

Presentation for Stour & Orwell
Forum
6 July 2016



“Connectivity & Joined Up Thinking”

Eastern Inshore
Fisheries and
Conservation Authority

Stephen Thompson

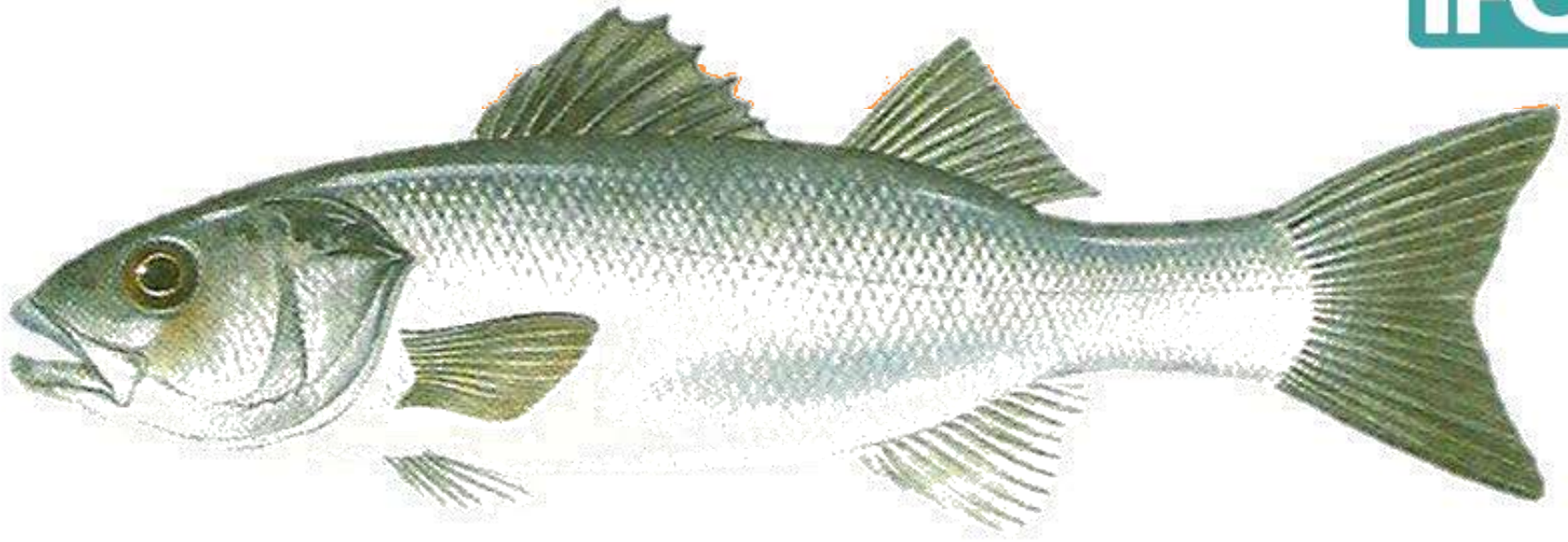
10 regional IFCAs championing a local approach with over 140 paid staff managing a total of 28,607 km² sea area using £8.7M combined annual budget to manage the seas to 6 nautical miles around the coast of England



Vision of the IFCAs

- “IFCAs will lead, champion and manage a sustainable marine environment and inshore fisheries by securing the right **balance** in social, environmental and economic benefits to ensure healthy seas, sustainable fisheries and a viable industry” .
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Bass



- A very important species for the inshore commercial fleet.
 - A very important – indeed totemic – species for recreational sea angling.
 - As a top predator, an important component of inshore ecosystems.
 - A species which is approaching the northern limit of distribution in our district, and therefore susceptible to fluctuations in climate, leading to variable recruitment.
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Bass Life Cycle

Very sheltered areas

3 - 4 years

Juvenile phase



Spend 4 to 5 years in shallow coastal lagoons and estuaries

"School Bass"

Anywhere & Everywhere (some "hotspots")

