Påhør av veiledningsmøte - kurs i Forskningsveiledning våren 2013.

Veileder: Michaela Aschan
Ph.d. student: Magnus Wiedman
Evaluator: Anette Bayer

Sted: BFE, Michaelas kontor A374

Tid: 12.03.2013. kl 14.00-15.00 påfølgt av 30 min samtale

Saksliste for møtet samt et manuskript var sendt ut dagen i førveien.
Vinkel på paperet "Barents Sea fish community vulnerability"
Mulighet for fangstdata og 2010-2011 økosystemdata (Edda).

Michaelas generelle vurdering:
Både Michaela og Magnus følte seg noe distrahert til å begynne med av å være observert. Veiledningen går for så vidt greit men artikkelen som ble diskutert krever store mengder data, forskjellige metoder og kan vinkles på forskjellige måter. Dermed ble møtet noe sprikende og vi hoppet litt fra tema til tema innen hvert punkt.
Til tross for at stipendiaten har skrevet referat fra veiledningen tidligere mottok Michaela ikke referat fra dette møtet til tross for purringer. Resultatet ble at vi ved neste møte (2.04.2013) repeterte mye av det som var gjort i møtet 12.03.2013. Det gjør at jeg i skrivende stund ikke er så fornøyd med veiledningstimen som jeg var da vi avsluttet møtet.

Anettes tilbake melding:
Kommunikasjonen ser ut å fungere godt, kroppsspråk og øyen kontakt bra. Michaela var flink til å gjøre klare avtaler om hvem som skulle gjøre hva.

Å diskutere hele manuskriptet/prosjektet under ett kan bli for overveldende og til og med kaotisk. Definere korte punkt eller spørsmål før møtet og begrense veiledningen til maks tre meget konkrete punkt.
Definere problemstillingen og målet med paperet. Dette var litt uklart nå kanskje på grunn av at data tilgangen var noe uklar. Bruk prosjektbeskrivelsen med målformuleringer som utgangspunkt.
En hel time veiledning blir for lenge. Begrense til maks 45 minutter.
Oppfordre stipendiaten å notere underveis og skrive opp også nye refleksjoner og tanker som dukker opp i diskusjonen. Jeg liker at student skriver referat av veilednings møtet, men kanskje det kan være du som skriver stikkord til referatet under møte i fellesskap med studenten? Disse kan dere begge ha en kopi av til referatet er klar. (Michaela: Meget riktig kommentar, jeg mottok aldri referat fra dette møtet).

Michaelas opplevelse av kollega basert veiledning:
Dette var veldig nyttig og jeg fikk mage gode råd og tips fra Anette. De jeg husker har jeg skrevet inn oven. Og jeg ser i etterkant at jeg kan være ennå mer strukturert for å avgrense fag og tema i veiledningsmøter i fremtiden.

Konklusjon: **Ta vare på de gode ideene!** Bruk prosjektbeskrivelsen som rettesnor da nytt paper påbegynnes. Noter tanker og ideer underveis, påse at både jag og stipendiaten noterer og at stipendiaten sender korte referat etter hvert veiledningsmøte. Begrense veiledningsmøtene i omfang og tid slik at stipendiaten har energi til å være kreativ.

Plan for ph.d.-supervision:

Research fellow Magnus Aune Wiedmann was hired 1.01.2011 at University of Tromsø, Faculty of Biosciences, Fisheries and Economics, Norwegian College of Fishery Science.

Main supervisor is Michaela Aschan and co-supervisors are Raul Primicerio and Benjamin Planque (Marine Research Institute).

Preliminary PhD title: Resilience and functional diversity of the Barents Sea fish community.

The time plan below was developed as an obligatory section in the project description that was designed and signed by the student and all supervisors in February 2011. Some adjustments have been done since e.g. the title and theme of the third paper has changed and there is some delay in the submission of the second paper.

Time schedule

What/when	2011		2012		2013		2014
Semester	Spring	Autumn	Spring	Autumn	Spring	Autumn	Spring
Training, 30 ects							
Bio-8603 Philosophy of science and ethics, 6 ects	X						
Bio-8514 Advanced ecological statistics, 10 ects	X						
Bio-8105 Ecological methodology, 10 ects	X						
Conference participation		X		X			
Ananlysis of data	X	X	X	X	X		
Writing articles (working titles given below)							
1) Functional redundancy in the Barents Sea fish community		X					
2) Vulnerable fish species in the Barents Sea			X	X			
3) Barents Sea fish communities: resilience and early warning signals				X	X		
Publication of articles			X	X	X		
Write synopsis						X	
Defend thesis							X
Stay abroad		X	X				

The PhD student has been offered supervision every Tuesday, as a rule. In the beginning the supervision was given in a group with two supervisors and two students. But as the work got more detailed and specific the supervision has been given one-to-one or with two supervisors present. During the semester the student has received 4-8 hours of supervision monthly, depending on the work progress. He certainly receives more than 40 hours annually as the theme of the thesis is demanding and in the very front of marine ecosystem resilience research. Now he spends one week in Parma where he receives daily supervision from co-supervisor Raul Primicerio.

