



PANACHE

Protected Area Network Across
the Channel Ecosystem

LA MANCHE

un
écosystème

deux
projets

CONFERENCE FINALE -17-18 MARS 2015 - TORQUAY



PANACHE

Protected Area Network Across
the Channel Ecosystem

THE ENGLISH CHANNEL
one
ecosystem two
projects



FINAL CONFERENCE - MARCH 17th-18th 2015 - TORQUAY

Using ESA within decision making; from theory into practice

Golfe Normand-Breton study site



Site description

Proposed French Marine Park

- ❑ Stakeholders Engagement (2011-2014)
- ❑ Proposed Launch: 2015



- ❑ 6000 km²
- ❑ All the channel habitats
- ❑ Mostly Intact Ecosystems

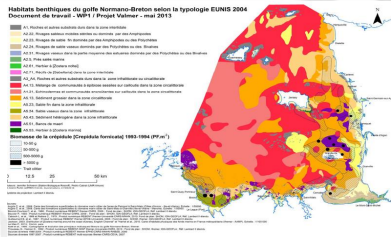
VALMER

Opportunity 1 = common culture in future steering committee (scenario)

Opportunity 2 = to include ESA in management plan

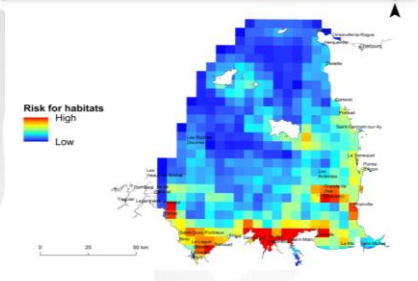
ESA in the GNB: Large and multidisciplinary initial diagnosis

Habitat fonctions/services



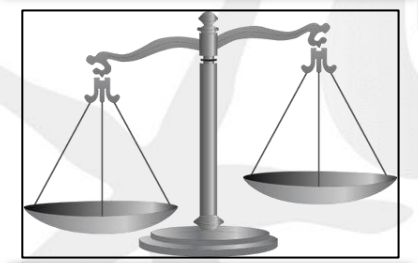
Ecologues

InVEST*



Économiste/SIG

Comptabilité environnementale



Économiste

Pêche



Économiste/halieupe

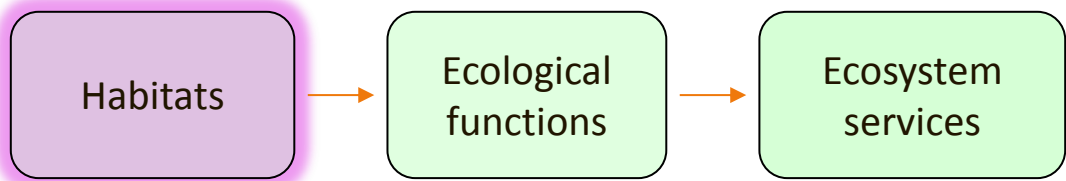
Ecological approach

GIS approach

Economic approach

Halieutic approach

Methodology 1: Habitats-functions-services



Habitats benthiques du golfe Normano-Breton selon la typologie EUNIS 2004
Document de travail - WP1 / Projet Valmer - mai 2013

- A1, Roches et autres substrats durs dans la zone intertidale
- A2.22, Rivages sableux mobiles stériles ou dominés par des Amphipodes
- A2.23, Rivages de sable fin dominés par des Amphipodes ou des Polychètes
- A2.24, Rivages de sable vaseux dominés par des Polychètes ou des Bivalves
- A2.31, Rivages vaseux dans la partie moyenne des estuaires dominés par des Polychètes ou des Bivalves
- A2.5, Prés salés marins
- A2.61, Herbière à [*Zostera notte*]
- A2.71, Récifs de [*Sabellaria*] dans la zone intertidale
- A3_A4, Roches et autres substrats durs dans la zone infralittorale ou circalittorale
- A4.13, Mélange de communautés à épibiose sessiles sur cailloux dans la zone circalittorale
- A4.21, Echinodermes et communautés encroûtantes sur cailloux dans la zone circalittorale
- A5.13, Sédiment grossier dans la zone circalittorale
- A5.23, Sable fin dans la zone infralittorale
- A5.24, Sable vaseux dans la zone infralittorale
- A5.43, Sédiment hétérogène dans la zone infralittorale
- A5.51, Bancs de maërl
- A5.53, Herbière à [*Zostera marina*]

