Playing a serious game to visualize the social dimension of cetacean bycatch

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VIZUALISING CETACEAN BYCATCH

Public's interest
VIZUALISING CETACEAN BYCATCH

BYCATCH CHARACTERISTICS

Public's interest

Under sea surface

Miles offshore
VIZUALISING CETACEAN BYCATCH

BYCATCH CHARACTERISTICS

- Under sea surface
- Miles offshore

Public's interest

BYCATCH VISIBILITY

- News articles
- Scientific literature

A HIGHLY VISIBLE PHENOMENON DESPITE ITS CHARACTERISTICS
CONTROVERSY ON DEPICTING CETACEAN BYCATCH
CONTROVERSY ON DEPICTING CETACEAN BYCATCH

PELAGIS - cetaceans

IFREMER - fisheries

Estimation of bycatches

Bycaught cetaceans

OBSERVER
CONTROVERSY ON DEPICTING CETACEAN BYCATCH
CONTROVERSY ON DEPICTING CETACEAN BYCATCH

4700 common dolphins

Observation Instruments

PELAGIS - cetaceans

Stranding Network

Observer

4700 common dolphins

Estimation of bycatches

IFREMER - fisheries

Onboard Observers

550 common dolphins

Bycaught cetaceans

OPENING THE BLACK BOX OF OBSERVATION INSTRUMENTS
CONTROVERSY ON DEPICTING CETACEAN BYCATCH

Scientific representation process in question

- How sharp is the image scientists are able to provide?

OPENING THE BLACK BOX OF OBSERVATION INSTRUMENTS

4700 common dolphins

Estimation of bycatches

550 common dolphins
CONTROVERSY ON DEPICTING CETACEAN BYCATCH

Scientific representation process in question

- How sharp is the image scientists are able to provide?
- If the number of cetacean bycatches is uncertain, who is legitimate to represent them?
- How is it possible to assert the impact of bycatch on biodiversity?

OPENING THE BLACK BOX OF OBSERVATION INSTRUMENTS
SERIOUS GAMES TO SHADE NEW LIGHT ON FISHERIES / CETACEAN INTERACTIONS
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BEYOND THE SPATIAL INTERACTION: IMAGING SUSTAINABLE FOOD SYSTEMS BY INVOLVING STAKEHOLDERS
FROM RESSOURCE TO BEHAVIOR MODELLING: REPRESENTING COMPLEX SYSTEMS

→ Description or explanation of complex systems
→ Predictive scenarios
→ Facilitation of scientific interdisciplinarity
→ Interface between science and management
→ Support of decision making
FROM RESSOURCE TO BEHAVIOR MODELLING: REPRESENTING COMPLEX SYSTEMS

→ Description or explanation of complex systems
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Challenge to overcome

How to integrate the **social dimension** into resource management models?
TWO STEP PROCESS: GATHERING DATA TO ACQUIRE NEW ONES

Companion Modelling
(Etienne, 2010)
TWO STEP PROCESS: GATHERING DATA TO ACQUIRE NEW ONES

Companion Modelling
(Étienne, 2010)

Scientific knowledge

Ecology

Social sciences

Modelling of the socio-ecological system

Local knowledge

Stakeholders
TWO STEP PROCESS: GATHERING DATA TO ACQUIRE NEW ONES

Stakeholders

Scientific knowledge

Ecology

Social sciences

Modelling of the socio-ecological system

Experimentation of multiple scenarios

Local knowledge

Players

Perceptions

Companion Modelling

(Etienne, 2010)
TWO STEP PROCESS: GATHERING DATA TO ACQUIRE NEW ONES

HYBRID METHODS TO DEPICT AND GAIN KNOWLEDGE ON THE SOCIAL INTERACTIONS ON CETACEAN BYCATCH AND THE OBSERVATION INSTRUMENTS
REPRESENTING THE SOCIAL DIMENSION OF CETACEAN BYCATCH
REPRESENTING THE SOCIAL DIMENSION OF CETACEAN BYCATCH

Experimentation process

Data
- Interviews
- Observations
- Scientific literature
REPRESENTING THE SOCIAL DIMENSION OF CETACEAN BYCATCH