In periods the student wants work peace and asks to have a break from supervision and takes contact when needed. However, this may end in situations where he is not too willing to ask for help with programming codes or paper texts. This results in him loosing vulnerable time. The student has no educational duties and n fieldwork so the project is although demanding defined to be conductable within the three years available.

An expanded supervision day has been arranged annually to expose the student to external scientists and advice and questions from a wider group of marine ecologists. This has turned out to be very fruitful and is a good preparation for the dissertation. This session gives the student experience to respond on critical questions and adjust to good advice.

Michaela Aschan

Tromsø 4th of April 2013

Barents Sea fish community vulnerability

MAGNUS AUNE WIEDMANN, MICHAELA ASCHAN, RAUL PRIMICERIO et al.

ABSTRACT

Several recent papers points to methods that can be used to assess the sensitivity of fish species to trawling, but predictions about community-level vulnerability of fish are nevertheless rare. In this paper, we apply two different approaches to study spatio-temporal vulnerability of the Barents Sea fish community to trawling.

INTRODUCTION

Response traits determine the magnitude to which species are being affected by disturbance (Suding et al. 2008). Body size is an important driver of vulnerability (Le Quesne & Jennings 2012), but also traits such as fecundity and longevity are also associated with sensitivity to fishing (Jennings et al. 1998, 1999).

This paper considers two approaches to assess community level vulnerability of fish to trawling, considering all common fish in the Barents Sea. For each approach, we first list species according to their theoretical vulnerability to fishing, from most to least vulnerable, and secondly we use simple statistics (e.g. average and standard deviation) in order to scale up from species-level to community level fish vulnerability. We aim to show how community-level vulnerability varies in space, and suggest what methodology to apply.

We hypothesize that ….. are more vulnerable according to theory..

The objective of this paper is to 1) study species specific and fish community vulnerability as a. 2) evaluate different approaches to calculate vulnerability 3) Study if community vulnerability is dependent on demersal trawl activity?

MATERIAL AND METHODS

Approach 1

The first approach is based on the estimated intrinsic vulnerability index (Cheung et al. 2005) which is available for all fish species at www.fishbase.org (Froese & Pauly 2011). These data are auto-generated in fishbase (?), and they are (?) strongly governed by max length (which is in accordance with S. Jennings papers) since this is the information most readily available in the fishbase system as well as in general. This leads to general patterns in which the most vulnerable species (i.e. the highest average vulnerability of the species present) are found in the south and the least vulnerable species are found in the north. While large fish are generally more vulnerable, the auto-generated vulnerability estimates may not take into account the fact that fish species with a large max length (? or size) are somewhat smaller during most of their life span. This approach is included as a simple way to estimate community-level vulnerability, and the paper will, based on knowledge from more comprehensive methods, discuss if this simple approach makes sence.

Sjekke opp med Cheung hvilket intrinsic vulnerability som er best (feks brosme: thesis=54, fishbase=63). Er verdiene i fishbase autogenerert basert på mest mulig info, og er de pålitelige?

Magnus/Michaela will ask Andrey for assistance on the trait matrix and Edda for the ecosystem surveys 2010-2012, and Trude for log book and VHS data.

Approach 2

We compiled a species*traits matrix for all Barents Sea fish consisting of the following 7 life history traits: max age (longevity), age at maturation (first maturity), max length (max size?), length at maturation, growth rate (K from the von Bertalanffy growth equation, or another composite measure) , fecundity (i.e. clutch size) and egg size.

Behavioural traits like feeding preferences, trophic level and/or degree of omnivory as well as some measure of migratory capacity (for example derived from the tolerance range data?). Since the focus of paper is on fish vulnerability to bottom trawling, pelagic species are removed from the analyses.

This approach to estimate vulnerability is based on ordination. Eventually correcting for max length (assuming all species are equally large), we hope to identify gradients in e.g. speed of

life cycles that will enable us to list all species from most towards least vulnerable. This will be mapped by means of simple statistics like average and s.d.. .

RESULTS

Single species vulnerability

For each approach, a list of species vulnerability was established (Table 1).

