



Valuable Seas 2.1.3: Measuring Ecosystem Services and Assessing Impacts

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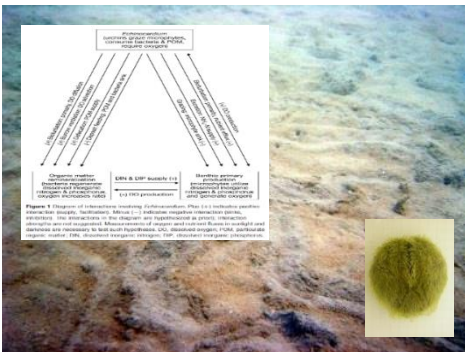
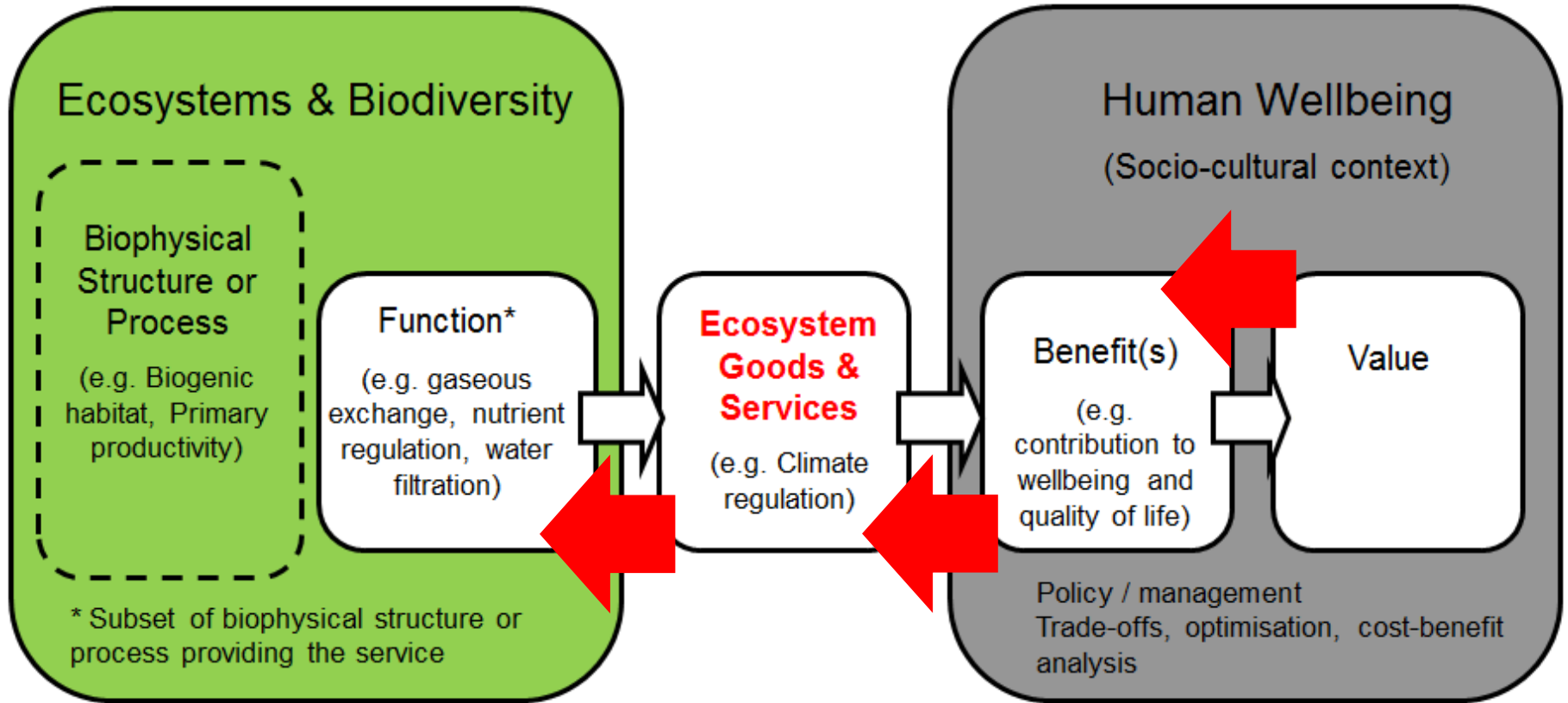
What are ecosystem services?

