

Educating fisheries managers as an integral part of management

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There is an increasing realisation among fisheries managers that fisheries management must include participatory approaches, because fisheries management need to address complex issues including many interests, disciplines and issues. It is also becoming generally accepted that fisheries management cannot be based on simple predictability of nature and fisheries behaviour, but must take an adaptive approach. Fisheries management must therefore develop into participatory learning systems accepting and able to handle the uncertainties and risks associated with management in uncertain situations.

In this paper, we will discuss how (future) fisheries managers can be trained to address these challenges. One solution to this problem is to turn the challenge of developing management as a participatory learning system into a strength to address the education need: development of fisheries management as a learning system is also an opportunity for the participants in management to learn – a learning system is in any case based on the participants in the system learning. Developing mechanisms to transfer the experiences from adaptive management back to fisheries managers in a structured and systematic way can do this. The learning process is thus both a part of and a prerequisite for adaptation.

In recent years there have been various attempts to develop institutional structures for extensive cooperation between government authorities at different levels and fishers/fishing communities in respect to data collection, consensus building about knowledge, management decisions and implementation. We discuss how such structures can contribute to education through research projects coupled to fisheries management in an adaptive context, the results of which are then disseminated to participants as an ongoing part of the management decision making process. Such processes have been implemented in some management systems including co-management arrangements.

Keywords: fisheries managers, training, learning system

INTRODUCTION

Path-dependence is a prominent source of conservatism in fisheries management. Training may add to this if it introduces another conservative element in fisheries management by presenting a limited set of management paradigms and options. It is a challenge to find the proper balance between training which prepares managers for operation in relation to a specific setup including biological, technical, economic, social and institutional aspects relevant to the specific system, and training which conditions managers to see problems when they arise, to analyse the situation and choose new approaches.

This paper will discuss how the combination of a need for fisheries management to adapt and the need for training of participants can be turned into a strength by seeing and developing fisheries management institutions as learning organisations. The learning organisation consists of learning individuals; individual training and institutional adaptation should be seen as two aspects of the same task: to address complex issues in highly dynamic and only partly predictable systems such as fisheries systems.

CHALLENGES FOR FISHERIES MANAGEMENT

Fisheries management must be able to provide legitimate governance for an effective and sustainable productive sector with a long investment horizon on basis of a resource base that is fluctuating and with diffuse boundaries. In this process, management must reconcile or identify accepted compromises for the interests of a variety of stakeholders, in

most cases with contradictory objectives. Fisheries management must furthermore make decisions in relation to social and natural systems that are highly dynamic and with limited predictability.

Most fisheries are suffering from overcapacity which means that management is dealing with a system with high pressures both on the management institutions themselves and on the resource base. This produces an increased requirement for predictability in management decisions while the technical possibilities for predictions at the same time are reduced.

To address these challenges effectively fisheries management must be adaptive, that is based on institutional structures which can evaluate outcomes, develop new understandings of the situation and take corrective action both in terms of management measures and the future institutional framework for management decisions.

In some systems adaptability is the basic design principle, but even in systems which are based on the implementation of specific measures under assumptions of predictability and with rigid decision rules such as the European CFP and the US Fisheries Councils there is a strong need for those involved in management decision processes to reflect on outcomes and the adequacy of a continuation of past practices. If reflectivity is not a part of the process either as an integral part of the institution or on the personal level there is a high risk that fisheries management becomes trapped in specific pathways which leads to unsustainable fisheries such as was the case in the collapse of Newfoundland cod and the long-term decline of North Sea cod.

Institutional adaptivity involves both learning from past experience and modification of future action. The first requirement is that the management institution is able to learn from past experiences. This would be a first requirement for change even in those situations – such as the present EU CFP - where the present setup does not give much room for modification of future action.

There is thus a need to develop fisheries management institutions into learning institutions. The basis for learning institutions is learning individuals. The training of the participants in the management institution should therefore not only be considered as an external activity preparing the individual for participation but should rather be seen as an integral part of the institutional learning process. This has extensive implications for both the facilitation of training and for the management institution itself.

CHALLENGES FOR TRAINING

Training of managers for adaptive systems is training of abilities to learn and decide in a collective of stakeholders. Such training must be suitable for the specific users, it must be adequate for the scale of management and it must cover relevant disciplines. The three main dimensions in training are thus users-disciplines - scales

Users

The training needs are very different for different participants in the management process.

The initial academic training for employees of public services and organisations is developed through university curricula. For this group there is a need to provide both initial post-university training and career-long training.

The initial post-university training would relate to the specific management system in which the person is to operate and to those personal skills which are required as a participant or facilitator in the decision making process and which are not normally included in university training. Career-long training would include updating the discipline basis, develop personal skills and communicating global experiences from fisheries management. Most of these aspects of career-long training would most effectively be based on a learning process where discipline issues, global experiences and personal skills are reflected in relation to the specific situation in which the person operates

The training of user representatives in councils etc is a different matter altogether. They would have a very diverse training background both in terms of disciplines and level. They would also not be able to set aside much time for training separate from the management decision process. Training must demonstrate its utility up front. Again, the relevance of training will be highest when training relates to the specific system and even to specific problems to be solved.

