

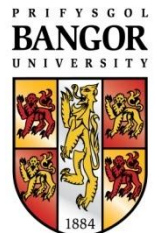
# Estimating non-monetary value of marine biodiversity in Europe

Economic Valuation MarBEF THEME III

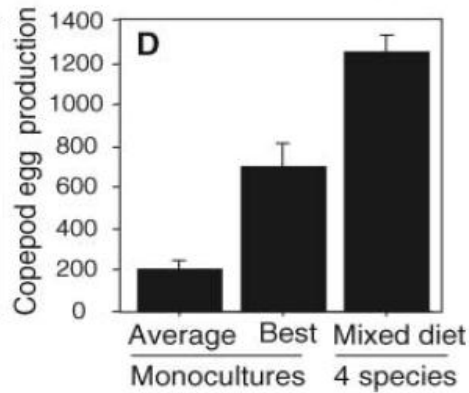
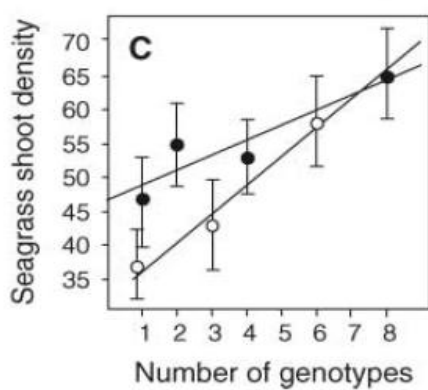
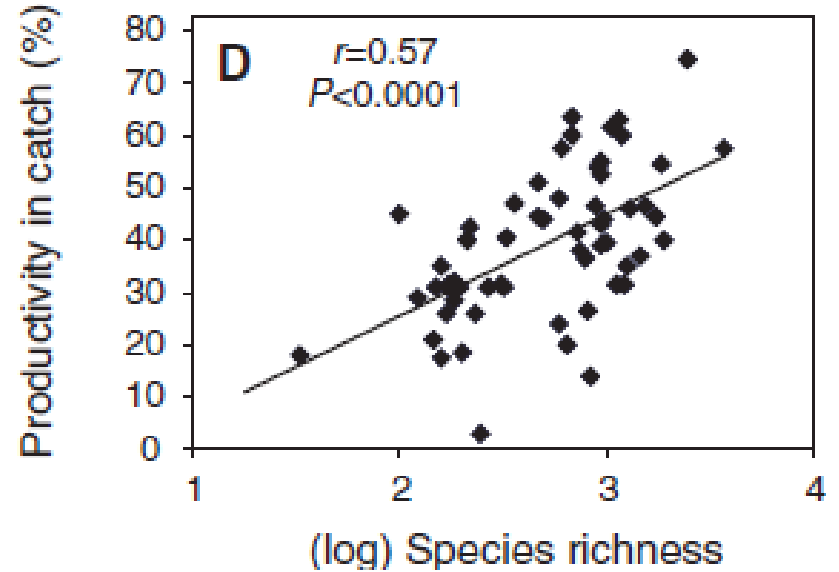
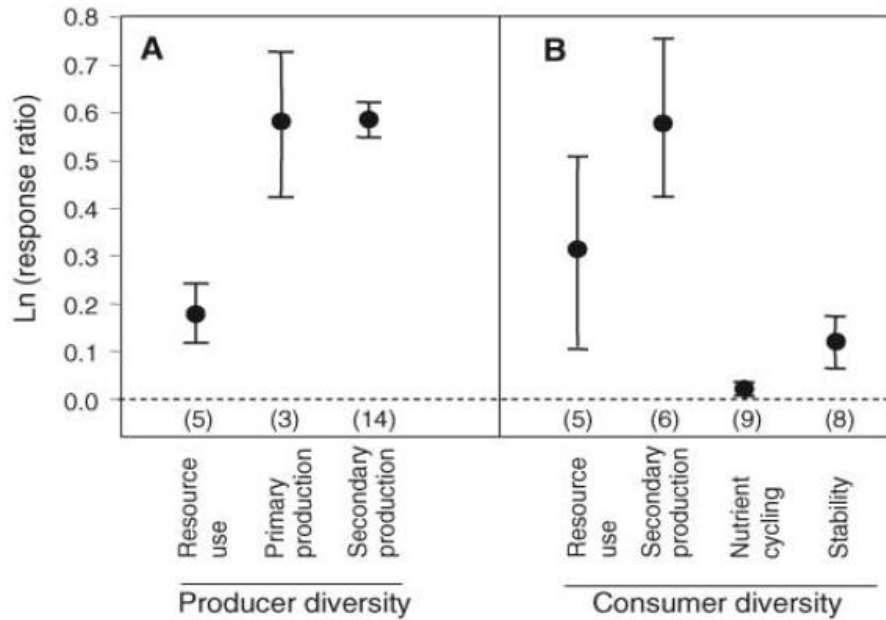
**Michel Kaiser**