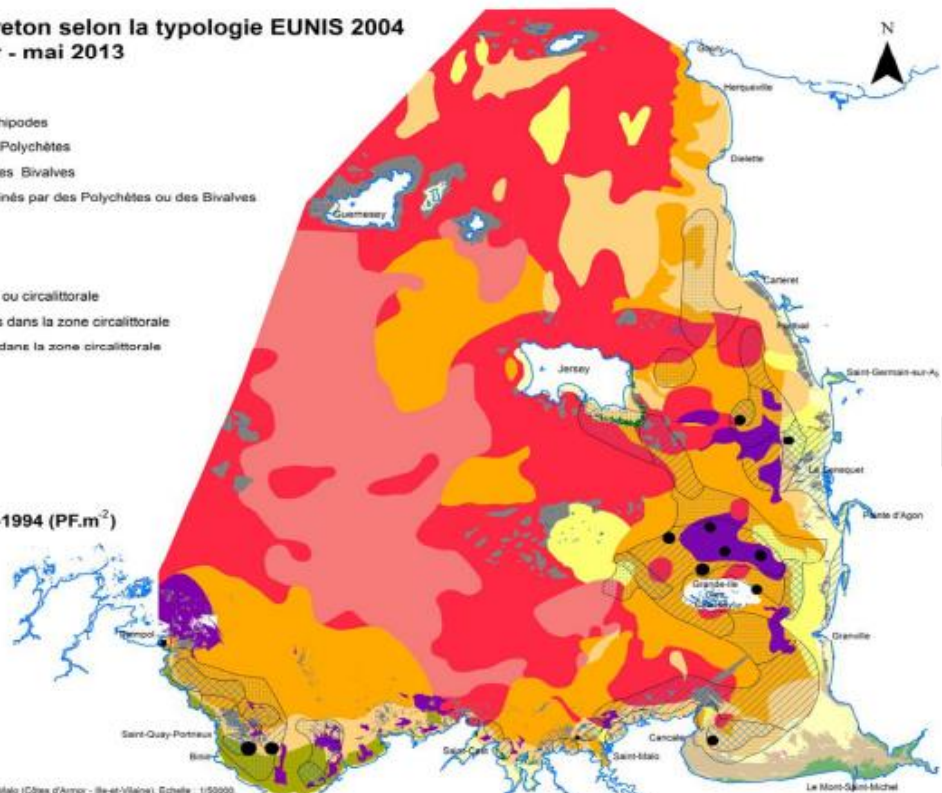
Biomasse de la crépidule [*Crepidula fornicata*] 1993-1994 (PF.m⁻²)

- 10-50 g
- 50-500 g
- 500-5000 g
- > 5000 g
- Trait côtier

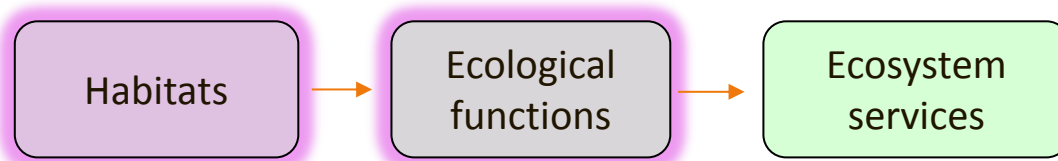
0 12.5 25 50 km

Auteurs: Jennifer Schoenin (Station Biologique Roscoff), Pedro Cabral (UMR Armar) et Claire Ruellet (LERMIR Hermer, Cochinville), 21/05/2013
 système de projection: Lambert II étendu

