Management of crab(*Cancer pagurus*) in European Waters

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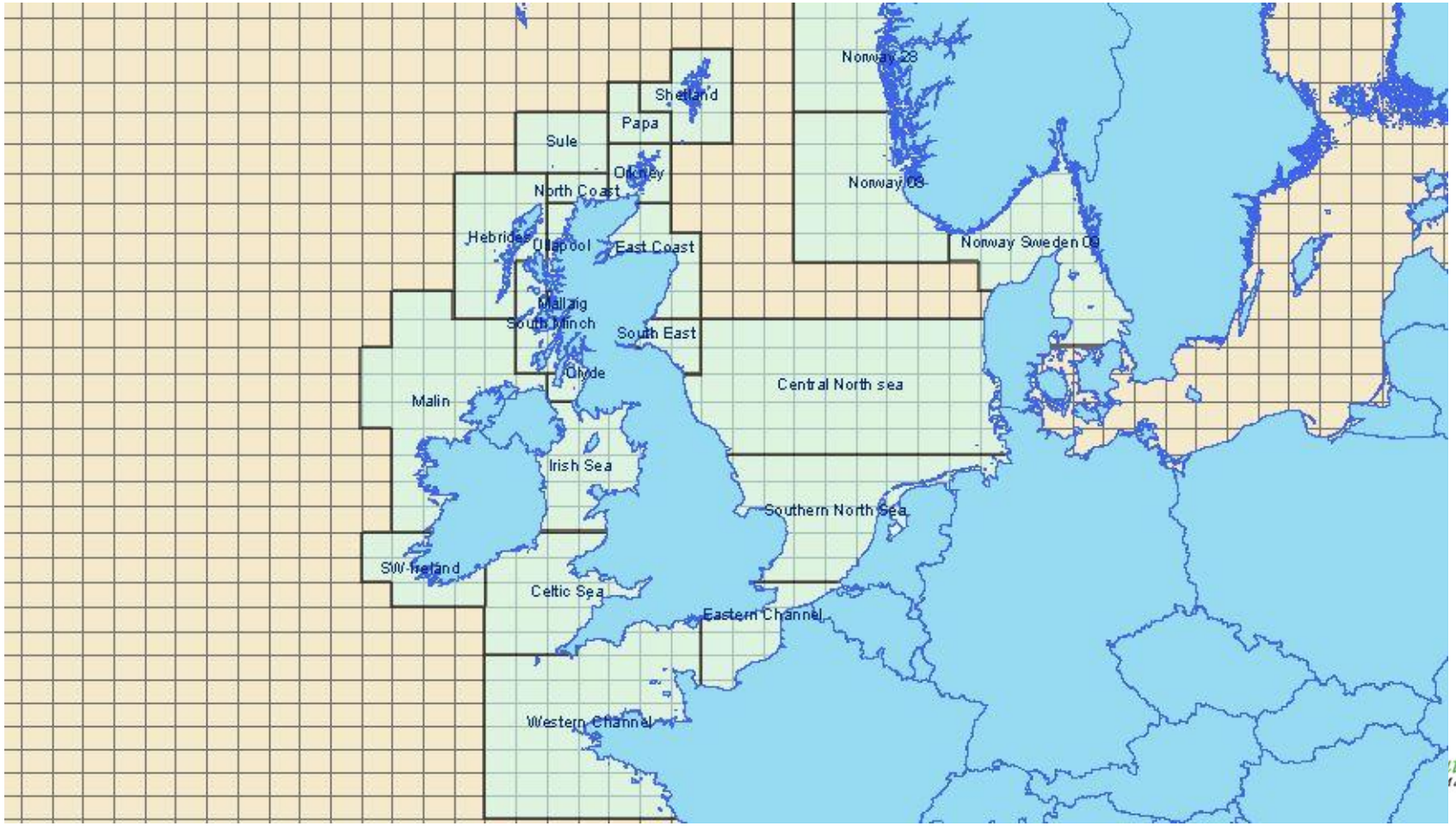
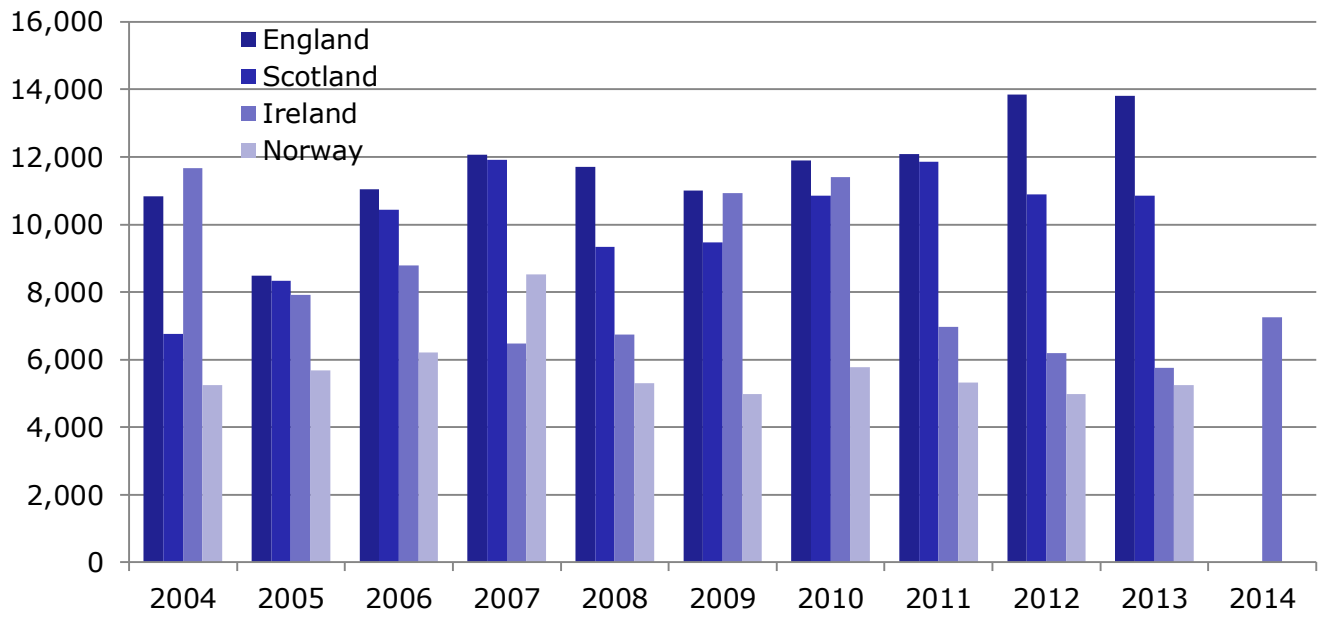
Assessment units (WGCrab)