Experimentation process

Data
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Modelling

Model / Roleplay

GPMax
Representing the Social Dimension of Cetacean Bycatch

Experimentation process

Data
- Interviews
- Observations
- Scientific literature

Modelling

Model / Roleplay

Exploratory simulations

Discourse and scenarios

GPMax Experimentation process
REPRESENTING THE SOCIAL DIMENSION OF CETACEAN BYCATCH

Experimentation process

Data
- Interviews
- Observations
- Scientific literature

Modelling

Model / Roleplay

Exploratory simulations

Discourse and scenarios

Dynamic and prospective analysis of the context

EXPERIMENTING THE SCIENCE IN ACTION IN A MULTI-ACTOR’S ENVIRONMENT
HOW DO SCIENTISTS PERCEIVE AND DEPICT THE MARINE SOCIO-ECOLOGICAL SYSTEM?
HOW DO SCIENTISTS PERCEIVE AND DEPICT THE MARINE SOCIO-ECOLOGICAL SYSTEM?

Objectives

Level of small cetacean bycatch

Impact of mitigation measures

Marine scientists
HOW DO SCIENTISTS PERCEIVE AND DEPICT THE MARINE SOCIO-ECOLOGICAL SYSTEM?

Objectives
- Level of small cetacean bycatch
- Impact of mitigation measures

Instruments
- Stranding Network
- Onboard Observers
- Questionnaires

Marine scientists
Marine scientists' representation is linked to their objectives, the instruments they use and the context in which their research activities are taking place.
SCIENTISTS AS STRATEGICAL STAKEHOLDERS
Translation process (Latour, 1987)
SCIENTISTS AS STRATEGICAL STAKEHOLDERS

Translation process (Latour, 1987)

Observation

Depiction
Scientist
Instrument
Phenomenon

Transcription

Questioning the translation
Discrepancies in scientific estimation

DIVING INTO SCIENTIFIC ACTIVITIES IN CASE OF CONTROVERSY
Scientists as Strategic Stakeholders

Translation process

Observation

Depiction
Scientist
Instrument
Phenomenon

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Looking for new translations
Fishermen as new translation center

Diving into Scientific Activities in Case of Controversy
SCIENTISTS AS STRATEGICAL STAKEHOLDERS

Questioning the translation
Discrepancies in scientific estimation

Looking for new translations
Fishermen as new translation center

Sharing Translations
Variety of stakeholders

Translation process
(Latour, 1987)

Diving into scientific activities in case of controversy
ASSOCIATING MODELS WITH ROLEPLAY PROVIDES A BASIS FOR DISCUSSION TO STAKEHOLDERS TAKING PART IN EXPLORATORY SIMULATIONS.
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EXPERIMENTING SCIENTISTS’ POINT OF VIEW ON CETACEAN CONSERVATION

Homogeneous group of players
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Roles = Stakeholders’ values
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Observation

Mitigation

Possible actions
EXPERIMENTING SCIENTISTS’ POINT OF VIEW ON CETACEAN CONSERVATION

Homogeneous group of players

Roles = Stakeholders’ values

Observation

Mitigation

Possible actions

Feedback

Simple model of spatial interactions between fishing activities and small cetaceans

Players objective: Combining the conservation of marine mammals with the development of the fishery sector.

DEPENDING ON THEIR ROLES, PLAYERS CHOOSE OBSERVATION AND MITIGATION INSTRUMENTS THEY WISH TO IMPLEMENT ON THE GAME BOARD. THEY THEN GET FEEDBACK FROM THE MODEL ON THEIR ACTIONS.
EXPERIMENTING SCIENTISTS’ POINT OF VIEW ON CETACEAN CONSERVATION

Homogeneous group of players → Roles = Stakeholders’ values → Observation

Possible actions → Mitigation

Simple model of spatial interactions between fishing activities and small cetaceans

Players objective: Combining the conservation of marine mammals with the development of the fishery sector.

during the gaming session

observation of players’ interactions and strategies

after the gaming session

→ collective debriefing

→ Individual questionnaire

DEPENDING ON THEIR ROLES, PLAYERS CHOOSE OBSERVATION AND MITIGATION INSTRUMENTS THEY WISH TO IMPLEMENT ON THE GAME BOARD. THEY THEN GET FEEDBACK FROM THE MODEL ON THEIR ACTIONS.
OBSERVING PLAYERS STRATEGIES

Experimental setting

Experimentation

Distortions of the initial setting
Experimental setting

Experimentation

Distorsions of the initial setting

THE GAME AS AN INTERMEDIARY OBJECT TO FIX ACTORS STRATEGIES
OBSERVING PLAYERS STRATEGIES

Experimental setting

Experimental setting

Experimentation

Distorsions of the initial setting

Questioning the game

How do players alter the given framework?

