

ICES REPORT OF TCSAFAS2010

Report of the Training Course:
Opening the box - Stock assessment and fisheries
advice for stakeholders, NGOs and policy-makers
(TCSAFAS2010)

5-7 October 2010

ICES Headquarters, Copenhagen



ICES

International Council for
the Exploration of the Sea

CIEM

Conseil International pour
l'Exploration de la Mer

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Participants at the course “**Opening the box: Stock assessment and fisheries advice for stakeholders, NGOs and policy-makers (TCSAFAS)**” conducted 5-7 October 2010 at ICES Headquarters in Copenhagen. The course was given by Martin Pastoors (# 12 from right), Centre for Marine Policy, Netherlands (instructor), Christopher Zimmermann (# 1 from left), vTI/Institute of Baltic Sea Fishery, Germany (instructor), and Ciaran Kelly (# 3 from left), Marine Institute, Ireland (instructor).

Report of the ICES training course:

“Training Course: Opening the box: Stock assessment and fisheries advice for stakeholders, NGOs and policy-makers”

by

Martin Pastoors, Christopher Zimmermann, Ciaran Kelly

Summary

ICES is well known for providing advice on many different topics regarding marine ecosystems. One of advice topics deals with advice on fisheries management in the North East Atlantic. While the advisory process has been opened up to external observers since 2006, there is still a need to provide a better insight to the background and methods that are used to underpin the advice. This course was intended to fill that need. The course was directed at policy makers, NGO representatives and fisheries organizations.

The course was held for 3 days at ICES headquarters, 5-7 October 2010 and attracted 36 participants from 13 countries. One of the achievements of the course was that the audience was really representing the target audience: policy makers, NGOs, fisheries organizations and scientists contributed about a quarter of the total participants each. This generated a very engaging and committed atmosphere where individual perspectives could be shared on the topics that were raised.

The course program consisted of 12 topics or lectures of which only part 5 (role play) could not be incorporated because of a lack of time. The brief context of the lectures is described below.

1. Context of fisheries advice (Martin Pastoors). How does fisheries science sit within the overall context of fisheries management? How do international agreements influence the direction and scope of fisheries science and advice? How is fisheries science in Europe organized? How is the governance of information of European fisheries management? Explain the links between ICES, STECF and client institutions. What are the debates around fisheries advice (press issues) and how does it compare to other environmental advisory processes (e.g. IPCC)?

2. ICES advisory process: overview and historical developments (Chris Zimmermann). A brief description on how the ices advice is derived, and how it has developed to the present standard over recent years. It was explained how data from different sources form the basis of stock assessments, and how by screening, processing and use in stock assessments stock status reports and draft advice are developed. The work of different groups supporting the development of the advice was explained, as well as the potential input stakeholders can have in the process. ICES advice usually follows the request of clients, and the different types of requests were clarified as well as the different types of clients. A brief description of the elements of

the present advice introduced the discussion part of the section, where participants tried to identify the main message in two different fish stock advice sheets, analysed which parts they consider useful and how an ideal advice would look like for them.

3. Basics of assessment and advice; introducing the glossary (Ciaran Kelly). This session was an informal Q&A, designed to provide a background to some aspects of the course. The idea was to demystify the jargon, and point individuals at the sessions which would answer their queries in more detail. In addition this session helped the course instructors to “fine tune” the content of the different sessions so that the material covered is as relevant as possible.

4. Data on fish and fisheries (Chris Zimmermann). This section explained the different types of data required for our work: What does “fishery dependent” and “fishery independent” mean? What is needed before data can be used in assessments? Why do scientists collect data in the way they do and what is it needed for? Survey types, strategies and their use were explained – and accessory data which are as important to the development of ecosystem advice as fisheries data. In the hands-on part of this session, participants were asked to interpret simple example data sets themselves and tried to arrive at an “advice” on two stocks (herring Western Baltic and pelagic red-fish Irminger Sea) in four subgroups, which is specifically ambitious if information from commercial catches and from surveys is conflicting.

The presentation of the subgroups’ findings had the character of a role play, where speakers of the group acted as scientists and the three lecturers acted as very critical fishers and clients. This was well received and increased the understanding of the sometimes difficult position of scientists when presenting advice.

5. Fisheries management: do it yourself role play (Martin Pastoors) – cancelled due to lack of time, and because components of this role play have been dealt with in the previous section. It should be explored how these two sections could be linked if the course is repeated.

6. Basics of stock assessment (Ciaran Kelly). The first session was a lecture followed by questions and discussion. The lecture provided an introduction to population dynamics and stock assessment. The approach was to build things up from basics without resorting to mathematical expressions or statistical jargon. At the end of the session the audience had an understanding of what data goes into an assessment, what an assessment tries to do, and what the outputs are.

The second session as a practical exercise. Using graphics to explain the concept of VPA, an example was provided of a statistical catch at age model in excel. Participants had the opportunity to see what effect changing some of the assumptions has on the assessment results; for example what effect does changing the natural mortality have? What happens if the last survey year is an under or overestimate? What happens if the catch data is wrong? What happens if you weight the pieces of information (fishery dependent and fishery independent) differently? At the end of this session participants had some insight into the relative importance of different pieces of input data and assumptions in an assessment.