Landings



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Exploitation and Stock status Summaries for Brown crab stocks

					Exploitation status		Stock status		MLS	
					F (in relation to F_{msy})		B (in relation to Bmsy proxies)			
ICES	Stock Assessment Unit	Main Fleets	Assessment Lab	Assessment	Male	Female	Male	Female	Male	Female
VII	Western Channel	England, France	CEFAS	LCA	F<Fmsy	F<Fmsy	High	High	140-160	140-150
VII	Eastern Channel	England, France	CEFAS	LCA	F=>Fmsy	F=>Fmsy	Moderate	Moderate	130-140	130-140
VII	Celtic Sea, SE Ireland	Ireland, UK, France	CEFAS, IFREMER, MI	LCA, Trends	Unreported	F=>Fmsy	Unreported	High	130-160	130-150
VII	SW Ireland	Ireland	MI	Trends	Unreported	Unreported	Stable	Stable	130	130
VII, VI	Malin	Ireland, N.Ireland, Scotland	MI	Trends	Unreported	Unreported	Stable	Stable	130	130
VII	N Irish Sea	Ireland, IoM, Wales, England	MI	Trends	Unreported	Unreported	Unreported	Unreported	130	130
VI	Clyde	Northern Ireland, Scotland	MSS	LCA per recruit	Unreported	Unreported	Unreported	Unreported	140	140
VI	South Minch	Scotland	MSS	LCA per recruit	F>Fmsy	F>Fmsy	Unreported	Unreported	140	140
VI	Mallaig	Scotland	MSS	LCA per recruit	Unknown	Unknown	Unreported	Unreported	140	140
VI	Hebrides	Scotland	MSS	LCA per recruit	F<Fmsy	F>Fmsy	Unreported	Unreported	140	140
VI	Ullapool	Scotland	MSS	LCA per recruit	Unknown	Unknown	Unreported	Unreported	140	140
VI	North Coast	Scotland	MSS	LCA per recruit	F<Fmsy	F<Fmsy	Unreported	Unreported	140	140
VI	Sule	Scotland	MSS	LCA per recruit	F=Fmsy	F>Fmsy	Unreported	Unreported	140	140
IV	Orkney	Scotland	MSS	LCA per recruit	F>Fmsy	F>Fmsy	Unreported	Unreported	140	140
IV	Papa	Scotland	MSS	LCA per recruit	F<Fmsy	F<Fmsy	Unreported	Unreported	140	140
IV	Shetland	Shetland	MSS	LCA per recruit	F=Fmsy	F<Fmsy	Unreported	Unreported	140	140
IV	East Coast	Scotland	MSS	LCA per recruit	F>Fmsy	F>Fmsy	Unreported	Unreported	140	140
IV	South East	Scotland, England	MSS	LCA per recruit	F>Fmsy	F>Fmsy	Unreported	Unreported	130	130
IV	Central North Sea	England, Ireland	CEFAS	LCA	F>Fmsy	F>Fmsy	Low	Low	130-140	130-140
IV	Southern North Sea	England, Ireland	CEFAS	LCA	F>Fmsy	F>Fmsy	Low	Low	115-130	115-130

What are the assessments saying?

