Course evaluation: BIO331 Fisheries management, spring 2014 (5 credits)

The overall setup of the course was similar as in 2013: 13 lectures, an obligatory assignment, and oral exam. The assignment is a simulation exercise implemented in Excel, with a simple report. 10 lectures were given by me, and there were 3 "guest" lectures (Fabian Zimmermann, Jeppe Kolding, and Jennifer Devine). The lectures have been constantly improved and updated, and I am generally satisfied with the contents. Students get the lecture notes after the lectures, and the exam is largely based on these. In addition, there is a list of articles that also belong to the pensum (11 articles this year).

Perceived problems before the course

The course is very lecture oriented, with me standing and talking by the video screen most of time. I have tried to include more discussions and active use of whiteboard, but these are just minor fixes. I addressed this challenge by introducing a candy fish experiment (I have run two such experiments as part of teaching before, as well as the "field" experiment published in ICES JMS, but not during this course).

Candy fish experiment

A new element this year was a candy fish experiment. The students were divided in three groups: managers, conservationists, and fishermen. The managers had the ultimate responsibility of setting quotas, based on scientific advice as well as pressure from the fishermen and conservationists. The lecturer was the scientist providing advice, but only advice solicited by the managers (or other players). The fish population would renew according to a rule, unknown to the participants. Nothing else than the precise stock estimates of two types of fish was known to the students. The task was to manage and utilize a previously unused resource. The students were asked to act upon the given role, without further instructions. The aim of the exercise was to illustrate various perspectives to resource management problems, difficulties imposed by limited knowledge, and the interplay between different players. I hoped that they would utilize the knowledge gained during the course, as well as the methods course that was running at the same time.

In the beginning of each lecture, I presented the population status. The students then discussed within groups about their next recommendation (conservationists, fishermen) or the quota. The final quota was decided by the managers but also reflected the input from the others. My original plan was that this would take 15 minutes in total but because the students engaged in lively discussions, both within groups and in plenum, the exercise usually took longer, sometimes nearly half an hour.

The details of the system were revealed in the last lecture, e.g. the true theoretical MSY per population and the fact that they were in competitive interaction.

Participation and results

This year 13 students participated in the course and returned the assignment. Attendance to lectures was satisfactory, probably around eight students typically. 10 students took the exam in spring and 1 student took it in autumn. 10 students successfully completed the course. Two students totally disappeared without giving any explanation.

Exam results:

A: 2	D: 1
B: 3	E: 1
C: 3	F: 1

Student evaluation

Five students returned the evaluation form (appendices). All rated the course as “quite good” (i.e. between “average” and “very good”) and considered the workload adequate. The course was obligatory for those who answered.

One student thought that the contents were too focused on Europe. The student also highlighted that guest lectures were good and that more of those could be included.

Two students were asking for better information about how the exam is like. These students were also wanted more discussions on academic papers and their better integration to the course. Three students claimed to have read all the syllabus articles whereas one skipped some of them and one read nothing.

Two students rated the candy fish exercise as “very good”, two as “quite good”, and one as “average”. Two students described their perceived learning outcome. I also specifically asked for suggestions for improvements, and these mostly related to changing the roles different players had.

Successes and problems

Candy fishery

During the course, I got an impression that the students liked the candy fish experiment very much, and it was very active part of the lecture. Also the student evaluations were quite positive. The actual learning outcome is difficult to judge but based on just two evaluations it looks OK.

One of the red threads in my lectures is that successful management requires explicit objectives, but to my disappointed the managers never defined what the objectives of the candy fishery were. Perhaps the lecturer should take a more active role, also offering unsolicited advice.

The main problem with the experiment tried this time was the asymmetric roles of the different groups: managers had the final say, and particularly conservationists had little influence. Somehow more even roles should be devised.

The system was deterministic, apart from rare mistakes in counting the candy. At least a little bit of noise should be included. On the other hand, if there is too much noise, students cannot hope to learn much of the system during the relatively few lecture times. Fishermen could be encouraged to cheat a little.

The current setup with three student groups does not work if there are fewer people than this year (as has happened many years).

The experiment took more time than planned. This lead to several lectures going overtime.

I recommend keeping the candy fish exercise, with some improvements to the setup.

Other

The students differ very much in their skills and motivation. This makes it challenging to run a course that is satisfactory for the majority.

The reading list should perhaps be pruned, with the remaining papers better integrated to the lectures.

The students should probably be engaged more when discussing feedback from the assignment. Perhaps they should discuss the answers in pairs and present the answers to the class? This could even replace the current written report delivery. The timing of the assignment has been a bit haphazard; ideally it should be given quite early, and time be set aside for discussing the results (this was missing this year, partly because the candy fishery took so much time).

Although the candy fish exercise is a step in right direction, more student activity towards lectures would still be good.