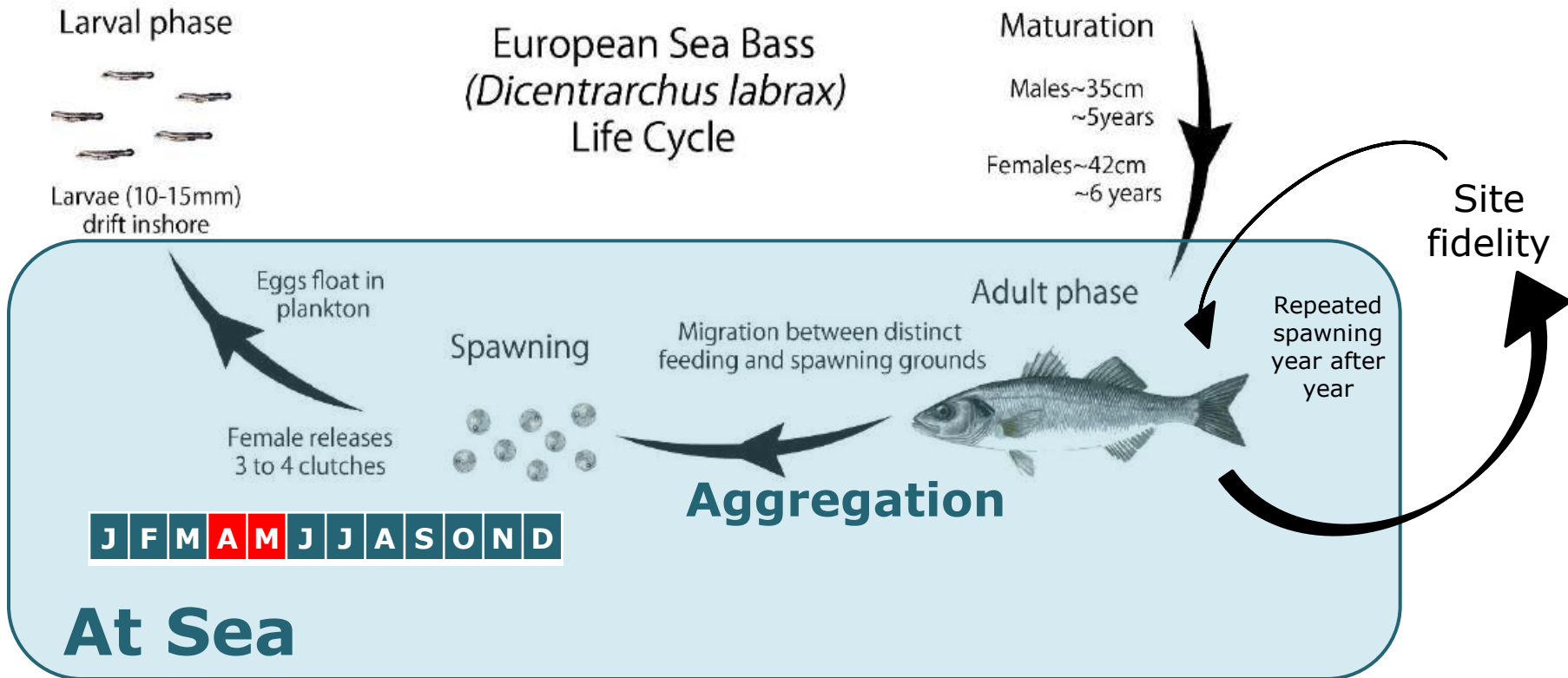
Adolescent phase



4 to 5 years old

2 - 3 years

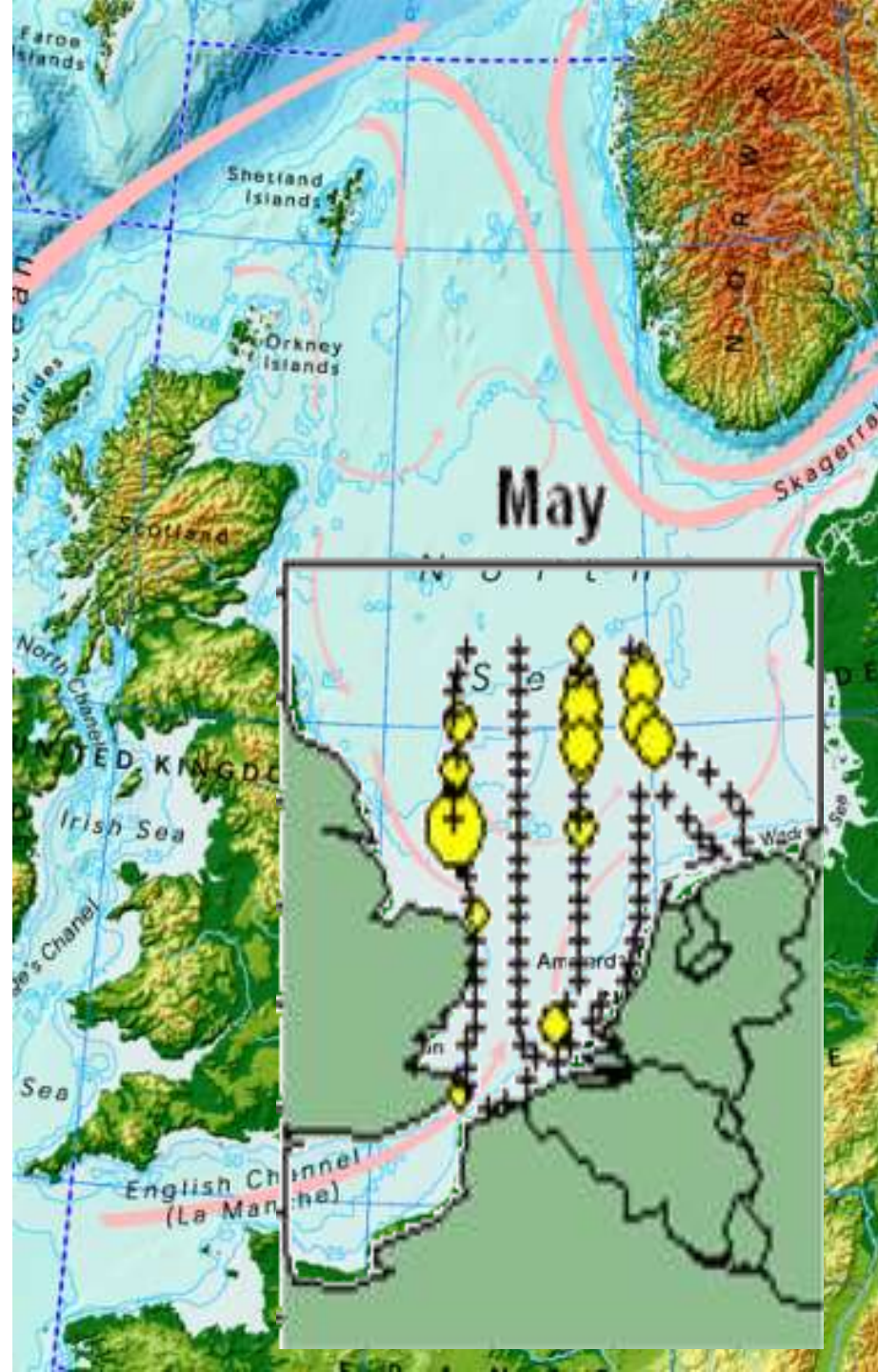
European Sea Bass (*Dicentrarchus labrax*) Life Cycle