Sources:
 Augris C. et al., 2006. Carte des formations superficielles du domaine marin littoral de l'arsée de Paimpol à Saint-Malo (Côtes d'Armor - Ile-et-Vilaine). Echelle: 1/50000
 Augris C. et al., 2008. Carte des formations superficielles du domaine marin littoral de Saint-Malo à Granville (Ile-et-Vilaine - Manche). Echelle: 1/50000
 Baumez-Courbot C. et al., 1999. Produit numérique REBENT Ifremer-CNRS, 2009. Fond de plan: SHOM, IGN-GEOPLA, Réf. Lambert II étendu
 Bouvier P., 1993. Produit numérique REBENT Ifremer-CNRS, 2009. Fond de plan: SHOM, IGN-GEOPLA, Réf. Lambert II étendu
 Calvoin L. et al., 1998 et Rébère C., 1979. Produit numérique REBENT Ifremer-CNRS-MNHM, 2010. Fond de plan: SHOM, IGN-GEOPLA, Réf. Lambert II étendu
 Guillaumont B. et al., 1987. Produit numérique REBENT Ifremer-EPHE-Université, 2005. Fond de plan: SHOM, Ifremer, IGN-GEOPLA, Réf. Lambert II étendu
 Jackson, 2003. Distribution of [*Zostera marina*] around the coast of Jersey, English Channel et Harrel et al., 2010. Carte d'habitats physiques des fonds marins en France métropolitaine (Ifremer - AAMP). Echelle: 1/100 000
 Le Mao P., 2013. Cochinville
 Noël et al., 1996. Cartographie et évaluation des principaux mollusques filtreurs du golfe Normano-Breton. Ifremer
 Troubléau G., Hannon D., 1992. Produit numérique REBENT-SNP Ifremer-CNRS-UMR 1181, 2010. Fond de plan: SHOM, Ifremer, IGN-GEOPLA, Réf. Lambert II étendu
 Sources diverses 1988-2004. Produit numérique REBENT Ifremer-CNRS-MNHM-OSMOS, 2006
 Sources diverses 1997-2007. Produit numérique REBENT multi-sources Ifremer-CNRS-CEVA, 2007



Methodology 1: Habitats-functions-services



HABITATS

	A2.22	A2.23	A2.24	A2.31	A2.5	A2.61	A2.71	A4.13	A4.21	A5.13	A5.23	A5.24	A5.43	A5.51	A5.53
Gross primary production (gC. m ⁻² . y ⁻¹)	~ 0	~ 10	23.5- 50	135	675-1350	189-852	nd	~ 1	~ 1	< 1	0-10	6-200	31	241	111-2599
Secondary production (gC. m ⁻² . y ⁻¹)	0-5	4-15	4-15	15-30	0-5	25-30	nd	5-20	20-100	1.5-7	2.2-9.3	10-15	75-110	10	12-125
Habitat provision															
Nurseries (Σ Nb of species x importance)		5	2	9	3					3	2	8	9	3	6
Spawning grounds (Σ Nb of species x importance)								2	2	3		3	3	3	2
Stocking and waste of pollutants															
Nitrogen cycling (μmol. m ⁻² . h ⁻¹)	~ 0	2-10 (2-4)	80-160 (4-60)	160-240 (15-56)	~ 0	<0	nd	40	120	40	70-200	130-300	210	53-226	Sink ?
Calcification (gCaCO ₃ . m ⁻² . an ⁻¹)	~ 0	~ 0	10-120		~ 0		nd		682			69-104	515	490	
Respiration (gC. m ⁻² . y ⁻¹)	~ 0	~30	30-100	110	nd	832-936	nd		204		60		180-440	407	54-1400
Erosion and sediment stability															
Formation of physical barriers															

