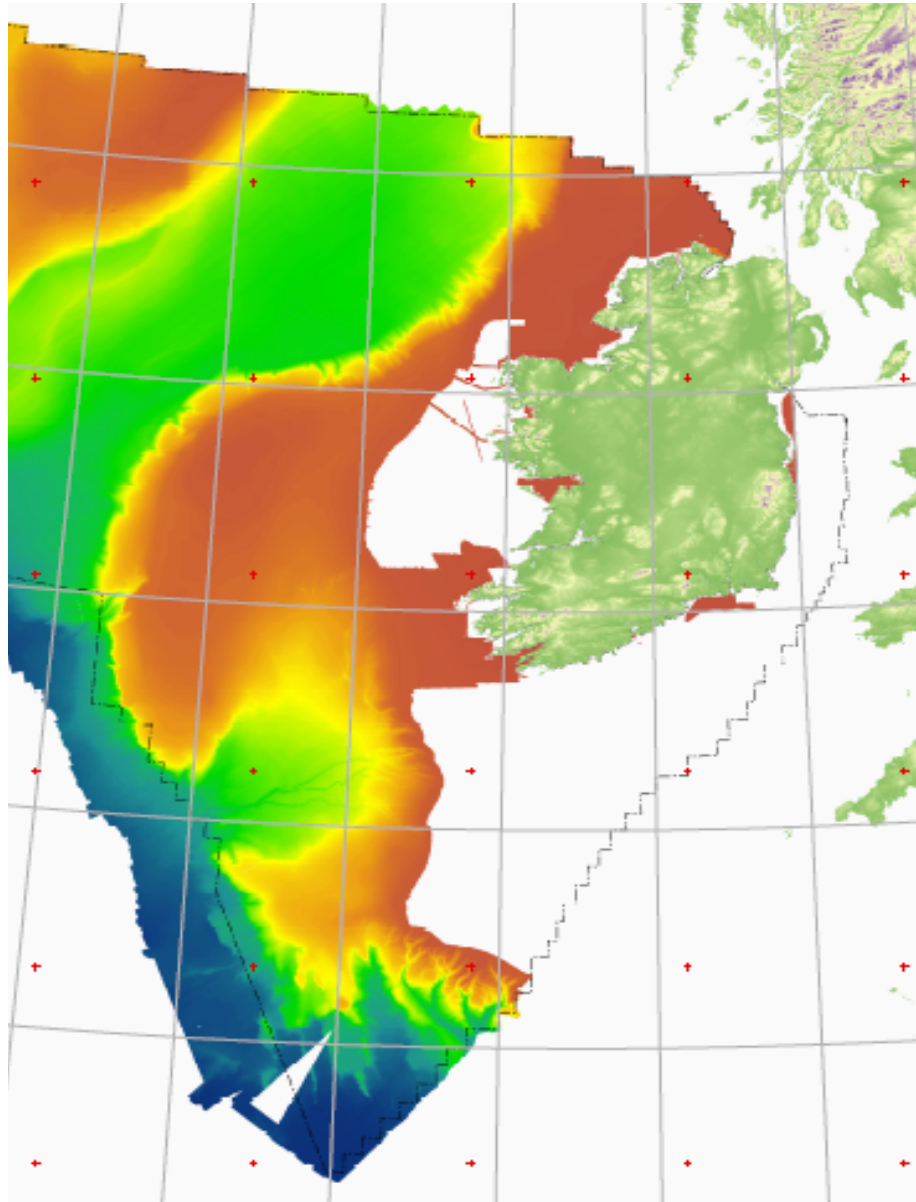
- Improving efficiency, reduced gear loss, ability to identify spawning and nursery areas.
- Reality “Catch up science and TLTL Management”