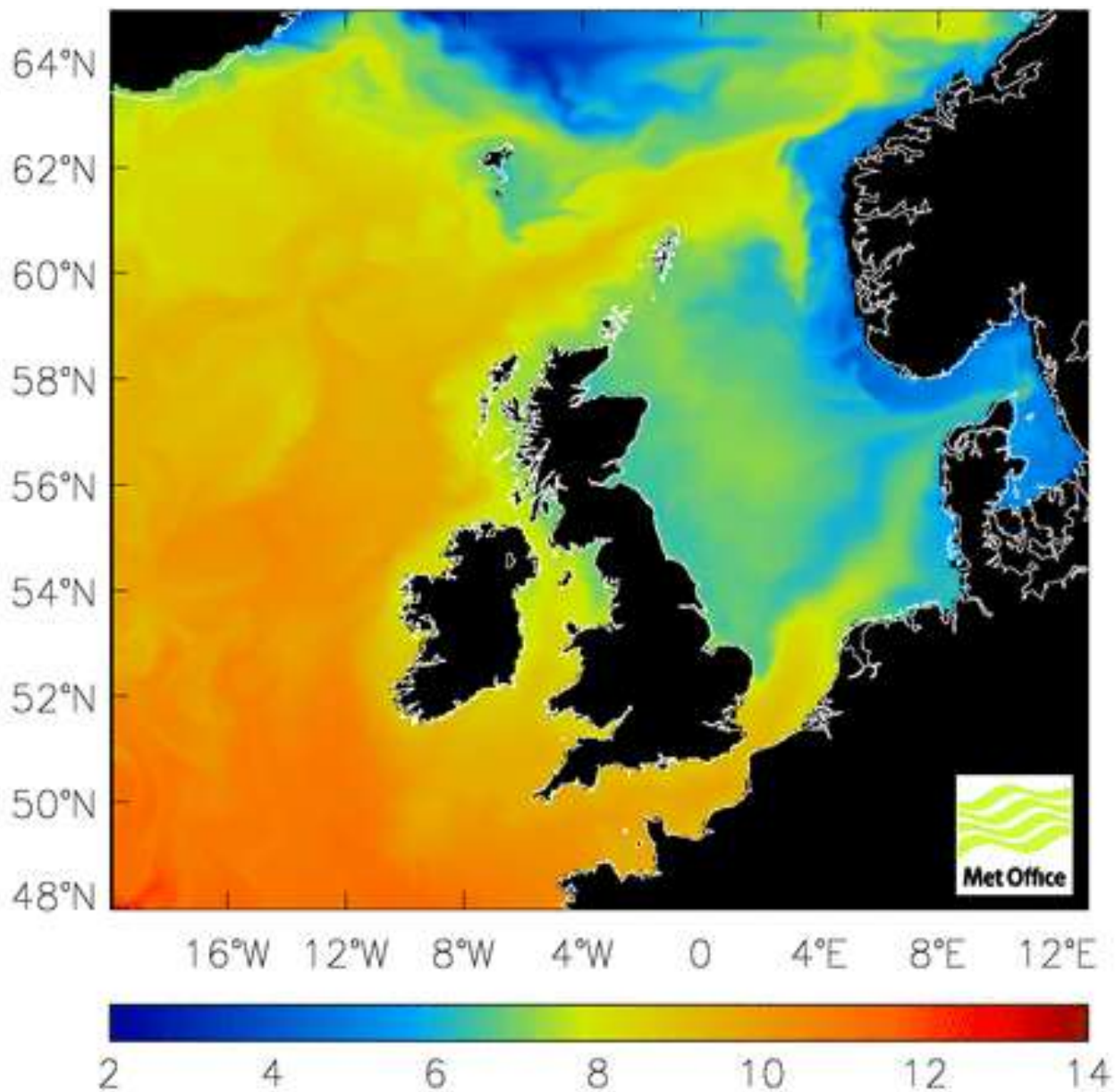
Residual Sea Currents within the North Sea