FUNCTIONS

Methodology 1: Habitats-fonctions-services



			A2.22	A2.23	A2.24	A2.31	A2.32	A2.61	A2.62	A4.13	A4.21	A5.13	A5.23	A5.24	A5.43	A5.51	A5.53	
Cultural services	Cultural heritage and identity	Charismatic species																
		UNESCO World Heritage																
		Marine Protected Areas																
	Knowledge values	Discovering nature																
		Research activities																
	Recreative activities	Fishing on foot																
		Boat fishing																
		Surfcasting																
		Diving																
		Birdwatching																
	Hunting																	

valeur totale d'une espèce

g. m⁻² . an⁻¹

Ha

Nombre de publications

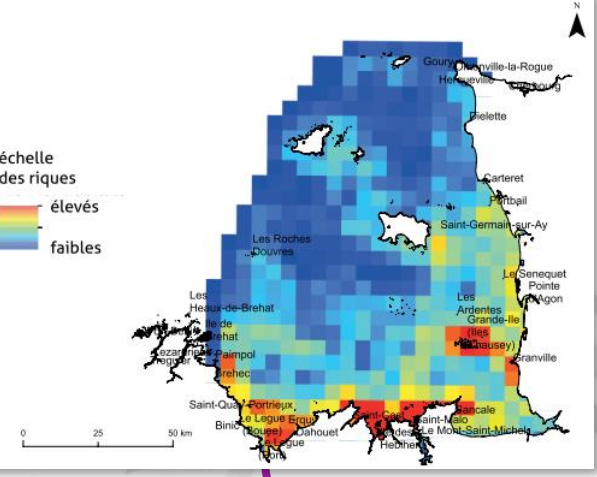
g. m⁻²

Nombre de personnes

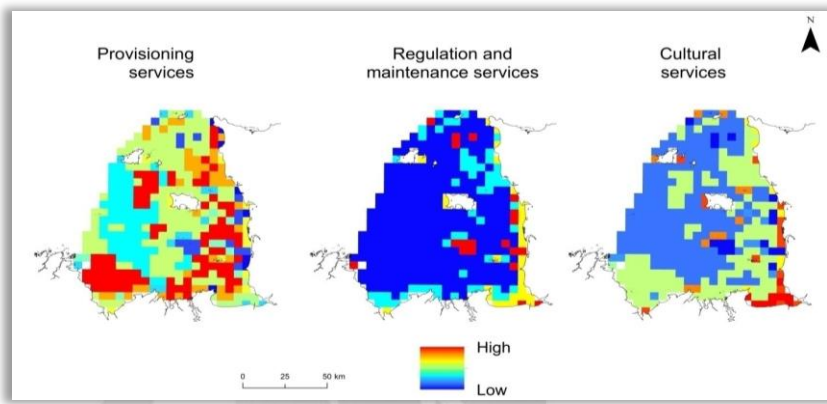
m³

Methodology 2: Link between cumulative risk and ecosystem services

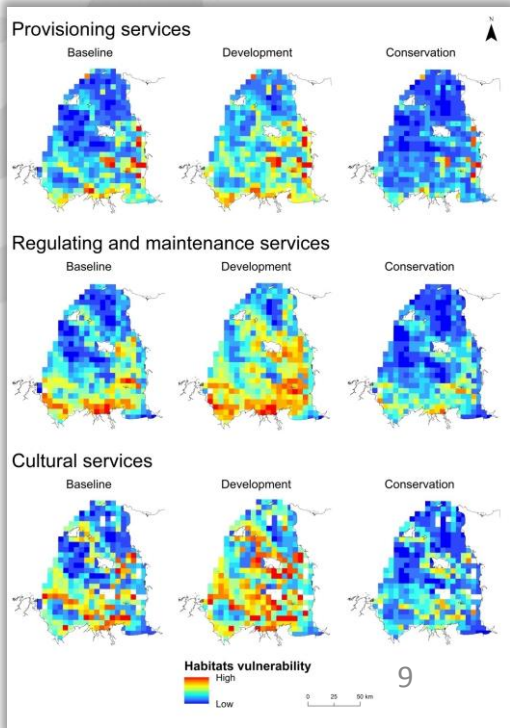
Cumulative risk (R_i)



ES availability by type of services (A_i)