7. Precautionary approach, reference points and stock-recruitment relationships (Martin Pastoors). Background to the precautionary approach in fisheries management and the interpretation in ICES and other scientific advisory bodies. Compare

precautionary approach in different areas. What do the concepts mean: limit and precautionary approach reference points. How have they been established? What is reduced reproductive potential? What are the calculations behind the concepts? How does the precautionary approach relate to Maximum Sustainable Yield (MSY). How has the ICES advice developed on the basis of the precautionary approach and MSY. How does reference point compare to the MSC criteria for sustainable fisheries? An important element in the estimation of reference points is the stock-recruitment relationship.

8. Fisheries assessment and advice viewed from different institutional perspectives (Poul Degnbol). Poul Degnbol has experiences fisheries science and advice from many different institutional perspectives (IFM, ACFM, EC, ICES secretariat). He talked about the lessons learned from those experiences.

9. Forecasts (Ciaran Kelly). In the lecture we recap on basics of VPA and showed (graphically) how the estimated virtual population (from session 6) propagates in a forecast. We described how the new recruits are estimated and how the population and catch options are derived in the TAC year. From these elements we deconstructed the basic layout of a standard ICES catch option table. At the end of this session participants had some understanding of the consequences of assumptions in a short term forecast and how the output can become very sensitive to these. After the lecture participants looked inside the box of a real forecast. An Excel spreadsheet was provided where participants could see under what circumstances the recruitment estimation has an effect on the catch options in the catch year.

10. Dealing with uncertainty and communicating risks (Chris Zimmermann). By this time, the audience knew that uncertainty is part of fishery science. Uncertainty has to be communicated, and this section demonstrated different ways to do this. The reasons and points in the advice development process where most of the uncertainty occurs were explained – and strategies to reduce these. Examples were used to demonstrate where disputed advice was just wrong or unavoidably uncertain. Participants were again given a chance to demonstrate that they could do better, using selected examples of truncated data series (blue whiting until 2003, Eastern Baltic cod until 2007).

11. What else needs to be explained in order to understand ICES advice? (Ciaran Kelly). In this lecture we looked at the differences between short term tactical limits based advice (i.e. what not to do) and long term strategic target based advice. Here we picked up on the main points from Day 1 on context of advice, precautionary approach, and relevant points from the dealing with uncertainty and communicating risks from earlier today. After a quick recap on assessment and forecasting we saw how the same elements are used in a population simulation (using graphical representations of the concepts covered in Day 2). In this session we showed the key relevance of the SRR modelling and explain the limitations in this approach. The lecture showed examples of how tradeoffs in management objectives can be explored and describes the process with the PRAC for western horse mackerel. Finally we looked at where this leaves us in terms of interpreting the ICES advice and finish with some comments on future directions.

12. Outlook and future challenges (Martin Pastoors). Session on outstanding questions and discussion about what participants take away as ideas and how they see future challenges in fisheries management (and the scientific needs).

Evaluation

Feedback from trainees was solicited during a wrap-up discussion and by using a course evaluation questionnaire. Results indicate that the amount of material covered was average, degree of difficulty was average to difficult, course organization and the course description were very good, helpfulness of teaching staff, usefulness of course materials and clarity of presentation were high. Overall, the course content, organisation and quality of teaching were good to very good.

Individual responses from trainees to the evaluation questionnaire 6 “Good features of this course/suggestions for improvement”:

- Liked the proportion of lessons and own exercise. Very interesting discussions. The role-play of science, conservation, fishery and policy might be given more room. Suggestion: Dealing more with the ecosystem approach. (How will it be approached in the future by the ICES advisory machinery?)
- Exercises are of great importance. I would prefer maybe more exercises, but I guess time is a constrain. Well done! Thank you!
- Good balance between lectures/exercises/discussions. Fantastic how people from such varied backgrounds were able to discuss openly about a common issue.
- Because of range of participants (i.e. Gov, NGO, industry), and the fact that real, current fishery issues are being discussed - perhaps set up an agreement at the start that "Chatham house rules" are applicable?
- I thought there would be more lecturing on stock assessment and less debate etc. - perhaps it should be more clear that this is not an introduction to stock assessment, but an insight into the basics of stock advice.
- It might be useful to have some introductory material or exercises posted on the share website in the week(s) leading up to the start of the course. This would help those taking the course to "warm up" to the material and concepts before actually beginning the session....
- More time could have been given to presenting the practical exercises - which I found very difficult: maybe shorter tasks could have been given. Logical build up of the course very much appreciated - from data through assessment, through uncertainty to the broader considerations. Lectures were very clear, in straightforward language and simple presentation of the awful technical terms. Perhaps consider doing a similar course for beginners, then intermediate, then advanced level? ICES secretariat made us very welcome - thanks for the fruit and drinks.
- I would like ICES to think on establishing a three levels course similar to those organized for scientists: beginners, intermediate and advanced; the course was so good that I would like to go further in detail and gain a further insight in the stock assessment and forecast process.
- In complement of the first question, I allow myself to add that the cover of the subject is very well made, and gives an outline at various levels of the question (scientific, methodological aspects (model, step quality, etc) and interaction with the decision-making processes or political).