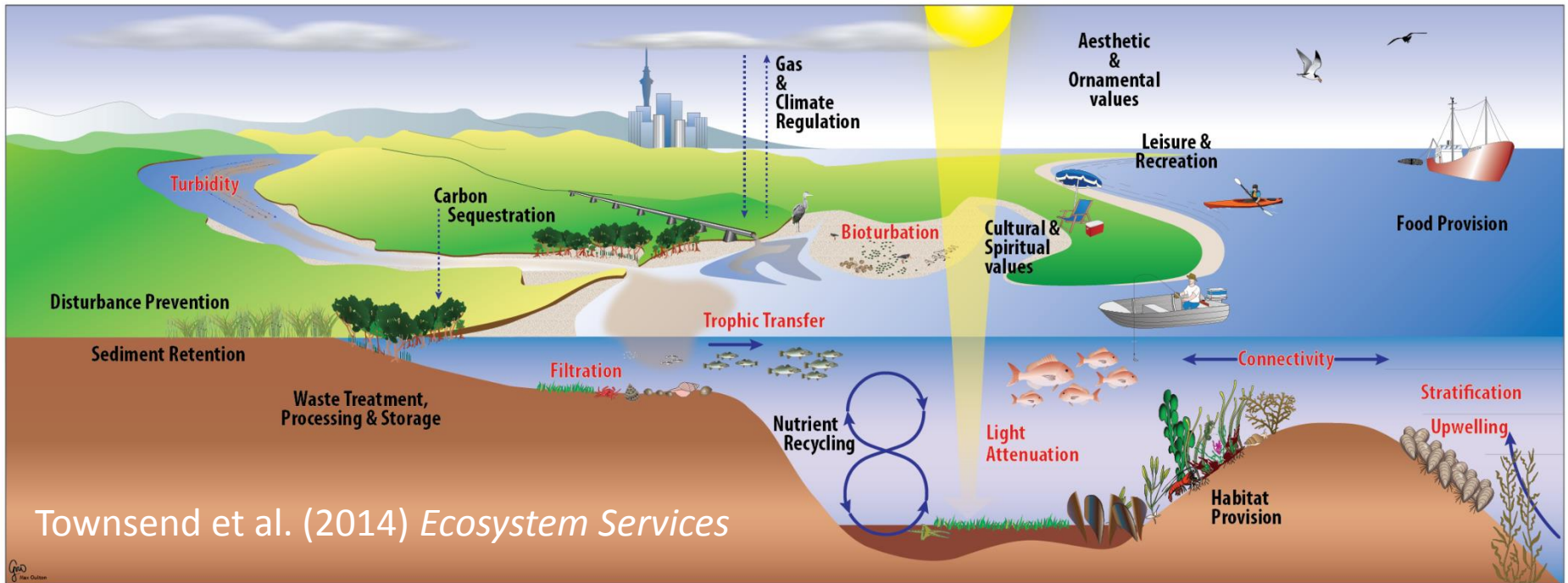
- 1970-1977, publications using terms such as ‘Environmental services’, ‘Public-service functions of the global environment’, ‘nature’s service’
- Ecosystem Services (Ehrlich and Ehrlich, 1977)
- Costanza et al. (1997) and MEA (2005)

- Humankind benefits in a multitude of ways from ecosystems. Collectively, these benefits are becoming known as ‘ecosystem services’.
- They can be seen as a way to link ‘natural’ systems and processes to human well-being.

Natural System

Anthropic System





Common International Classification of Ecosystem Services (CICES)