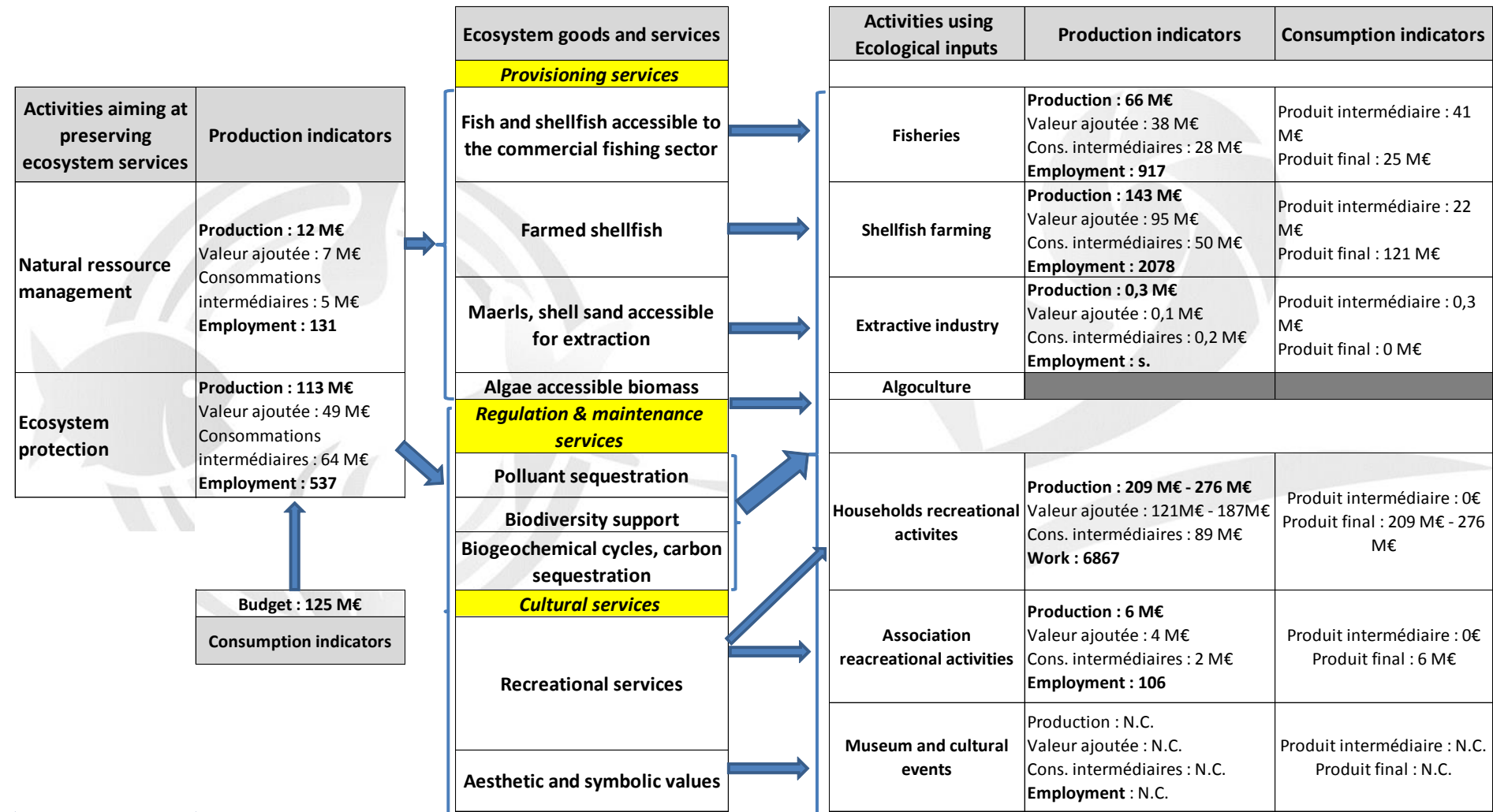
Scénarios



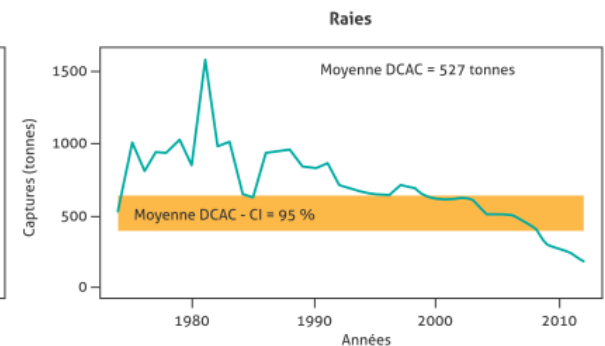
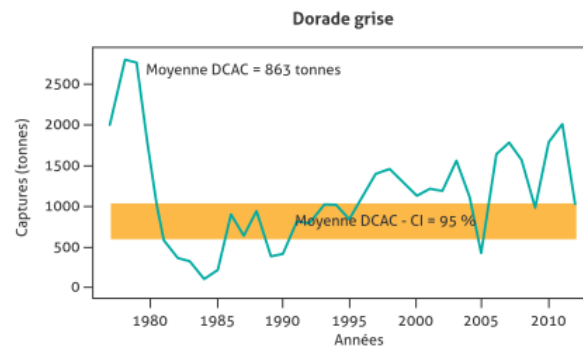
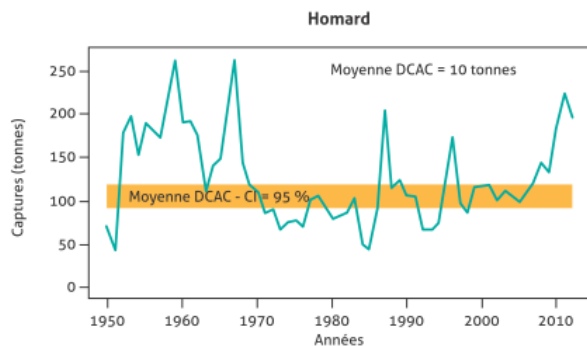
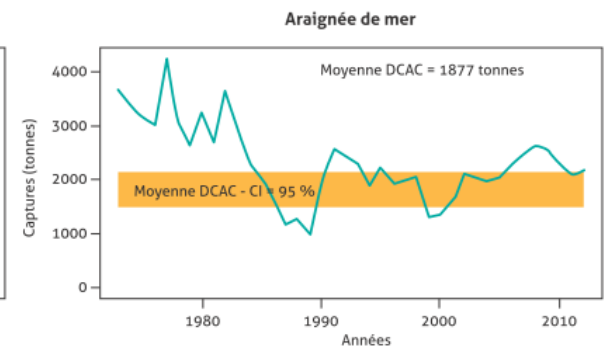
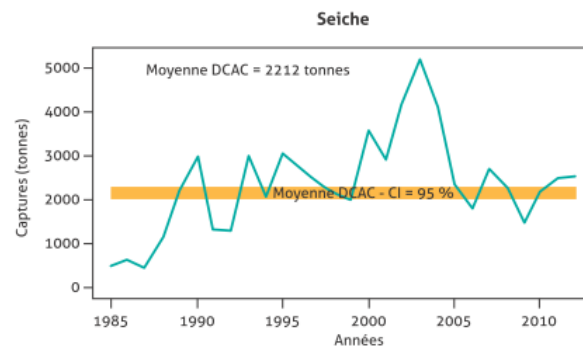