Approach 1

Approach 2

Community-level vulnerability

DISCUSSION

CONCLUSIONS

REFERENCES

Cheung WWL, Pitcher T, Pauly D (2005) A fuzzy logic expert system to estimate intrinsic extinction vulnerabilities of marine fishes to fishing. Biological Conservation 124(1):97-111

Froese R, Pauly D (2011) Fishbase. Available at http://www.fishbase.org

Jennings S, Reynolds JD, Mills SC (1998) Life history correlates of responses to fisheries exploitation. Proceedings of the Royal Society of London

Jennings S, Greenstreet SPR, Reynolds JD (1999) Structural change in an exploited fish community: a consequence of differential fishing effects on species with contrasting life histories. Journal of Animal Ecology 68:617-627

Le Quesne WJF, Jennings S (2012) Predicting species vulnerability with minimal data to support rapid risk assessment of fishing impacts on biodiversity. Journal of Applied Ecology 49:20-28

Suding KN, Lavorel S, Chapin FS, Cornelissen JHC, Díaz S, Garnier E, Goldberg D, Hooper DU, Jackson ST, Navas ML (2008) Scaling environmental change through the community-level: a trait-based response-and-effect framework for plants. Global Change Biology 14:1125-1140

TABLES

Table 1. Single species vulnerability according to fishbase.

Rank	Species	Fishbase vulnerability index
1	GASTEROSTEUS_ACULEATUS	10
2	MAUROLICUS_MUELLERI	13
3	ULCINA_OLRIKII	19
4	LIPARIS_FABRICII	20
5	MALLOTUS_VILLOSUS	23
6	GYMNELUS_SP	24
7	GADICULUS_ARGENTEUS	25
8	TRISOPTERUS_ESMARKII	26
9	BENTHOSEMA_GLACIALE	27
10	CAREPROCTUS_SP	27
11	EUMICROTREMUS_DERJUGINI	28
12	EUMICROTREMUS_SPINOSUS	28
13	MYOXOCEPHALUS_SCORPIUS	29
14	ARCTOGADUS_GLACIALIS	30
15	PARALIPARIS_BATHYBIUS	30
16	LIMANDA_LIMANDA	32
17	LEPTAGONUS_DECAGONUS	33
18	LYCODES_SQUAMIVENTER	33
19	MICROMESISTIUS_POUTASSOU	33
20	ARCTOZENUS_RISSO	34
21	ENTELURUS_AEQUOREUS	34
22	LYCODES_POLARIS	34
23	COTTUNCULUS_SADKO	35
24	LYCODES_PALLIDUS	35
25	LYCODONUS_FLAGELLICAUDA	35
26	CLUPEA_HARENGUS	36
27	LEPTOCLINUS_MACULATUS	37
28	MERLANGIUS_MERLANGUS	37
29	ARTEDIELLUS_ATLANTICUS	38
30	LYCENCHELYS_KOLTHOFFI	38
31	ICELUS_BICORNIS	39
32	ICELUS_SPATULA	40
33	LYCODES_ROSSI	40
34	GAIDROPSARUS_ARGENTATUS	41
35	TRIGLOPS_PINGELII	42
36	LIPARIS_GIBBUS	43
37	LYCODES_RETICULATUS	43
38	TRIGLOPS_MURRAYI	43
39	TRIGLOPS_NYBELINI	43
40	GYMNOCANTHUS_TRICUSPIS	44
41	ANISARCHUS_MEDIUS	45
42	BOREOGADUS_SAIDA	45
43	ENCHELYOPUS_CIMBRIUS	46
44	RAJELLA_FYLLAE	48
45	LUMPENUS_LAMPRETAEFORMIS	50
46	GLYPTOCEPHALUS_CYNOGLOSSUS	51
47	CYCLOPTERUS_LUMPUS	53
48	LYCODES_SEMINUDUS	55
49	SEBASTES_MENTELLA	55
50	LYCODES_EUDIPLEUROSTICTUS	56
51	LYCODES_GRACILIS	56
52	MICROSTOMUS_KITT	57
53	LYCODES_FRIGIDUS	60
54	POLLACHIUS_VIRENS	61
55	AMBLYRAJA_HYPERBOREA	62
56	LYCODES_ESMARKII	62
57	BROSME_BROSME	63
58	HIPPOGLOSSOIDES_PLATESSOIDES	63
59	MELANOGRAMMUS_AEGLEFINUS	63
60	SCORPAENIDAE	63.3
61	SEBASTES_VIVIPARUS	64
62	GADUS_MORHUA	65
63	MOLVA_MOLVA	65
64	ARGENTINA_SILUS	66
65	LUMPENUS_FABRICII	66
66	ANARHICHAS_LUPUS	67
67	PLEURONECTES_PLATESSA	69
68	AMBLYRAJA_RADIATA	70
69	SEBASTES_NORVEGICUS	71
70	REINHARDTIUS_HIPPOGLOSSOIDES	73
71	CHIMAERA_MONSTROSA	74
72	MACROURUS_BERGLAX	75
73	ANARHICHAS_DENTICULATUS	78
74	ANARHICHAS_MINOR	80
75	BATHYRAJA_SPINICAUDA	81
76	HIPPOGLOSSUS_HIPPOGLOSSUS	88
77	SOMNIOSUS_MICROCEPHALUS	90