1. Exploitation (F) appears to be high (>Fmsy) in a number of stocks
2. Stock status (B) is generally poorly estimated (unreported) relative to Bmsy
3. High MLS (130-160mm) relative to maturity (120mm) suggests that reproductive potential is well protected (reference value 35% SPR)
4. Catch rate indicators are generally stable (although variable between years and seasons)
5. High fishing effort could result in within season growth overfishing

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What are the issues in the fishery?

1. The volume of crab on the market may be suppressing prices (a point much discussed at Acrunet)
2. Crab catch rates, quality and price vary seasonally. Costs do not vary seasonally
    - Net profit = (LPUE*Price*Effort – Cost of effort)
    - Price is negatively related to volume
    - Price is positively related to quality
    - LPUE is negatively related to total effort
3. Profits are very low or even negative at certain times
4. Reduce volume, reduce costs, reduce F, increase price, increase profits (depending on price response to quality and volume)
5. Can this be done within existing management arrangements through the market?
6. There are management measures that could incentivise high grading and reduce volume (and F)

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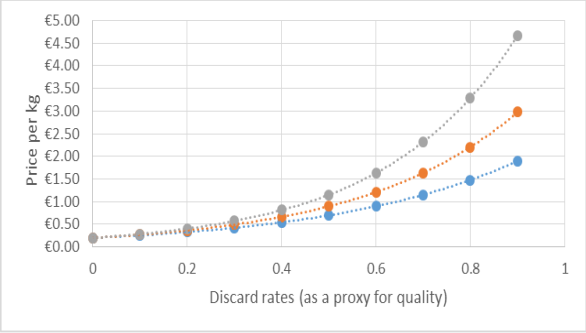
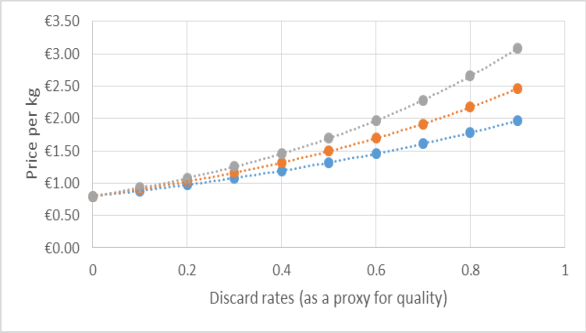
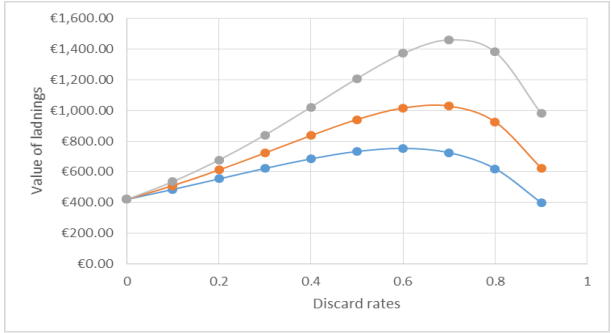
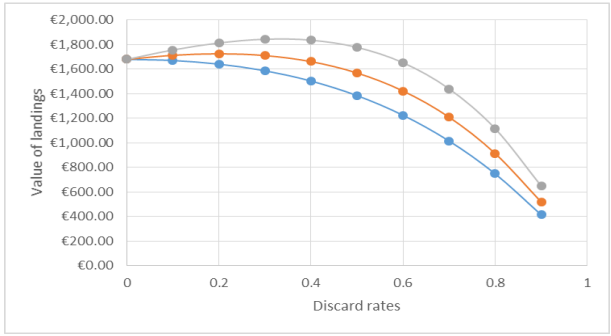
Management of F through price incentive





Top: low base of €0.20 at 0% discarding and 3 high reward options for quality achieved by high discarding rates. Bottom: higher base price of €0.80 and 3 lower reward options for quality





Value of landed consignment of crab in relation to discard rates (higher discard rates assumed to result in higher quality of crab in the landings) relative to price structure on left. Effort = 700 pots, LPUE = 3kgs per pot, Catch = 2100kgs.

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Improved data provision:

Priorities

a) Landings data especially for vessels under 10m
    a) By-catch volumes in non targeting gears
b) Increase data for stock status indicators (CPUE)
    a) Spatially referenced
    b) Co-variates for standardising (gear type, soak time)
c) Size composition of the catch or landings
    a) Spatial coverage, seasonal coverage. Has to be unbiased!
d) Growth rates
    a) Moult increment and frequency for commercial size classes
e) Maturity
    a) New data recently published (Haig et al 2016)

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