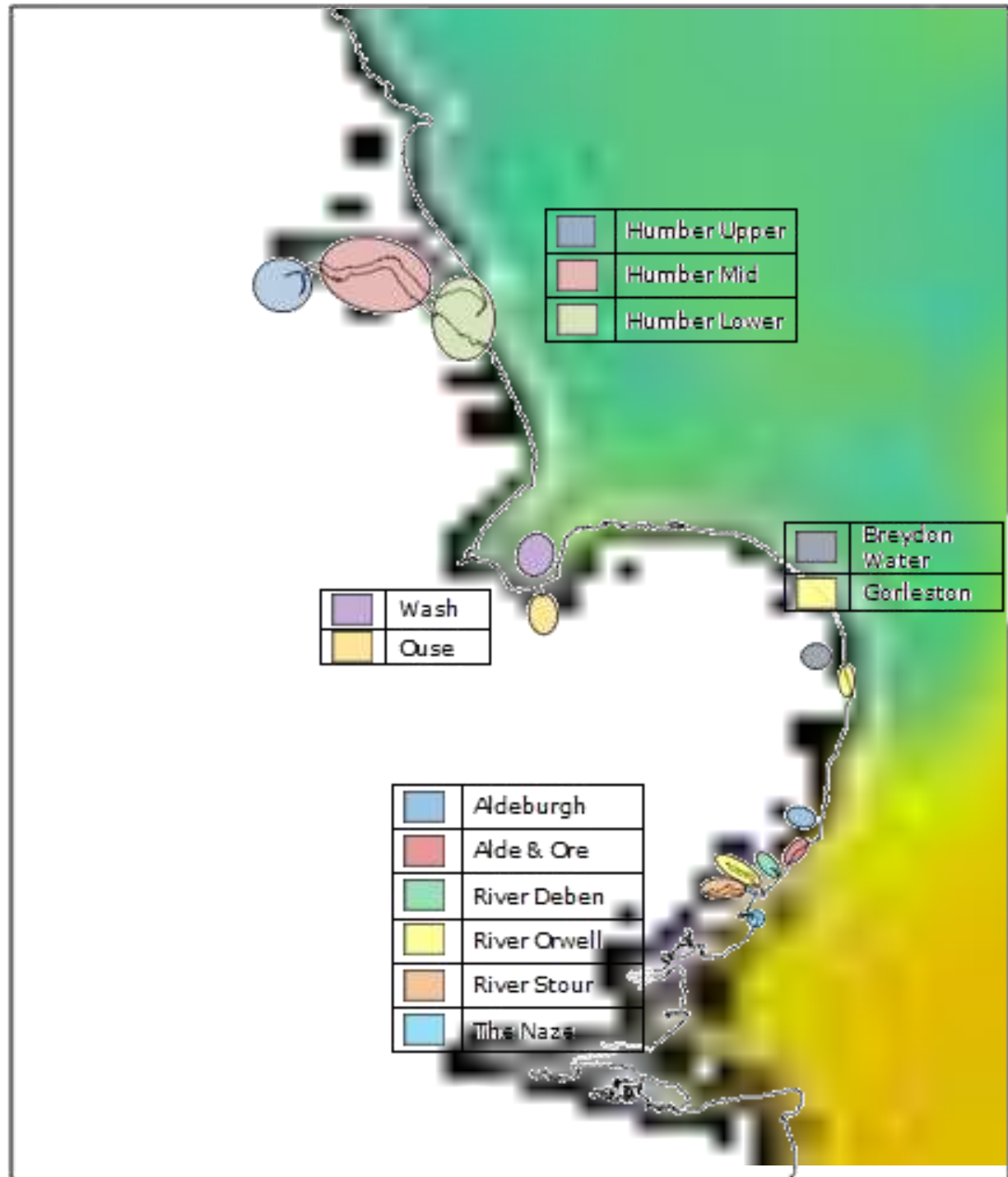
Residual Sea Currents within the North Sea compared with observed locations of Sea Bass stage 1 eggs

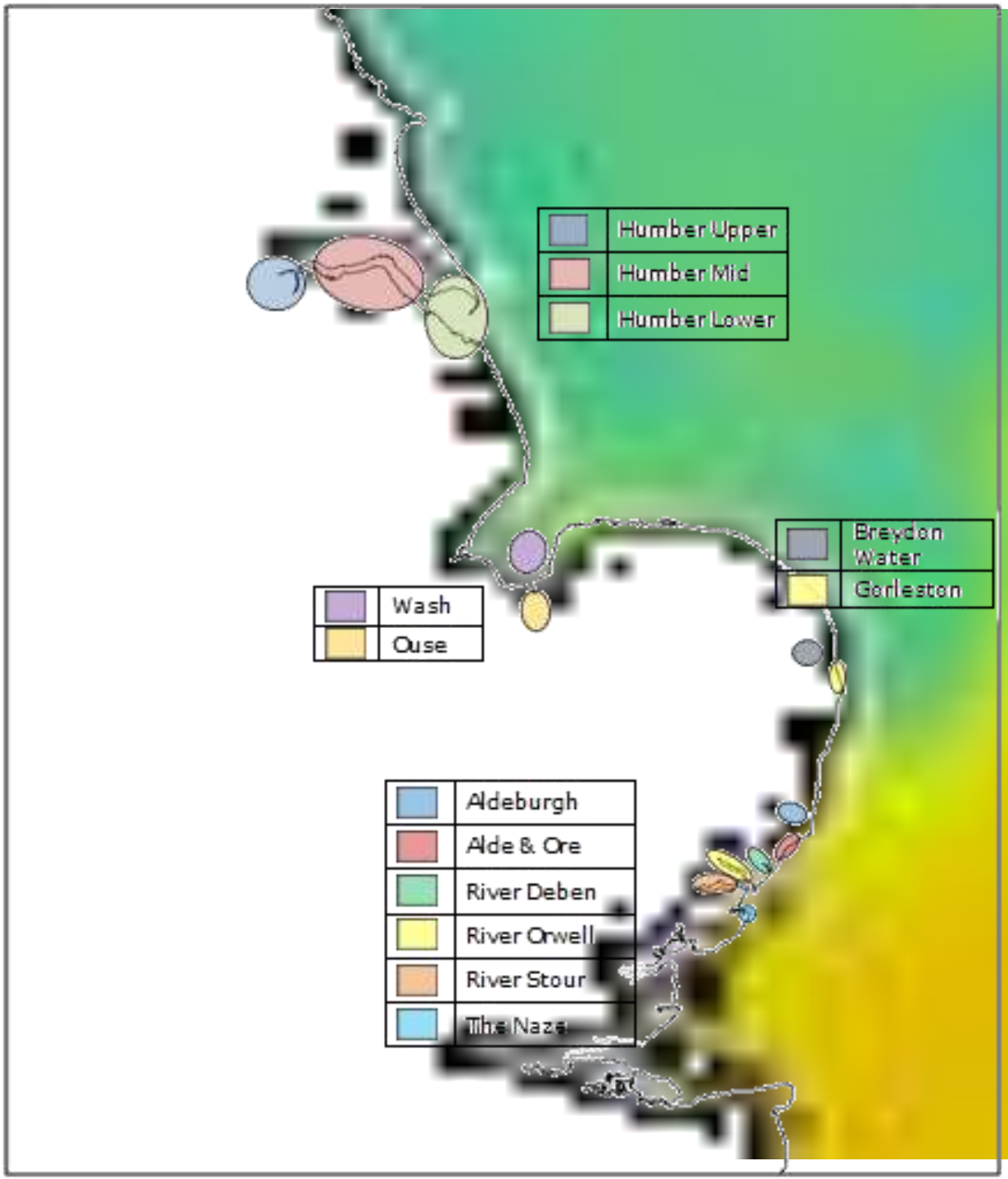
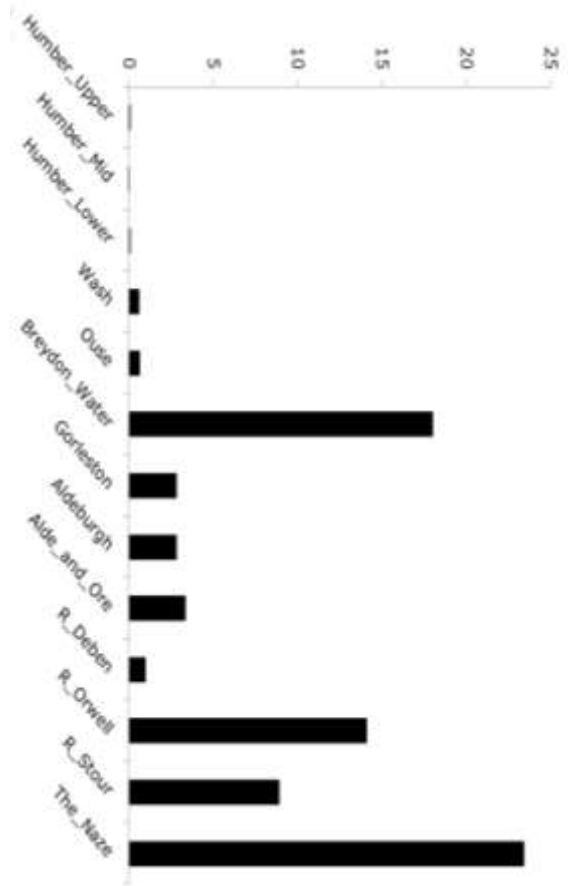


