

# **WP 1: quick guide to Ecosystem Service Assessment**

**Nicola Beaumont and Tara Hooper**

# The Ecosystem Service (ES) Approach



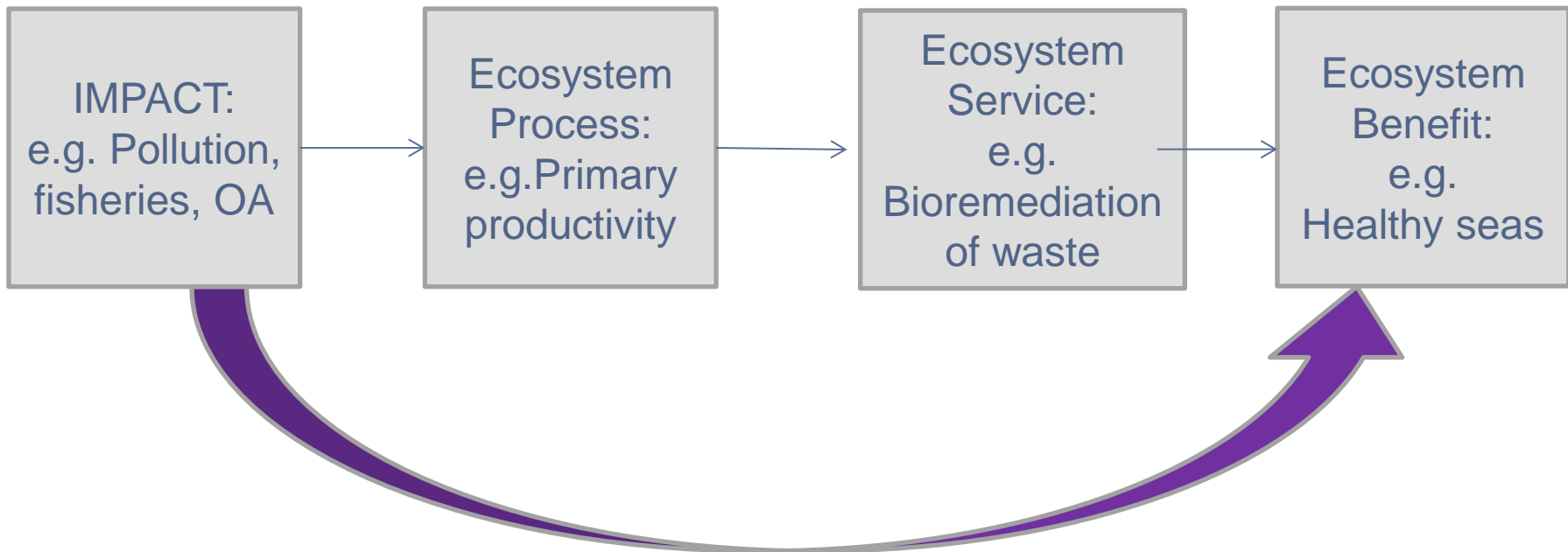
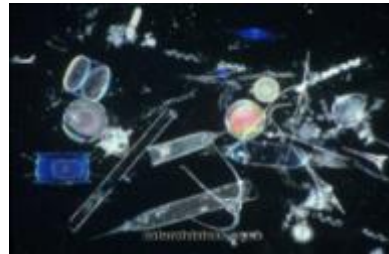
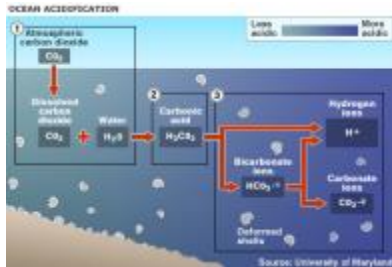
Conceptual diagram illustrating the ecosystem services provided by oceans and the ways in which humans depend on oceans.

Symbols library courtesy of the Integration and Application Network ([ian.umces.edu/symbols](http://ian.umces.edu/symbols)), University of Maryland Center for Environmental Science.

Conceptual diagram illustrating the ecosystem services provided by oceans and the ways in which humans depend on oceans. Diagram courtesy of the Integration and Application Network ([ian.umces.edu](http://ian.umces.edu)), University of Maryland Center for Environmental Science. Source: Samonte G, Karer L, Orbach M, 2010. *People and Oceans*. Science and Knowledge Division, Conservation International, Arlington, Virginia, USA.