Disciplines

Fisheries management is a multidisciplinary undertaking. Extensive lists of disciplines can and have been produced. The real challenge to the fisheries manager is not just to have a general understanding which enables the person to grasp the substance of biological/economic/social etc inputs but even more to be able to synthesise and utilise multiple sources of information. The first can be learned by systematic training in a course setting or similar, the latter is more a personal skill which is developed through practice in an environment where such skills are called for. Training for such skills are best implemented as a supportive activity in direct association with the process where these skills are required.

There is a need for fisheries management training also elsewhere to balance training for immediate efficiency versus training for innovative capacity. Training for immediate efficiency would focus on specialised skills, specific to the task or even specific to the local system while training for innovative capacity would emphasise those general skills which enable reflectivity and ability to learn from own and global experience. Given the requirements for adaptability the latter skills should have high priority.

Scales

Nested management systems would require different sets of skills on different levels, ranging from understanding aspects of techniques for assessing the situation and implementation issues at the lower levels to understanding general policy issues and institutional modalities at higher levels.

APPROACHES TO TRAINING

The development of fisheries management as a learning system is also an opportunity for the participants in management to learn – a learning system is in any case based on the participants in the system learning. An important mechanism for both training and adaptation would thus be to transfer the experiences from adaptive management back to fisheries managers in a structured and systematic way. The learning process is thus both a part of and a prerequisite for adaptation. A learning process which is an integral part of the management decision process will furthermore from the outset be relevant for both the specific situation and for the participants involved.

Adaptive management must include reflection and modification:

- Learn from past experience
- Assess state and outcomes
- Evaluate understanding of the process – esp. link between management action and outcome
- Evaluate institutional adequacy
- Modify future action
- Assess options for management action
- Assess institutional options
- Negotiate and decide
- Implement

The learning, assessing and evaluation stages of this process will have a very important training potential if they are conducted in a structured and reflective way. It is thus necessary to develop institutional structures which enable learning activities as an integral part of these processes. Such enabling structures or activities may be implemented on three levels – on the institutional level as an integral part of the management decision process, for the collective of participating individuals and on the individual level.

Training enabling structures in the management decision process include:

- Internalised training in the management process by ongoing evaluation of outcomes and structured evaluation of objectives, actions and outcomes
- Structured evaluation may be facilitated by adding research component to the management process which can provide dialogue and feedback.

On group level the training modalities may include tailor-made courses/seminars relating directly to management processes. Such seminars could include role play regarding the decision process and simulations of the overall management system. Case studies would be an important basis for both evaluations and seminars.

Training on the individual level would be more detached from the management process itself. There is a need to consider carefully the balance between immediate efficiency and innovative skills. The immediate efficiency of an

individual may best be improved in the short term by providing very specific training, both in terms of the disciplines covered and in terms of issues relating to the specific system. However, innovative skills are developed through more generalised training both in terms of the personal skills and in terms of covering issues and experiences of a more general nature such as global fisheries issues or general issues relating to natural resource management. Training modalities could thus include

- Mentor (internal) and/or coaching (external) arrangements
- Courses to increase disciplinary and personal skills covering both issues specific to local systems, global fisheries issues and experiences and lessons from natural resource management, decision-making theory and other subject areas relevant to fisheries management

Most of these activities could be organised locally and must be developed in the local context for those activities which are an integral part of the management process. There would however be considerable benefits from pooling certain resources on a larger – even global – scale. Global resources which would support training in connection with management include a network of training suppliers and fisheries managers and a library of case studies. The network could include a resource pool of courses offered, coordinated or collaborative production of courses (demand driven) and training modules, a forum for exchange for experiences and approaches in human resource development in fisheries management and role play and simulation modules. A web based library of case studies would be a crucial tool for a range of activities.

Training for adaptation would address a serious problem which arises when managers are trained out of their own context such as is typically the case when students from developing countries get education in western universities. The examples of graduates returning and finding little use for their knowledge are legion or even worse, that they return and try to establish management systems which are entirely adequate to their system such as catch quota regulation in small scale fisheries with diffuse landing paths and no MCS system at all. Training more for participation in a learning process than for implementation of specific management systems would enable returning students better to utilise their skills effectively in the local situation

There are so far very few experiences with integration of training in the management process. One of the reasons is that mainstream TAC-based fisheries management in industrialised countries is based on an institutional model which does not enable adaptivity or may even preclude adaptivity. Management is in many cases based in rigorous requirements for formal stock assessments and even decision rules. The immediate needs for training within these systems are generally envisioned as a need to teach participants about the specific technicalities of meeting the formal requirements. There are however also experiences with a more open and adaptive approach to training, typically from management systems which are less entangled into well established formal and rigorous processes such as typically is the case in developing countries.