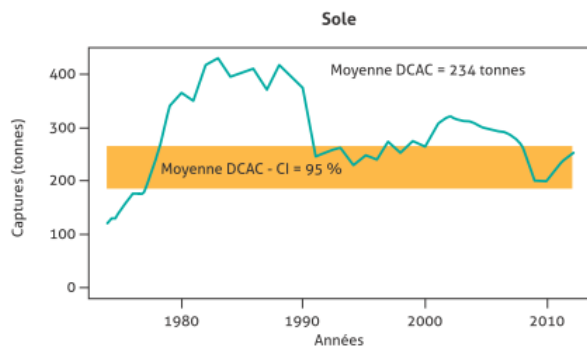
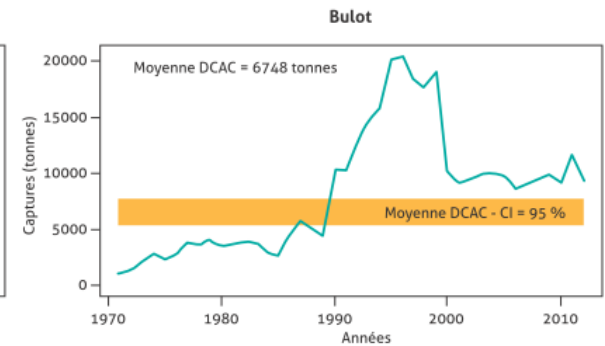
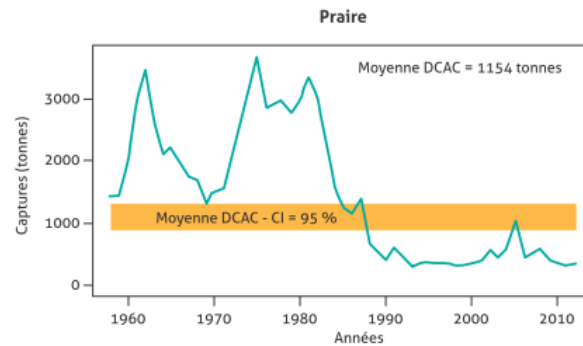
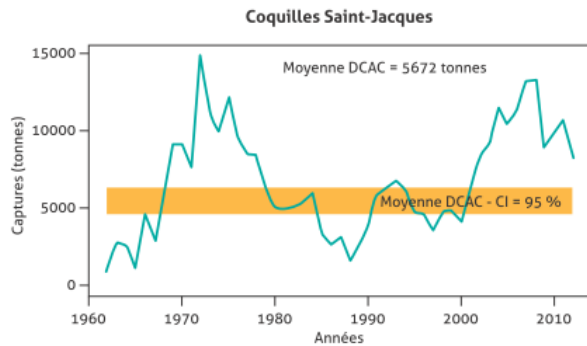
Habitat's vulnerability (V_i) is obtained by dividing the cumulative risk for habitat (R_i) by the ES availability level (A_i):