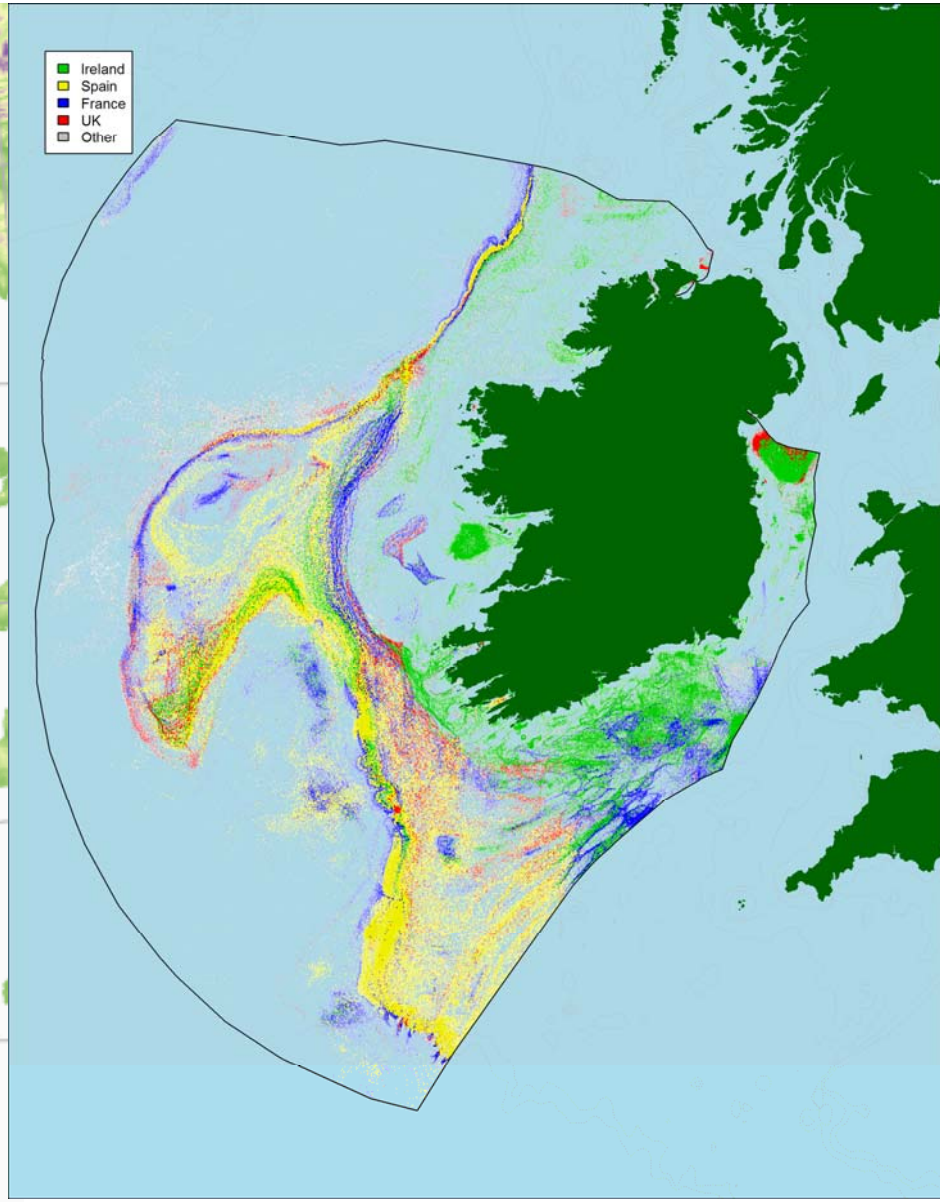
Value Added Fisheries & INFOMAR

- Integration of INFOMAR data with fisheries data
 - To improve fisheries independent surveys
 - To explain species distributions
- Habitat mapping – identification of sensitive habitats
- Development of fisheries management plans
 - NATURA 2002
 - Spatial management
 - BSA (Biologically Sensitive Area)
 - Cod LTP, Celtic Sea MP, Irish Sea, Western Waters etc. etc.
- Using Fisheries Surveys as a platform
- Using MI Fisheries Equipment

Seabed Survey Coverage



International Fishing Effort



The End



Marine Institute
Foras na Mara