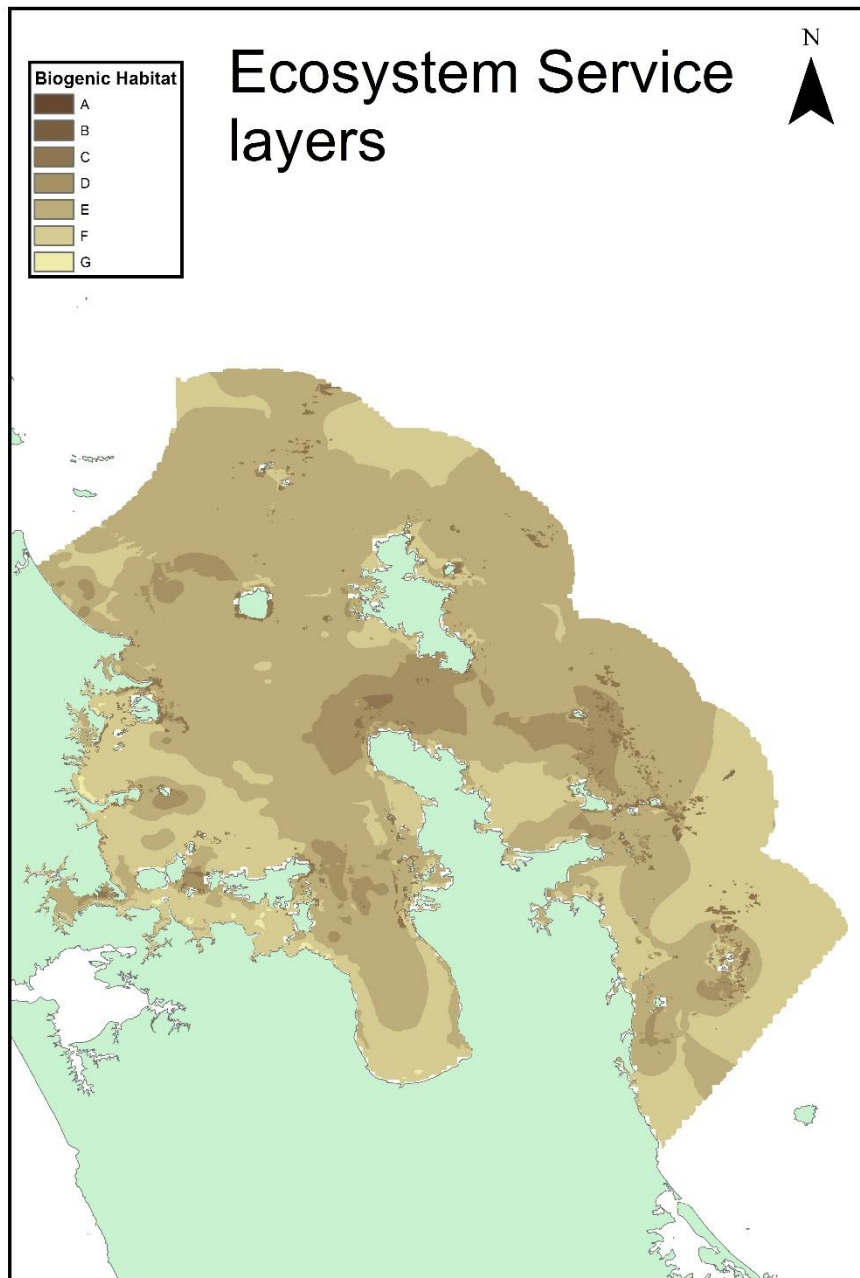
<http://cices.eu/>

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- We lack specifics on: Where hotspots of ecosystem service delivery may be; discrepancies between where services are produced and where associated societal benefits are realised.
- In this project, we will improve the measures and maps of ecosystem service delivery.
- We will better articulate the links between ecosystem services and stakeholder perceptions of value and benefit in case study areas.

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- We are validating recently developed proxies for ecosystem services and are devising new measures where appropriate.
- we are developing appropriate and cost-effective methods and indicators for (a) measuring and predicting individual marine ecosystem services and (b) linking them to the values held by Māori and stakeholders
- We are using ES to provide the connection between nature and human values and to understand the scale of threats to ES and values.
- Values – working closely with 2.1.2



Challenges

- Big areas, Limited data
- Out of sight, out of mind
- Validation (maps are pretty but.....)
- Utility (it looks nice, but so what.....)

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- **Removal of nutrient pollutants**
- **Maintaining nursery populations and habitats**
- **‘Bundles’ of ecosystem services generate by shellfish**

Removal of nutrient pollutants

- Focusing on processes that ‘mop up’ and remove excess (nitrogenous) nutrients and/or prevent the expression of eutrophic symptoms.
- Excessive nutrients can lead to nuisance algal blooms, shellfish toxicity (PSP), anoxia, fish kills.
- clear link to declining environmental condition and values.
- **Workshop – June 2017**

Sea lettuce takes over beaches

Last updated 16:12, January 5 2016

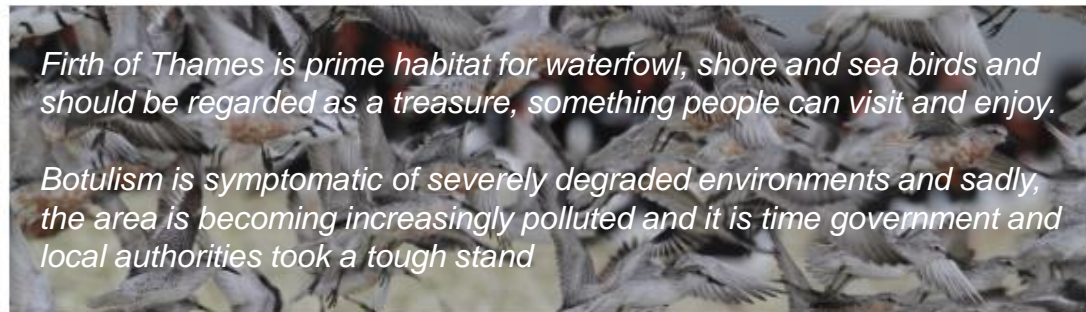


PAPAMOIA NEW ZEALAND FACEBOOK

The Facebook page Papamoia, New Zealand, posted several photos of the beach on December 30. "This mornings walk along Papamoia Beach (Harrison's Cut) never seen it like this before. Spoke to someone else who has lived here 14 years and worst he has seen."