$$V_i = R_i / A_i$$

Accounting values for the activities linked to the ecosystem services of the GNB



Landings and sustainable level of capture (DCAC model)



Methodology 4: Provisioning services

Level of dependance fleet-species

Species

Flottes		Species									
		Araignée européenne	Buccin	Coquille St-Jacques	Dorade grise	Homard européen	Praire commune	Raies	Seiches	Sole commune	Autres
Caseyeurs exclusifs	4	70	0	0	9		0	8	0	8	100
Chalutiers Dragueurs < 12	0	1	53	0	0	2	1	14	6	23	100
Chalutiers Dragueurs > 12	1	0	20	1	0	8	1	19	6	44	100
Dragueurs exclusifs			54	0		11		1	0	34	100
Dragueurs polyvalents	7	20	41	0	5	2	0	3	1	22	100
Filayeurs Caseyeurs	15	45	0	0	15		0	9	3	13	100
Autres	23	2	5	26	5		1	3	1	34	100

> 50 > 25 > 10

Link ESA to the participatory process

In our CASE:

- Ecosystem services assessment=> scientific process
 - Scenario => Anticipate future changes
- Useful to involve stakeholders in thinking collectively the future / need to create contrasted futures to think about their consequences in term of ES changes

First STEP :

- Choose the methodology most adapted to our needs: VALMER scenario GUIDEBOOK + TRIAGE



Lessons learned

One positive and one negative experience



Multidisciplinary cooperation
between the scientists of the
area



ESA = very scientific process difficult to
understand and follow for managers

Our stakeholders are already used to
this kind of exercise : real added value?



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Hampshire & Isle of Wight
Wildlife Trust
Protecting wildlife. Inspiring people.



LIVE SUSTAINABLY WITH PLYMOUTH UNIVERSITY MARINE INSTITUTE



MARINE & COASTAL POLICY WITH PLYMOUTH UNIVERSITY



Les projets VALMER et PANACHE ont été sélectionnés par le programme européen de coopération transfrontalière INTERREG IV A France (Manche) – Angleterre co-financé par le FEDER.



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Hampshire & Isle of Wight
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The VALMER and PANACHE projects were selected under the European cross-border cooperation programme INTERREG IV A France (Channel) - England, co-funded by the ERDF.