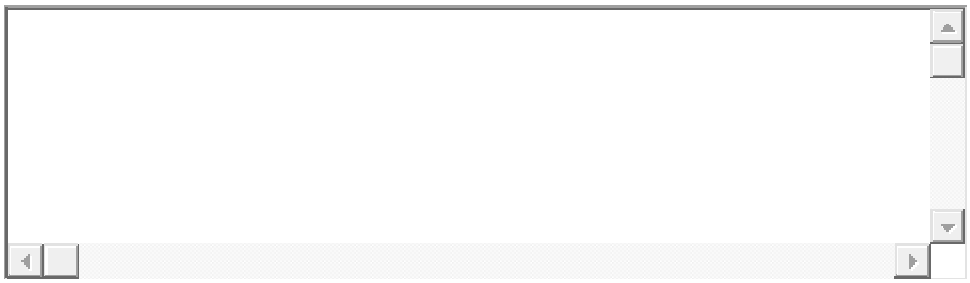
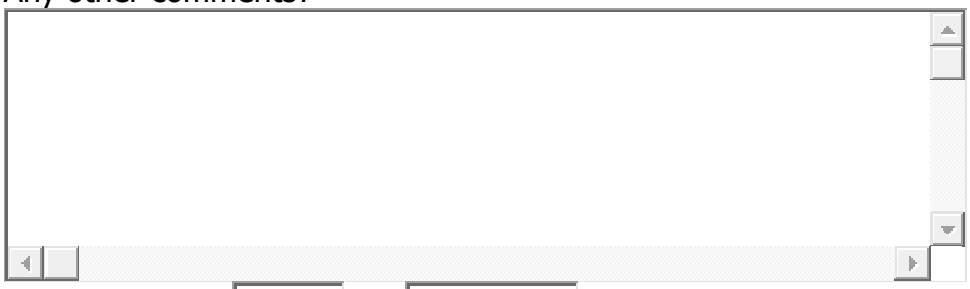
Mikko Heino

Appendix I. The feedback form (https://skjemaker.app.uib.no/view.php?id=519264)

Fisheries management (BIO331) feedback

Thank you for your attendance! I would like to know how you liked the course in order to improve it the next time. The survey is anonymous unless you decide otherwise.

- What is your overall impression on the course?
  ○ Very good ○ Quite good ○ Average ○ Quite bad ○ Very bad
- Did the course meet your prior expectations?
- Was this course obligatory for you?
  ☐ Yes
- Was the workload adequate relative to the credits received (5 sp.)?
- Was the "obligatory reading" list (syllabus, 11 articles etc.) too long?
  ○ Yes, too long ○ No, just about right
- Did you read the material in the "obligatory reading" list?
  ○ Yes, I read all of them ○ Yes, I read most of them ○ Yes, I read some of them
  ○ No, I skipped them
- Did you read the material in the "further reading" list?
  ○ Yes, I read all of them ○ Yes, I read most of them ○ Yes, I read some of them
  ○ No, I skipped them
- Was there something missing or that should have been covered better? Something too much?
- How did you like the candy fish exercise?
  ○ Very good ○ Quite good ○ Average ○ Quite bad ○ Very bad
- What do you think that you learned from the candy fish exercise?
- Do you have any suggestions on how to improve the candy fish exercise?

- 
- Any other comments?
  
- Name (optional) First Last
- Submit

Appendix II. Student feedback

What is your overall impression on the course?	Quite good
Did the course meet your prior expectations?	partially more or less, overall yes
Was this course obligatory for you?	- Yes
Was the workload adequate relative to the credits received (5 sp.)?	yes
Was the "obligatory reading" list (syllabus, 11 articles etc.) too long?	No, just about right
Did you read the material in the "obligatory reading" list?	Yes, I read all of them
Did you read the material in the "further reading" list?	No, I skipped them
How did you like the candy fish exercise?	Average
Do you have any suggestions on how to improve the candy fish exercise?	A more realistic and appropriate of stakeholders, maybe an introduction to the realistic might-relations. (Do the conservationists really have something to say? Can the fishermen do what they want, or is it realistic to be caught?)
Any other comments?	As i already mentioned, a discussion of the papers in class would be nice, a better Integration of the Topics of the papers, so it makes it easier to read and understand them during preparation.