The teachers concluded that the success of the course was to a large extent driven by the great mix of people participating in the course. The fact that the audience consisted of equal shares of policy-makers, NGOs, fisheries representatives and scientists

generated a lively climate for discussions and exchanges of information. If repeated, the practical exercises require more work – some participants mentioned the transition between lecture and exercise could be smoother, and a detailed description of what should be done during the exploration of the effect of changed settings would help. Also, it could be considered to develop an even simpler tool for exploring these effects, as a lot of time was needed to setup the Excel sheets on different computers.

Recommendations

1. The course “Opening the Box: Stock assessment and fisheries advice for stakeholders, NGOs and policy-makers” clearly filled a demand in the fisheries system. Participants were eager to find answers to the issues that had been on their mind for some time. Participants recommended that this type of course would need to be repeated at regular intervals (2-3 years?)
2. Participants would also be looking for opportunities to raise questions on the basis of the advice that is produced by ICES. One suggestion was that a question and answer session with ACOM or knowledgeable scientists would be organized in which participants (and other stakeholders) could raise questions not only on the contents of the advice, but also on the background of the advice.
3. Participants also suggested the possibility of an online platform or forum where questions could be raised on the ICES advice. Part of the lectures and exercises could also be developed further into an online lecture series.

Course description

ICES is well known for providing advice on many different topics regarding marine ecosystems. One of advice topics deals with advice on fisheries management in the North East Atlantic. While the advisory process has been opened up to external observers since 2006, there is still a need to provide a better insight to the background and methods that are used to underpin the advice. This course was intended to fill that need. The course was directed at policy makers, NGO representatives and fisheries organizations.

Course Programme

<i>Time</i>	<i>Topic</i>	<i>Lecturer</i>	<i>Approach</i>
Tuesday 5 October 2010			
09:00	Opening and welcome	ICES secretariat	
09:15	Who is who around the table	Martin Pastoors	Interactive
09:45	1. Context of fisheries advice	Martin Pastoors	20 min lecture & 25 min discussion
10:30	Coffee/tea		

11:00	2. ICES advisory process Overview and historical developments	Chris Zimmermann	30 min lecture & 30 min discussion
12:00	3. Basics of assessment and advice Introducing the glossary on stock, assessment and advice	Ciaran Kelly	Reverse roles: participants ask questions
13:00	Lunch		
14:00	4. Data on fish and fisheries	Chris Zimmermann	2 x 20 min lecture 2x20 min exercise 10 min discussion
15:30	Coffee/tea		
16:00	5. Fisheries management: do it yourself	Martin Pastoors	Role play
18:00	Icebreaker with drinks	ICES secretariat	

Wednesday 6 October 2010

09:00	6. Basics of stock assessment	Ciarán Kelly	60 min Lecture 30 min Q&A
10:30	Coffee/tea		
11:00	6. Basics of stock assessment (cont.)	Ciaran Kelly	90 min exercise 30 min discussion
13:00	Lunch & tour of the secretariat in small groups.	ICES	Exploration of the ICES secretariat
14:30	8. Fisheries assessment and advice viewed from different institutional perspectives	Poul Degnbol	Lecture and discussion
15:30	Coffee/tea		
16:00	7. Precautionary approach, reference points and stock-recruitment relationships	Martin Pastoors	2x20 min Lecture 2x20 min exercise 2x20 min discuss.
18:00	Closing		

Thursday 7 October 2010

09:00	9. Forecasts	Ciaran Kelly	45 min Lecture 45 min Exercise
10:30	Coffee/tea		
11:00	10. Dealing with uncertainty and communicating risks	Chris Zimmermann	45 min lecture 60 min exercise 15 min discussion
13:00	Lunch		
14:00	11. What else needs to be explained in order to understand the ICES advice?	Ciaran Kelly	30 min lecture 30 min discussion

15:00	12. Outlook and future challenges Outstanding questions. What do participants take away as ideas.	Martin Pastoors	Interactive
16:00	Closing		

Instructors:

Martin Pastoors¹, Chris Zimmermann², Ciaran Kelly³

The electronic game "EcoOcean"

During health breaks, the electronic game "EcoOcean" was available to participants. This is an installation for four players aiming at teaching the effects of different harvest strategies for common resources such as fish. Players were asked to record the high scores of all 4 players together. The game was developed by a group within the cluster "Future Ocean" at Kiel University, Germany. Their support is gratefully acknowledged. The game was frequently used and well received by the TCSAFS group. The most important suggestion for further developments were that a high score list should be included, and that a score for sustainable use should be calculated and displayed in addition to the net revenue by fishing. More information on the game can be obtained at <http://www.ecoocean.de/>.

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Annex 1: List of participants

List of Participants – Training course on Opening the box: Stock assessment and fisheries advice for stakeholders, NGOs and policy-makers (TCSAFAS 2010)

Atlantic Room, ICES Headquarters, Copenhagen, 5–7 October 2010

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