Sea Surface Temperature 16th March 2014



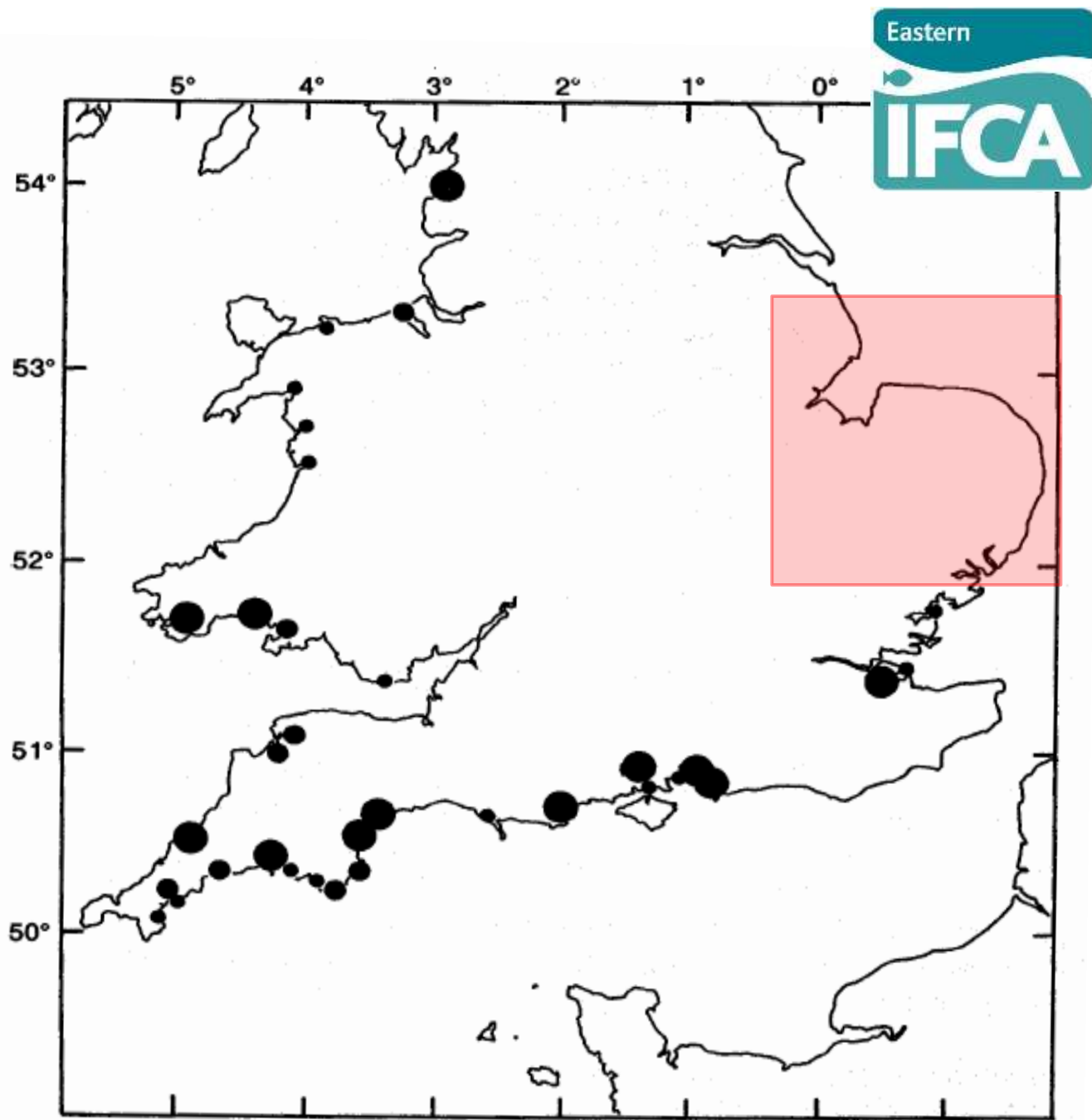
Coastline with Eastern IFCA district, showing Areas by which EA WFD fish survey data has been grouped