**ADRIANA RESSURREIÇÃO**

**Tomasz Zarzycki,  
Michel Kaiser,  
Tomaz Dentinho,  
Ricardo S Santos,  
Gareth Edwards-Jones  
James Gibbons  
Ana Ruiz**



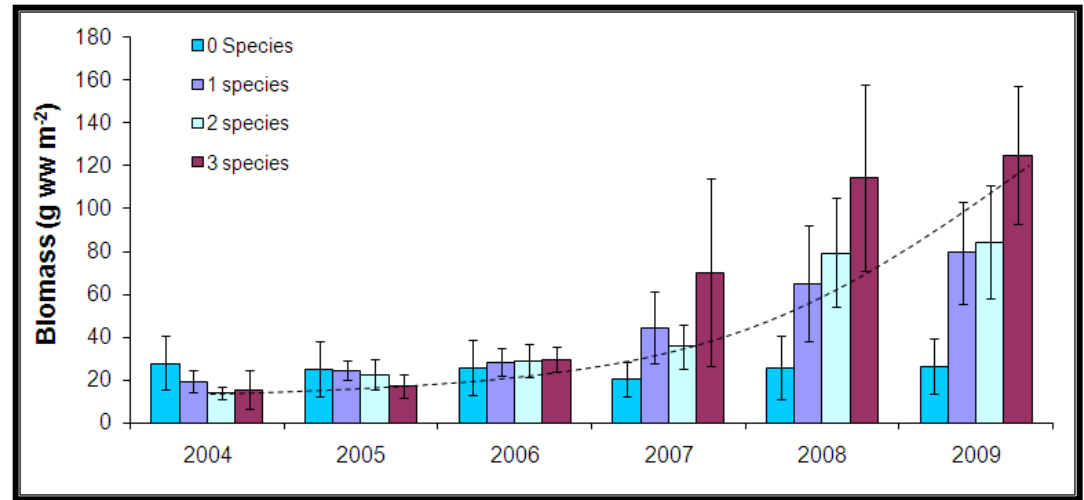
# Is more marine biodiversity better?