**“the aspects of ecosystems utilised (actively or passively) to produce human well-being” (Fisher et al. 2009)**











# Ecosystem Service Approach

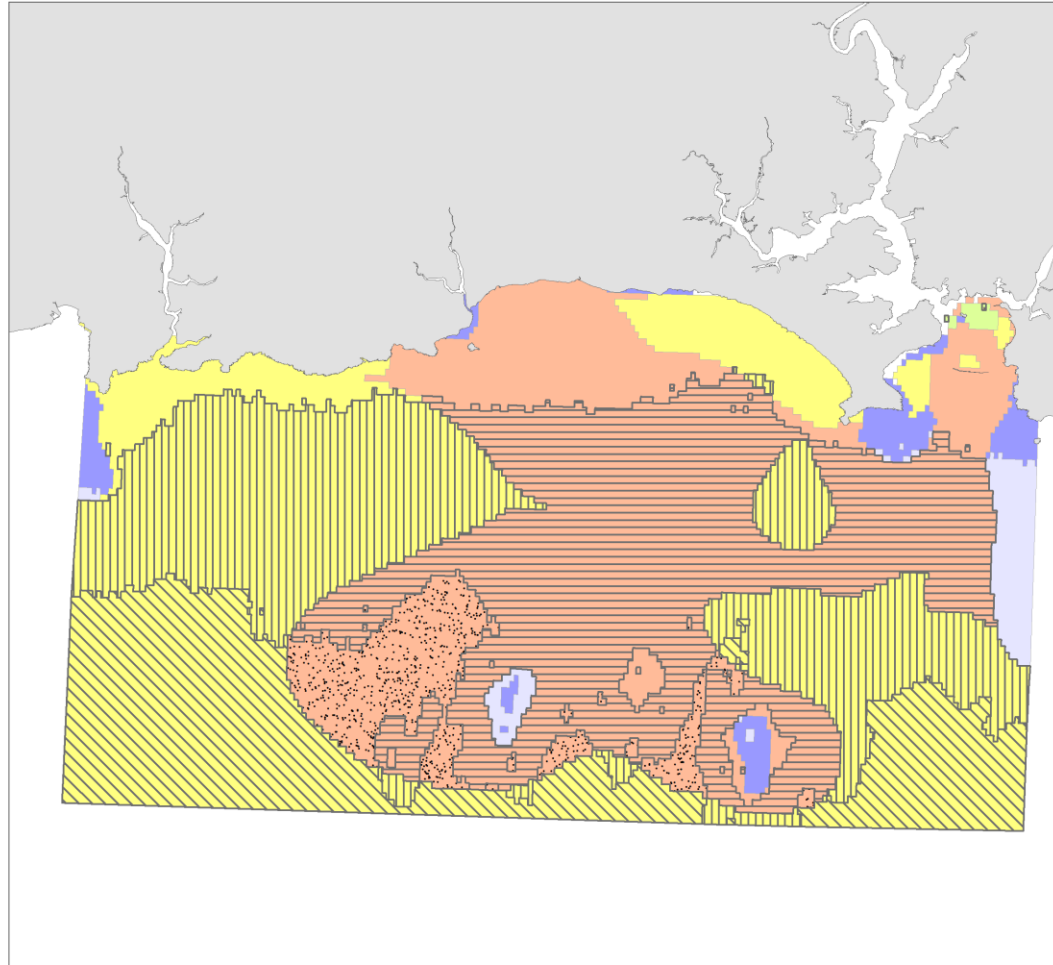


# Plymouth Sound – Fowey ES Assessment

## Habitats within the Plymouth to Fowey case study site

### EUNIS habitat

-  Low energy infralittoral rock
-  Low energy circalittoral rock
-  Infralittoral coarse sediment
-  Circalittoral coarse sediment
-  Deep circalittoral coarse sediment
-  Infralittoral fine sand or infralittoral muddy sand
-  Circalittoral fine sand or infralittoral muddy sand
-  Deep circalittoral sand
-  Infralittoral mixed sediments
-  Circalittoral mixed sediments



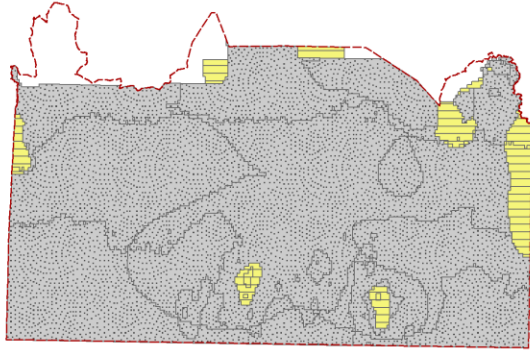
DATA PROVIDERS: Ordnance Survey; DASSH, MESH