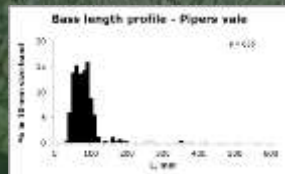




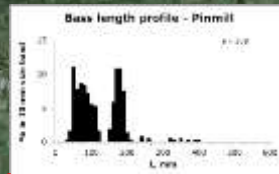
UK Bass
Nursery Areas
arising from
"The Bass
(Specified Sea
Areas)
(Prohibition of
Fishing) Order
1990. SI1990
No 1156"

EIFCA area
indicated in red

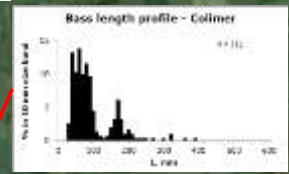




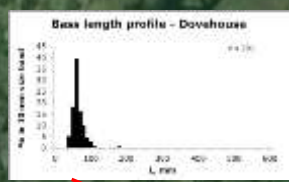
Pipers Vale



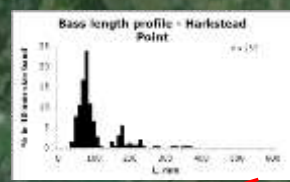
Pinmill



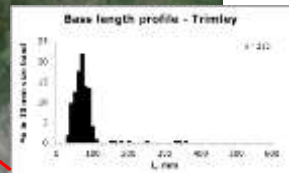
Colimer



Dovehouse



Harkstead Point



Trimley

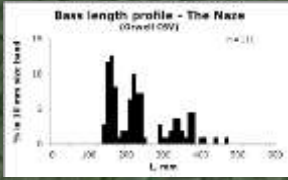
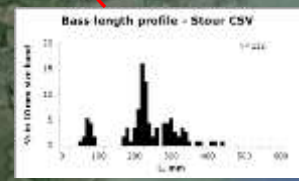
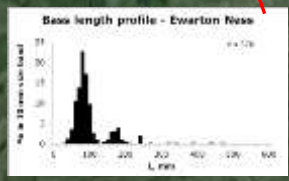
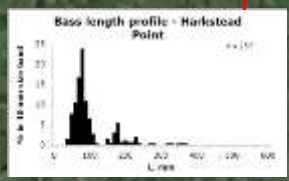
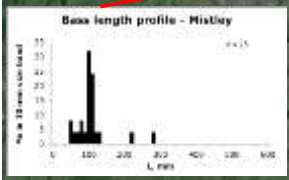
Erwarton Ness

Erwarton Ness

Stour CSV

Mistley

Wrabness



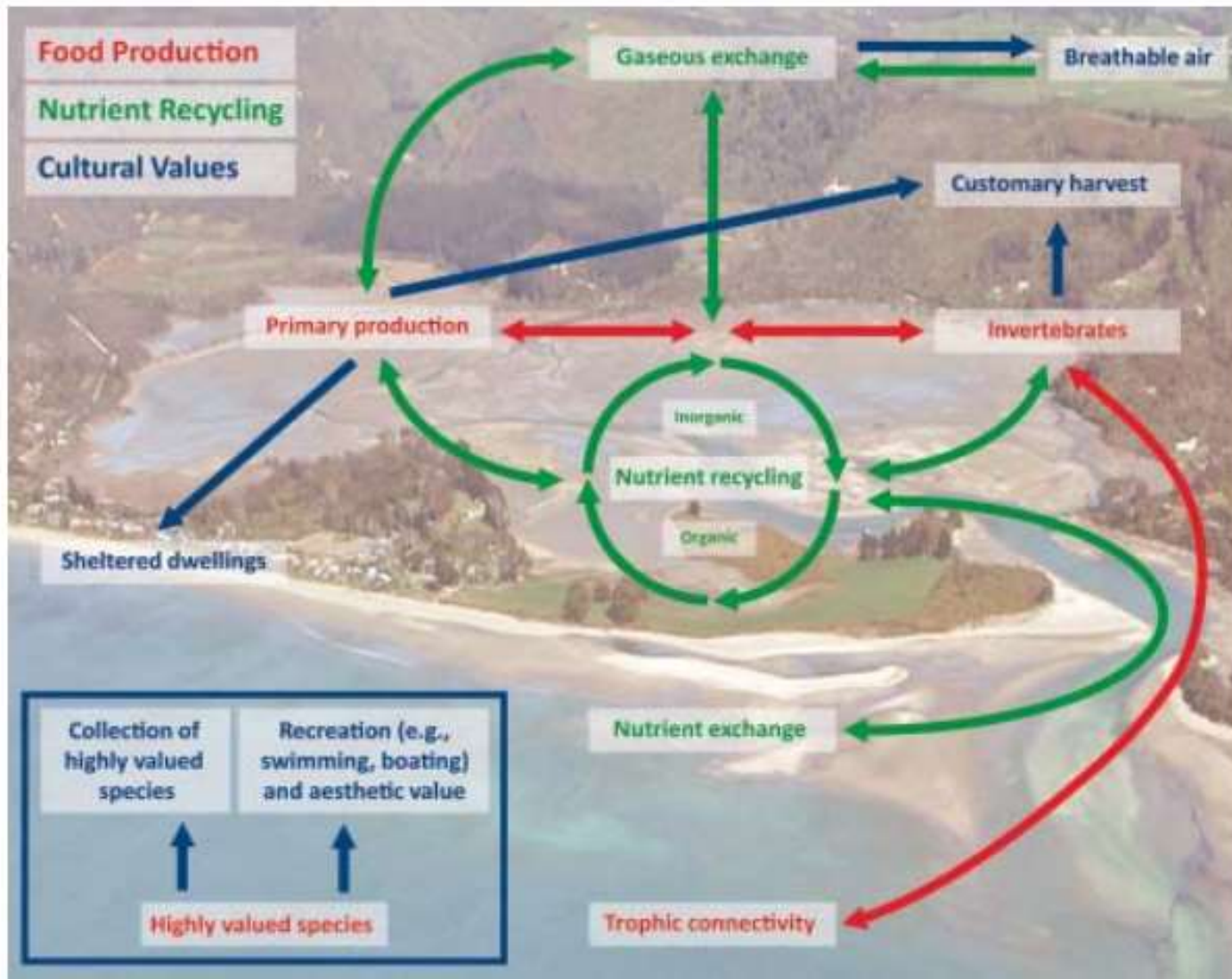
The Naze (Orwell CSV)