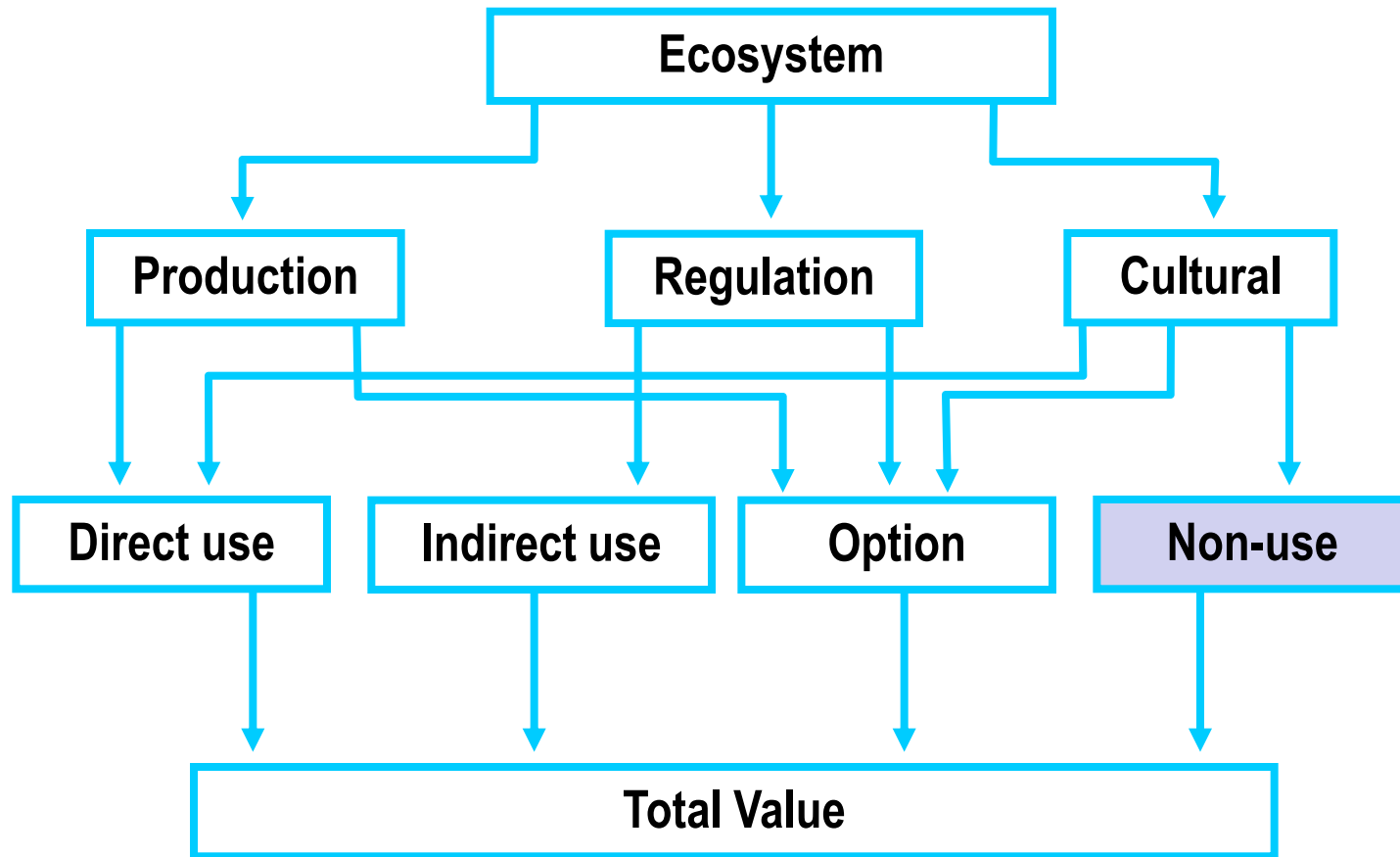
## Habitat restoration and carbon capture

Delivery of ecosystem services can be enhanced by promoting species diversity.

Greater species diversity promotes biomass production and carbon capture in mangrove.



Enhancing mangrove increases resilience and coastal protection.