DATE: 25/09/2013  
PROJECTION: ETRS 1989 UTM30N

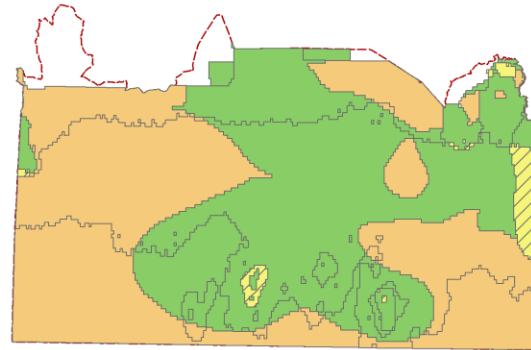
# From Habitats to Ecosystem Service

**Ecosystem service contribution & data confidence (Plymouth to Fowey case study site)**

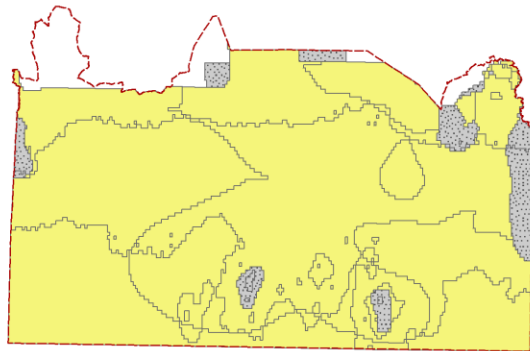
**Tourism & nature watching**



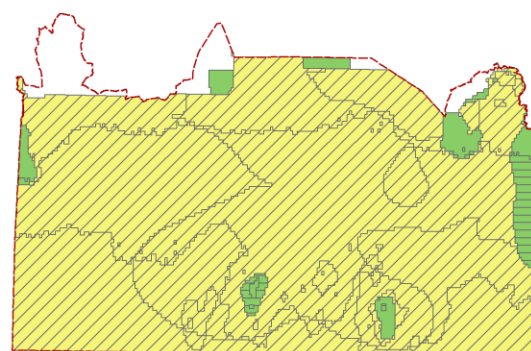
**Species diversity**



**Nutrient cycling**



**Wild food (incl. fisheries)**



**Ecosystem service contribution**

- None or negligible
- Low contribution
- Moderate contribution
- High contribution

**Confidence score**

- None
- Expert opinion
- Grey or overseas literature
- UK related; peer reviewed

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# Validation:

## 1. Using WCO data

- What have *phytoplankton* ever done for us?
- Climate regulation / Carbon budget
- Nutrient cycling (linked to bioremediation of waste)
- Species diversity (linked to cognitive value and resilience)
- Food source for fish species
- Cognitive value – funding for WCO etc. plus reference site for MSFD

## Dis-service – Harmful Algal Blooms

- i. Phaeocystis (flagellates)– lose flagella and group together, causes foam and mucus that sinks, can lead to water discolouration, unpleasant foam on beaches, fish kill.
- ii. Karenia Mikimotoi (dino-flagellate) – can bloom and cause anoxic conditions. In 2009 massive blooms, impacts on star fish.
- iii. Coccolithophores (e.hux) – blooms and makes the water appear milky.
- iv. Diatom – pseudo nichy – produces demoic acid, and blooms with the potential for toxicity, especially via shell fish.

# Validation:

## 2. New surveys

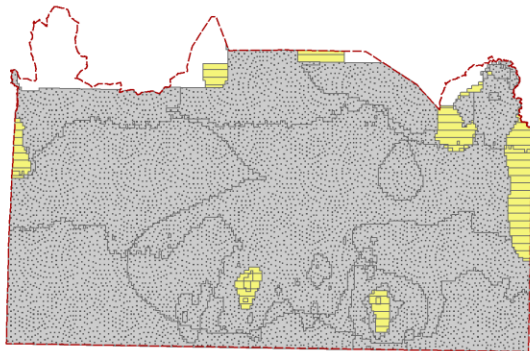
- Cultural survey....
- Recreation questionnaire.....
- Caroline Hattam's blue/green spaces



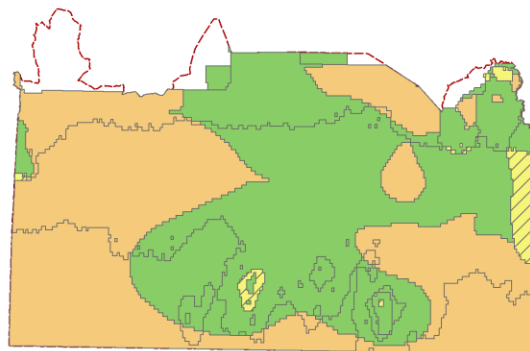
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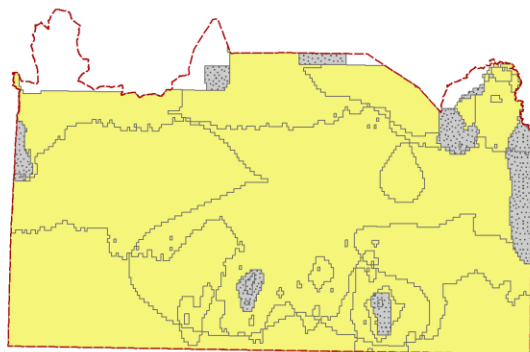
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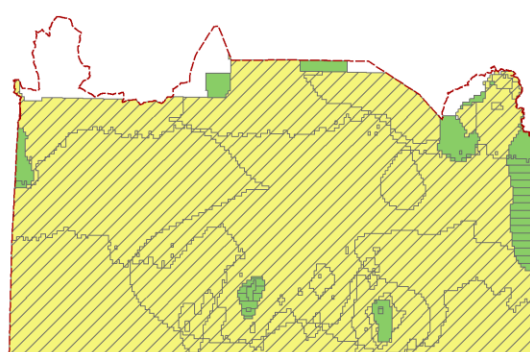
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