Green, Benjamin C., et al. "High site fidelity and low site connectivity in temperate salt marsh fish populations: a stable isotope approach." *Oecologia* 168.1 (2012): 245-255.

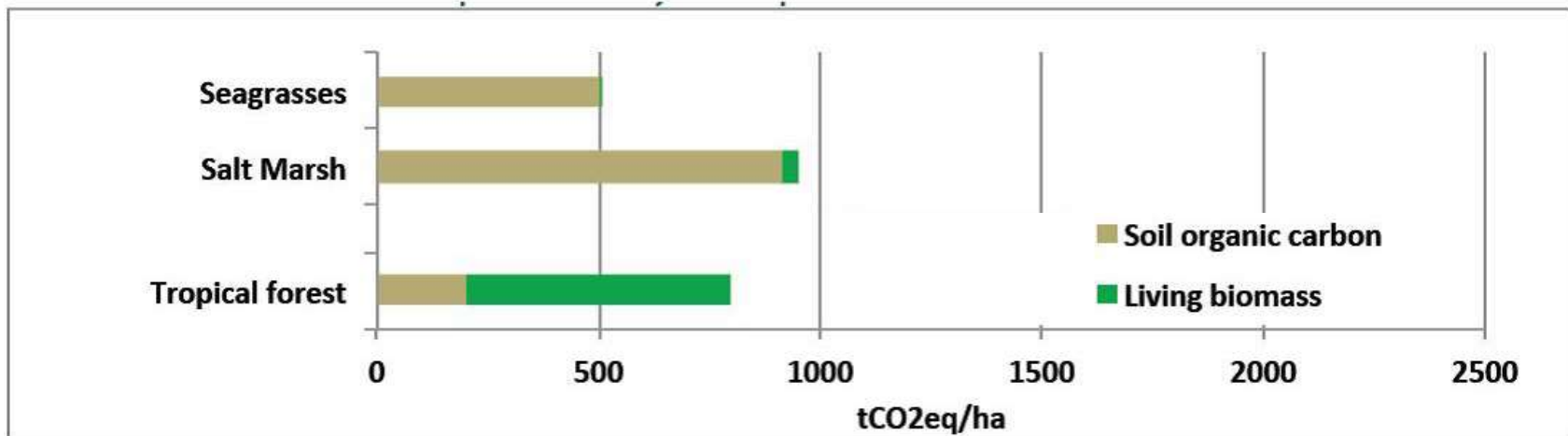


- Adult and juvenile fish utilise salt marshes for food and shelter at high tide, moving into adjacent sublittoral regions during low tide. Understanding whether there are high levels of site fidelity for different species of coastal fish has important implications for habitat conservation and the design of marine protected areas.five common salt marsh fish (*Atherina presbyter*, *Chelon labrosus*, *Clupea harengus*, *Dicentrarchus labrax*, *Pomatoschistus microps*), in five saltmarshes within two estuary complexes (Abbotts Hall and Colne Point were located in the Blackwater–Colne estuary, Shotley and Wrabness in the Stour–Orwell estuary)...
- Significant differences in ^{13}C and ^{15}N signatures between salt marshes indicated **distinct sub-populations utilising the area of estuary around each salt marsh, and limited connectivity, even within the same estuary complex.**These results demonstrate that for some common coastal fish species, high levels of site fidelity result in individual salt marshes operating as discrete habitats for fish assemblages.

From Thrush, Simon F., et al. "The many uses and values of estuarine ecosystems." *Ecosystem services in New Zealand—conditions and trends*. Manaaki Whenua Press, Lincoln, New Zealand (2013).