**Ecosystem services are the goods or services provided by the ecosystem to society.**

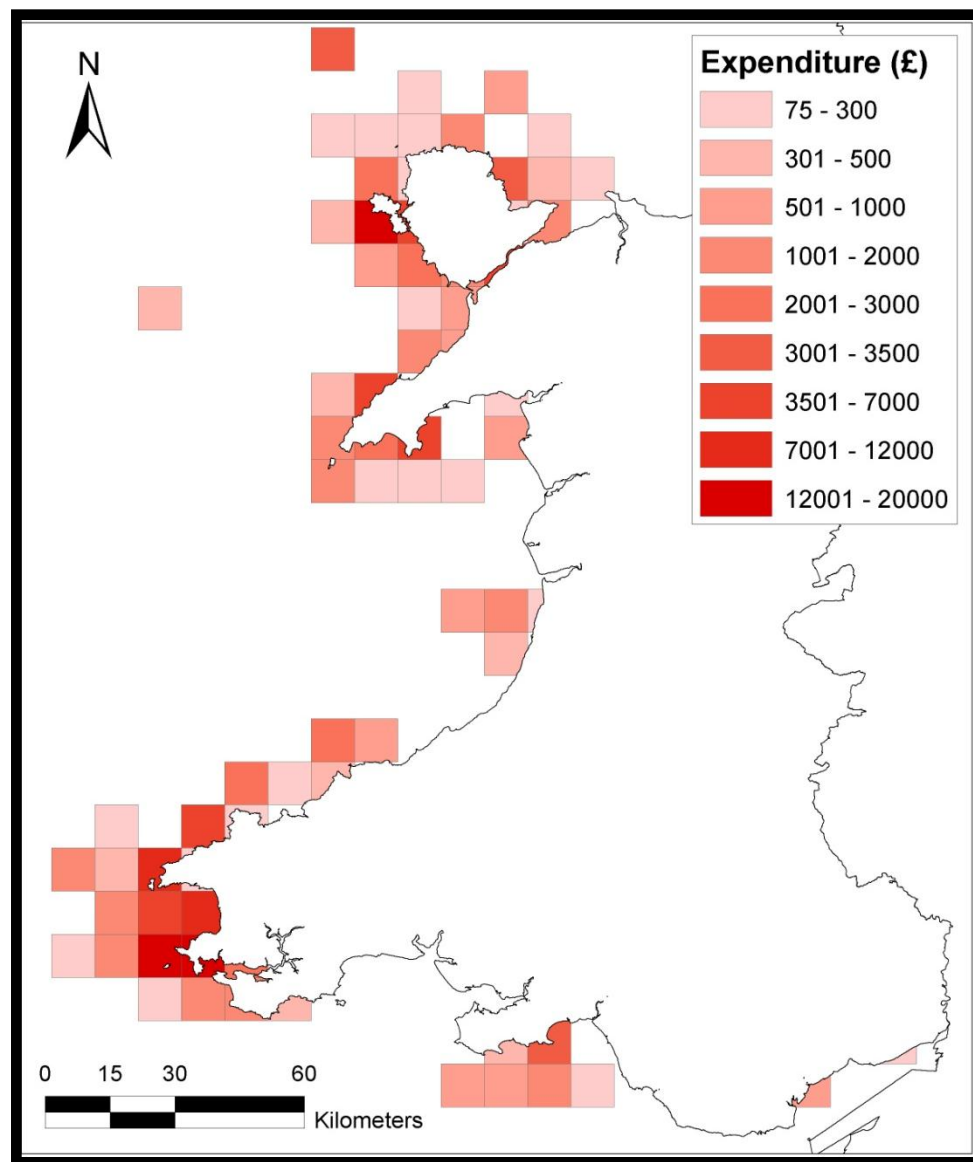


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## Cultural Use:

Recreational **use value** of marine biodiversity in relation to diving in Wales, UK, worth £8 million p.a.

## Recreational Diving Results





## Cultural non-use:

Existence value is the non-use value that people place on simply knowing that something exists, even if they will never see it or use it.





