Seeking Sustainable Scallops: Is Spatial Management the Answer?

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#CoastalFutures19

#BeMoreScallop

@BD\_Stew

# **UK Scallop Fisheries**

UK Landings (tonnes) of Great & Queen Scallops Great or King 35000 scallops Pecten maximus 30000 25000 20000 15000 10000 3<sup>rd</sup> most valuable fishery (~£65 mill 5000 

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<t Most valuable fishery 950 952 in England! Great scallops 

in 2015)

Queen scallops Aequipecten opercularis



UN FAO Fisheries & Aquaculture Department (2017)

#### **Fleet Dynamics in the UK King Scallop Fishery**



Small local inshore vessels



Large nomadic offshore vessels



Holden, Caveen, Lart & Stewart (in prep)

**UK King Scallops – Has the Fishery Peaked?** 



Curtis et al (2017) Seafish Economic Analysis: UK king scallop dredging sector 2008-2016, 2<sup>nd</sup> Edition, final 2016 data

## The Effect of Fishing on Scallop Stocks Stock abundance



#### Pre-season scallop abundance: Typically <u>4 to 6</u> scallops/100m<sup>2</sup>



Post-season scallop abundance: Typically <u>1.5 to 3</u> scallops/100m<sup>2</sup>

Beukers-Stewart et al (2003) ICES Journal of Marine Science 60: 224-240

Port Erin Closed Area, Isle of Man



Beukers-Stewart et al (2005) MEPS 298: 189-204



# **Ecosystem Effects of Scallop Dredging**

By-catch



Physical damage

Sedimentation



Vulnerable

#### Resilient

Variable



Howard Wood



Stewart & Howarth (2016) Scallops: Biology, Ecology, Aquaculture & Fisheries, pg 585-609

## **Gear Conflict**



## Principles for Improving the Management of Scallop Fisheries

- 1. Encourage industry stewardship of the resource (spatial or catch based tenure) reduce the "race for fish"
- 2. Allow stocks to recover towards more natural size / age structures *improve yield per recruit & reproductive output*
- **3. Provide spawning refuges** *high densities of large individuals*
- **4. Minimise the effects of the fishery on juveniles** *improve future yields*
- 5. Reduce by-catch & conflicts with other fisheries
- 6. Reduce the effect of fisheries on benthic habitats (particularly most complex) maintain / recover biodiversity & improve recruitment

Beukers-Stewart et al (2009) Principles for the management of inshore scallop fisheries around the United Kingdom

## **Management Options**

Stewart & Howarth (2016)

#### **Catch & Effort Control**



#### **Alternate Methods**



#### **Gear Modification**



#### **Spatial Management**



# **Coquille St Jacques anyone?**

#### Bay of Seine stock surveys





#### **Regulations:**

- Long closed season
- Tight effort control (1/3 historical levels)
- Limits on boat size & no. dredges
- Large dredge ring sizes: 92 mm (UK 72 mm)
- Fleet fishes locally / not nomadic
- Rotational area management since 2016

#### **Stock Abundance:**

- Currently at historically high levels
- Several years of exceptional recruitment
- Some areas <u>300 to 400 scallops / 100m<sup>2</sup>!!</u>

Eric Foucher, IFRMER: ICES Scallop WG Report 2018



# From Bust to Boom: The USA Sea Scallop Experience





- Mix of open and rotationally opened / closed area
- Open areas are managed with IFQs (a form of transferable / leasable ITQs
- Rotationally opened areas (Access areas) are managed using DAS
- Stringent size, gear & bycatch regulations

Courtesy of Kevin Stokesbury

### From Bust to Boom: The USA Sea Scallop Experience





## Reducing Conflict & Improving Sustainability: The Yorkshire Scallop Fishery Experience



North Eastern Inshore Fisheries and Conservation Authority

# The Yorkshire Scallop Fishery Experience









# **Could the UK Introduce a Rights-based Management System?**

## **Suggestions**

- Further restrict licences (remove latent effort)
- Harmonise gear regulations
- Compulsory VMS (or similar)
- Spatial management of inshore vessels (by IFCAs / IFGs)
- Quota based management of offshore vessels (outside 12 miles?)

# • How do you decide on track record criteria?

Challenges

- Cost of VMS
- Management of inshore vessels more difficult in Scotland
- Widespread wariness of quotas
- Consolidation of quota
- Stock assessment has only just started in England

# Thank you for listening!



#### Special thanks to:

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Keep your eyes open, Filter out the crap, Grow a hard shell, But keep a soft heart

# #BeMoreScallop

Words: Bryce Stewart Photo: Howard Wood