What is your overall impression on the course?	Quite good
Did the course meet your prior expectations?	Yes
Was this course obligatory for you?	- Yes
Was the workload adequate relative to the credits received (5 sp.)?	Yes
Was the "obligatory reading" list (syllabus, 11 articles etc.) too long?	No, just about right
Did you read the material in the "obligatory reading" list?	Yes, I read all of them
Did you read the material in the "further reading" list?	Yes, I read some of them
Was there something missing or that should have been covered better? Something too much?	Felt at times the material focused too heavily on European fisheries. Would be nice to have a more broader scope, with perhaps some more 'guest' lectures (in the style of the deep sea or small scale fishery) to broaden the scope somewhat.
How did you like the candy fish exercise?	Quite good
What do you think that you learned from the candy fish exercise?	A good framework from comparing what was covered in lectures to how it applies it a "real" fishery. Highlighted the lack of information available when a fishery starts, and that it isn't really a surprise that resources can become overexploited.
Do you have any suggestions on how to improve the candy fish exercise?	The individual groups where uneven in the amount of "influence" they could put on the fishery. For example, the conservationists could offer opinions but it was down to the managers of how many fish were taken. Perhaps the exercise was intentionally designed like this, but it would be nice if the conservationist had the chance to reduce the demand for the fish for example (like they do it reality with campaigns against eating over-harvested fish) or the fishermen had the chance to do some IUU fishing or overshoot their quota.
Any other comments?	The lecture slides were very text-heavy, which made it difficult to follow them and listen to what was being said during lectures. Furthermore, this made it tough to revise for the exam. My personal preference for slides is graphics (charts, tables etc) which explain the concepts.

It would be nice to know beforehand more detail of what form the exam will take. There was a lot of detail covered in the lectures and in the lecture slides. For the exam, however, it felt like only an overview of the details was needed and what was more important was an understanding of the key principles. This impression should be made clear to the students before the exam, as it will help to focus revision efforts.

For a Masters course, I feel more weight should be given to the critical reading of academic papers. One idea would be to shorten the time given to the lecturer to presenting. For example, academic papers on the next topic to be covered in the following lecture could be assigned to read at the end of every class. The following week the first 45mins could be the lecturer presenting the key principles of the topic. Following this, a student (who volunteered at the end of the class in the previous week) could take the floor and briefly (20 - 30mins or so) present a paper on the topic to the class. Following this, a discussion (led by the lecturer) could taken place where the students express their opinions on the topic of the paper, as well as the paper's writing style, methods etc.

What is your overall impression on the course?	Quite good
Did the course meet your prior expectations?	yeah. it was very informing
Was this course obligatory for you?	- Yes
Was the workload adequate relative to the credits received (5 sp.)?	Yes
Was the "obligatory reading" list (syllabus, 11 articles etc.) too long?	Yes, too long
Did you read the material in the "obligatory reading" list?	Yes, I read all of them
Did you read the material in the "further reading" list?	Yes, I read some of them
How did you like the candy fish exercise?	Very good
What do you think that you learned from the candy fish exercise?	I learnt that management is not as easy as often thought. with the various stakeholders having varying interests, its difficult to effectively manage since the definition of the effectiveness is even subjective and relative. it also informed me that sometimes managers have no idea what they are doing. Ones a stakeholder is able to press and lobby, they often end up being those whose objectives are adhered to by the managers.
Do you have any suggestions on how to improve the candy fish exercise?	The candy fish exercise can be made to reflect real life management a bit more by allowing managers time to listen to arguments from the stakeholders. The scientists should also be given the opportunity to express their views as way of informing management decisions. Maybe in the future, the scientific group should also be students (supported by lecturer) who could speak out openly to the managers about the risk involved in some of the manager actions.
Any other comments?	Very interesting class. Perhaps next time the nature of the exam should be communicated to the students prior to the exams. With so much to read its good if you have an idea how its going to be.

What is your overall impression on the course?	Quite good
Did the course meet your prior expectations?	yes
Was this course obligatory for you?	- Yes
Was the workload adequate relative to the credits received (5 sp.)?	yes
Was the "obligatory reading" list (syllabus, 11 articles etc.) too long?	Yes, too long
Did you read the material in the "obligatory reading" list?	Yes, I read most of them
Did you read the material in the "further reading" list?	Yes, I read some of them
Was there something missing or that should have been covered better? Something too much?	it was ok
How did you like the candy fish exercise?	Quite good

What is your overall impression on the course?	Quite good
Did the course meet your prior expectations?	yes
Was this course obligatory for you?	- Yes
Was the workload adequate relative to the credits received (5 sp.)?	yes
Was the "obligatory reading" list (syllabus, 11 articles etc.) too long?	No, just about right
Did you read the material in the "obligatory reading" list?	Yes, I read most of them
Did you read the material in the "further reading" list?	No, I skipped them
How did you like the candy fish exercise?	Very good
Do you have any suggestions on how to improve the candy fish exercise?	Make the fishermen do the fishing it creates some risk. The managers will always take out the right amount but maybe have a rule that they can only take 2 more or less then what the managers set. Also if there is any way to put in some environmental varriability that to would increase the risk, but I can imagine with such small numbers it would be hard. Maybe you could have two groups of fishermen to but the class is very small. I also feel like there should be an assigment or report to go along with the candy fisheries.