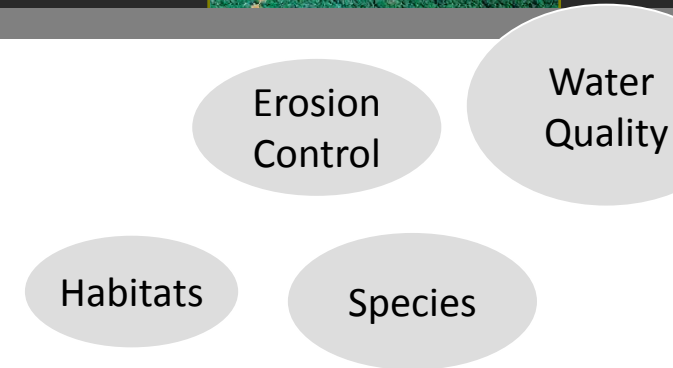
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## ECONOMIC VALUATION

### CONTINGENT VALUATION

Survey based technique to estimate societal values/preferences

Expressed as **WTP/WTA**



### CVM becoming important in policy-related research

1. To supplement biological info and define conservation goals
2. Offering alternatives where the value of MB can be accounted
3. Identifying the main beneficiaries of conservation
4. Providing evidence of social demand for biodiversity conservation

**Yet such techniques are prone to several biases!**





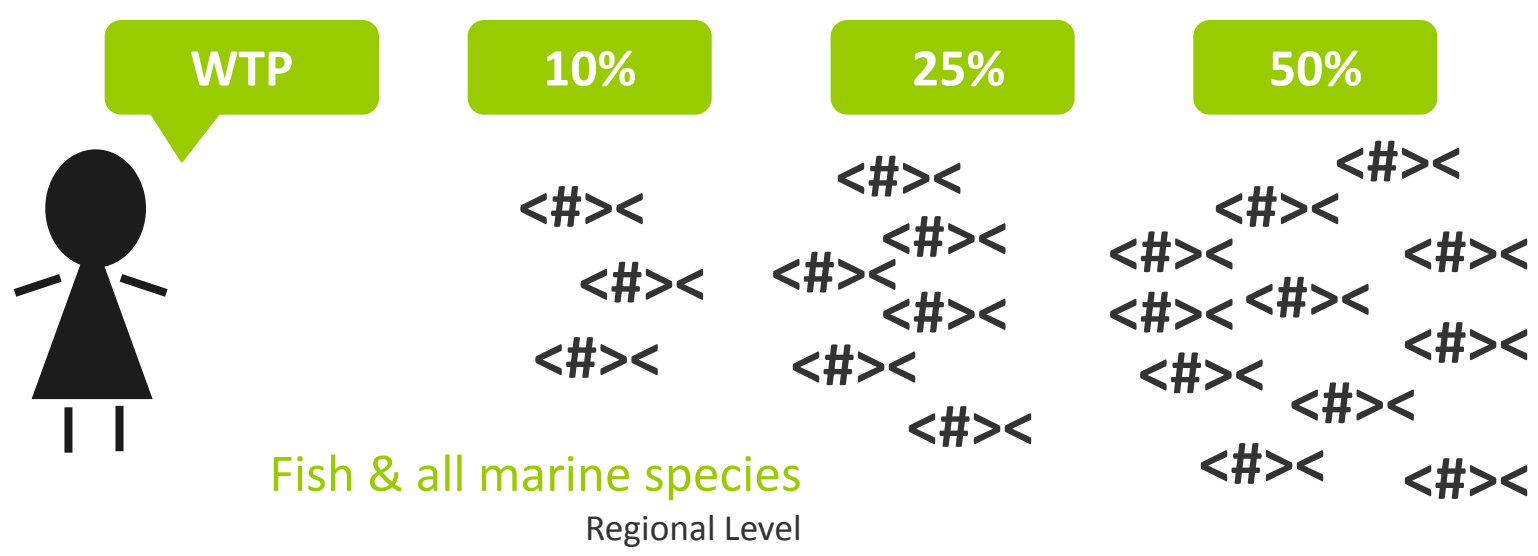
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# SCOPE TESTS FORMAL CVM SURVEY