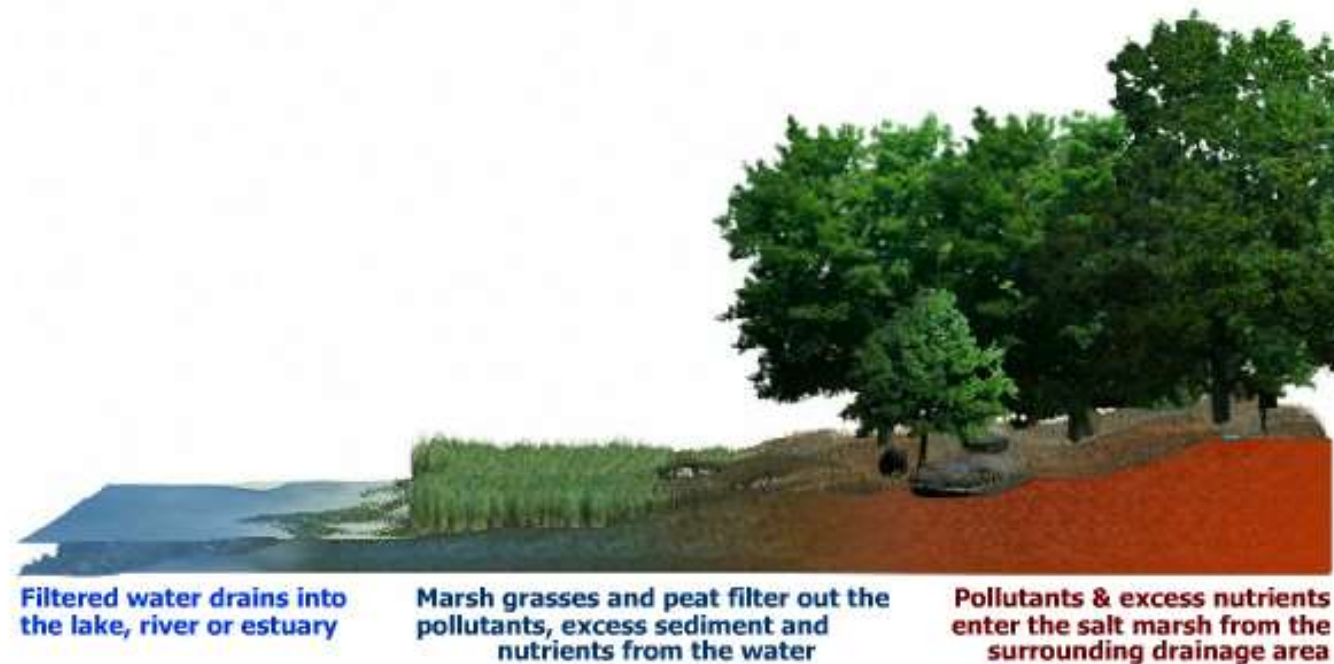
Salt marsh as Carbon Capture and Sink



*Data is per unit area, where tCO₂eq/ha is tons of carbon dioxide equivalents per hectare

Current studies suggest that *mangroves and coastal wetlands annually sequester carbon at a rate two to four times greater than mature tropical forests and store three to five times more carbon per equivalent area than tropical forests*. Most coastal blue carbon is stored in the soil, not in above-ground plant materials (biomass), as is the case with tropical forests

After Murray, Brian C., et al. "Green payments for blue carbon: Economic incentives for protecting threatened coastal habitats." *Nicholas Institute for Environmental Policy Solutions, Report NI 11.04* (2011).



“Salt marshes are one type of estuarine habitat that acts like an enormous filter, removing pollutants such as herbicides, pesticides, and heavy metals out of the water flowing through it The nutrients flowing into an estuarine habitat often provide for lush plant growth. For this reason, estuaries are some of the most fertile ecosystems on Earth. Yet, due to the pollutants they extract from waters running through them, they may also be some of the most polluted as well.”

Extracts from "Barbier, Edward B., et al. "The value of estuarine and coastal ecosystem services." *Ecological monographs* 81.2 (2011): 169-193.



Ecosystem services	Ecosystem service value examples	Source
Raw materials and food	£15.27/ Ha / yr net income from livestock grazing, UK	King and Lester 1995
Coastal protection	US\$8236/ Ha / yr in reduced hurricane damages, USA	Costanza et al. 2008
Water purification	US\$ 785–15 000/acre capitalized cost savings	Breux et al. 1995
Maintenance of fisheries	US\$6471/acre and \$981/acre capitalized value for recreational fishing for the east and west USA coasts.	Freeman 1991
Tourism, recreation, education, and research	£31.60/person for otter habitat creation and £1.20/person for protecting birds, UK	Birol and Cox 2007

After Barbier, Edward B. "Valuing ecosystem services as productive inputs." *Economic Policy* 22.49 (2007): 178-229.



Values of Mangrove in original state c.f. after conversion to shrimp ponds (2005 values)

After Conversion, \$ / Ha. / yr.		Before conversion, \$ / Ha. / yr.	
Value as Shrimp Ponds	\$ 1150	Forestry Products	\$ 540
		Contribution to Fisheries value	\$ 800
		Protection against storm damage	\$ 9700
		TOTAL	\$ 11040

Extracts from Costanza, Robert, et al. "The value of the world's ecosystem services and natural capital." (1997).



Ecosystem Services Values of various marine habitats (1996 values)

Habitat	Value, \$(1996) / Ha. / yr.
Estuaries	22,832
Seagrass / Algae beds	19,004
Tidal marsh / Mangroves	9,990
Shelf seas	1,610
Open ocean	252

COMMON GROUND

Thanks to all the community members who took part in interviews. We look forward to the workshops this autumn. Get in touch with the Eastern Inshore Fisheries and Conservation Authority (01533 775311) if you'd like to know more or get involved in talking about the management of the marine environment in our district.

- We're running a project with Marine Conservation Society (MCS) to involve more people in sharing their views about how marine resources in our district are managed.
- Earlier this year 39 people from across Suffolk, Norfolk and Lincolnshire were interviewed by Eastern IFCA and the Marine Conservation Society as part of a 'Community Voice' project.

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- We asked each interviewee exactly the same questions and filmed each interview, we now have approx. 40 hours of film footage which is currently being processed by MCS into a 30min film.

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- The next stage in the project will be to hold workshops (x2) in Suffolk, Norfolk & Lincolnshire, the 30min film will be shown at the first workshop in each area – to an audience of interviewees and a wider group of local stakeholders setting the foundation for discussion about the management of marine resources in each area .

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- Further details about the project can be found on Eastern IFCA's website - <http://www.eastern-ifca.gov.uk> or in the handouts available here.
- If anyone would like to take part in the Suffolk workshops (late September) please get in touch with Sandra Cowper EIFCA (contact details on the handout).

Thank you

Any questions?