Botulism Outbreak On Firth of Thames

Posted 3 March 2016 by Gold FM in *Environmental*



Firth of Thames is prime habitat for waterfowl, shore and sea birds and should be regarded as a treasure, something people can visit and enjoy.

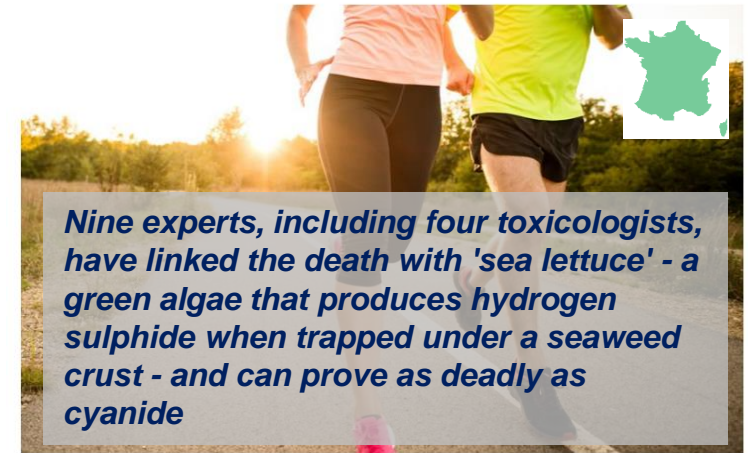
Botulism is symptomatic of severely degraded environments and sadly, the area is becoming increasingly polluted and it is time government and local authorities took a tough stand

Jogger dies 'after being overcome by fumes from toxic seaweed as deadly as cyanide'

The runner is believed to have been hit by the deadly vapours while exercising in Brittany, trig across the water in Jersey



BY TOM BEVAN, MARC WALKER
16:39, 12 JAN 2017



Nine experts, including four toxicologists, have linked the death with 'sea lettuce' - a green algae that produces hydrogen sulphide when trapped under a seaweed crust - and can prove as deadly as cyanide

The Southland Times

Stuff Home Southland Times Opinion

Letters Columns Cartoons

Editorial: Our degraded estuaries

"Anyone who regards the warnings about Southland's sick estuaries as alarmist should take their head out of the sand and insert it into some of the eutrophic nastiness of Daffodil Bay"

Maintaining nursery populations and habitats

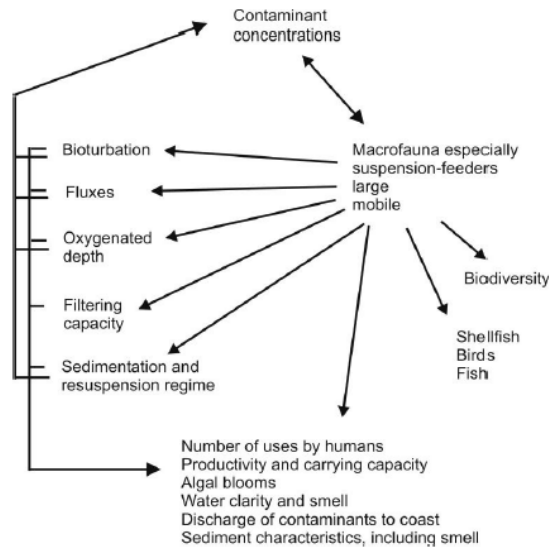
- Biogenic habitat structures support life, by providing habitat space for species to live in or on (refugia, nursery grounds).
- Complex biogenic habitat is typically high in biodiversity, supports resilience and resistance to disturbance.
- Relevant across NZ, threatened by human activities.
- Ties in with other SS programmes, existing work in NIWA Core funded programmes



'Bundles' of ES generated by shellfish

- Rather than focus on a specific ES across the study area, instead we will capture a broad range of ES generated by specific habitat types (shellfish beds).
- Moving beyond production functions, shellfish perform many other supporting and regulating roles.
- Nutrient recycling, nutrient removal, filtration/water clarity, bioremediation of contaminants, carbon sequestration, sediment stabilisation, biodiversity/resilience.
- Many Shellfish are taonga species - Links with 2.1.2.

'Bundles' of ecosystem services generate by shellfish



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