## WITHIN SAMPLE DESIGN

To test for scope sensitivity

Test if WTP measures adjust with the scale of the change





## EMPIRICAL FINDINGS.....LARGE REGIONAL DIFFERENCES

**85%** Respondents in the **Azores** demand a high level of importance in the political agenda for MB conservation

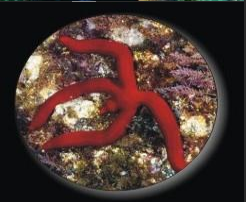
**54%** Respondents in **Gdansk** stated that MB was important but not a priority

**73%** Respondents in the **Azores** WTP for MB conservation

**56%** Respondents in **Gdansk** WTP for MB conservation



# RESULTS WTP POINT AND INTERVAL ESTIMATES



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## Respondents' WTP for scenarios of species loss broken down by residents and visitors

Location	Taxa	Level of Loss	Sample Group	Median	Mean	% WTP to monthly household Income
Azores	MB	10%	Visitors	\$127	\$777	17,79%
Gdansk	MB	10%	Visitors	\$7	\$44	2,76%
Azores	MB	25%	Visitors	\$159	\$975	22,32%
Gdansk	MB	25%	Visitors	\$9	\$55	3,44%
Azores	MB	50%	Visitors	\$203	\$1.239	28,37%
Gdansk	MB	50%	Visitors	\$10	\$62	3,89%
Azores	MB	10%	Residents	\$73	\$449	16,90%
Gdansk	MB	10%	Residents	\$14	\$83	5,55%
Azores	MB	25%	Residents	\$93	\$569	21,40%
Gdansk	MB	25%	Residents	\$17	\$103	6,90%
Azores	MB	50%	Residents	\$115	\$704	26,50%
Gdansk	MB	50%	Residents	\$21	\$128	8,56%

Respondents attached significant values to the conservation of MB

Yet different locations valued & perceived MB changes differently

## AZORES

**Higher demand for MB conservation & Higher values to prevent sp loss**

Driven by an Income effect

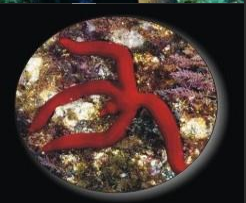
Site specific maritime culture

Azores isolated archipelago

Significant part of the economy is based on the sea

Culture identity of the Azores (WW, recreational fishing, SCUBA, shark diving, etc)





**Scope testes were passed successfully**

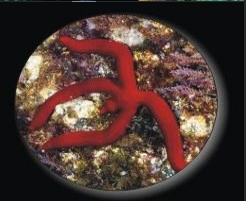
**WTP was significantly different between increased levels of sp loss**

**WTP all marine species > WTP fish**

**Higher WTP was found**

**Wealthier households**

**Respondents stating higher environmental awareness & commitment**



**Pluristic values towards MB & some are non economic values**

**Preserve species for the benefit of future generations**

Portrays a societal ethical position

People are not exclusively driven by self interest

**Interpretation of environmental values requires broadening our view beyond the dogmatic lens of economic analysis**

WTP values should be combine with other bodies of knowledge

Insight on how to communicate ideas on biodiversity & ecosystems services to public/decision makers

Adapt those messages to audiences and site-specific characteristics

**Most of the respondents behaved as rational economic actors**

**Warm Glow**

**Budget constraints**

**Uncertainties regarding the effects of species loss on human wellbeing**

“losing one species could be as bad as losing several”

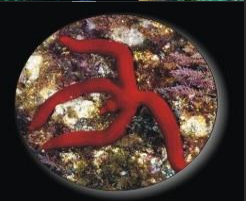
**We are only now starting to understand the value of our oceans & seas...**

People care about MB and are resistant to changes in the status quo

However how these changes link to human wellbeing remains unclear both to Science & Public



## TAKE HOME MESSAGE



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**One of the main challenges posed to science...**

Puzzle MB changes > ecosystem dynamics > human wellbeing

**Education is a key factor.....informed people value marine biodiversity more**





## Different cultures, different values: The role of cultural variation in public's WTP for marine species conservation

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