THE GAME AS AN INTERMEDIARY OBJECT TO FIX ACTORS STRATEGIES
OBSERVING PLAYERS STRATEGIES

Experimental setting

Questioning the game
How do players alter the given framework?

Experimentation
Interaction between players
How do players alter their roles?

Distorsions of the initial setting

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Interaction between players
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Argumentation of choices
On what type of rhetorical constructions do players rely to defend their point of view?

THE GAME AS AN INTERMEDIARY OBJECT TO FIX ACTORS STRATEGIES
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Strategies

Questioning the game
How do players alter the given framework?

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How do players alter their roles?

Argumentation of choices
On what type of rhetorical constructions do players rely to defend their point of view?

Major Themes
How do players mention or react to some major themes?

THE GAME AS AN INTERMEDIARY OBJECT TO FIX ACTORS STRATEGIES
THE ANALYSIS OF A 3 HOURS WORKSHOP WITH A GROUP OF MARINE BIOLOGISTS SHOWED THE RELEVANCE OF THE OBSERVATION DEVICE.
Questioning the game

How do players alter the given framework?

Players altered the composition of the group of participants

They wished that NGOs, civil society and the press had been better represented in the roleplay.

THE ANALYSIS OF A 3 HOURS WORKSHOP WITH A GROUP OF MARINE BIOLOGISTS SHOWED THE RELEVANCE OF THE OBSERVATION DEVICE.
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The analysis of a 3 hours workshop with a group of marine biologists showed the relevance of the observation device.
FROM THE GAME TO REALITY: OBSERVING ACTORS’ STRATEGIES

Questioning the game
How do players alter the given framework?

Players altered the composition of the group of participants

They wished that NGOs, civil society and the press had been better represented in the roleplay.

Interaction between players
How do players alter their roles?

Players joined forces to defend a common point of view

Two players agreed that decision making should be considered on a long term basis to facilitate concertation.

Argumentation of choices
On what type of rhetorical constructions do players rely to defend their point of view?

Players relied on prior knowledge

One player suggested the use of onboard cameras that are not modelized in GPMax.

THE ANALYSIS OF A 3 HOURS WORKSHOP WITH A GROUP OF MARINE BIOLOGISTS SHOWED THE RELEVANCE OF THE OBSERVATION DEVICE.
FROM THE GAME TO REALITY: OBSERVING ACTORS’ STRATEGIES

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THE ANALYSIS OF A 3 HOURS WORKSHOP WITH A GROUP OF MARINE BIOLOGISTS SHOWED THE RELEVANCE OF THE OBSERVATION DEVICE.
WHAT CAN BE EXPECTED FROM THIS TYPE OF GAMES?
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Participants
- Better understanding of the issue & social learning
- Creation of a dialogue arena

Role playing game
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Scientists

- Elicitation and diffusion of scientific knowledge
- Better understanding of stakeholders' behaviour

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Modellers
- Representation of stakeholders' points of view
- Co-constructed prospective scenarios
WHAT CAN BE EXPECTED FROM THIS TYPE OF GAMES?

**Participants**
- Better understanding of the issue & social learning
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**Managers**
- Relevance of observation instruments and management measures in a local context
- Social learning / trust among stakeholders

**Scientists**
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WHAT CAN BE EXPECTED FROM THIS TYPE OF GAMES?

INTEGRATION OF MULTIPLE POINTS OF VIEW TO CO-CONSTRUCT A SHARED AND THOROUGH VISION OF THE WITHDRAWN PARTS OF FOOD SYSTEMS

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- Relevance of observation instruments and management measures in a local context
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Thank you for your attention!

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