myfish

Maximising yield of fisheries while balancing ecosystem, economic and social concerns

project news

www.myfishproject.eu

Issue 1 | December 2013

Welcome to the first newsletter of the Myfish project.

In this issue:

Coordinator's welcome

Anna Rindorf
Project Scientific Coordinator
DTU Aqua, National Institute of Aquatic Resources, Denmark

The **Myfish** project is now entering the second of its three phases: definition of Maximum Sustainable Yield (MSY) variants and the models needed to evaluate these, evaluation of the likely ecosystem and economic consequences of aiming for a specific version of MSY and finally, an evaluation of the likely social impact of this decision. Approaching the completion of the first phase, we take this opportunity to report the most significant advances made to date. We hope you will enjoy this newsletter and that you will feel that it added to your knowledge of MSY management in practice and perhaps also feel eager to influence the future of the project.

Defining MSY

Myfish decomposes MSY into three aspects: What to maximise (MSY variants), what to sustain (constraints to sustainability) and how to manage fisheries aiming for MSY (management measures). At the very beginning of the project, **Myfish** held a workshop which defined general and regionally relevant MSY variants and constraints in cooperation with stakeholders, considering in the process several variants in combined groups of scientists, NGOs, managers and industry representatives in addition to the original variants of MSY (Maximise the yield in weight) and MEY (Maximise the economic yield). The objective of the workshop was to determine which variants are acceptable and feasible in practical management in each of five European regions: the Baltic Sea, the Mediterranean, the North Sea, the Western Waters and Widely Ranging Stocks. The results showed that five variants occurred in the top ten of all groups and the variant 'Maximise inclusive governance' had a 'very good' performance in all groups, making this the top ranked variant (fig. 1). **Myfish** will produce test cases for how the inclusive governance process can be conducted in practice. All regions rated 'GES descriptors of commercial species above reference level' in the top ten ranked constraints, indicating that ensuring precautionarity is an important aspect in all areas. Management measures rankings were considerably more variable resulting in few obvious high ranking measures.

The project now progresses to develop and adapt the models required to estimate the likely outcomes of aiming for the preferred MSY variants in terms of yield and constraints to yield. The models will be used to populate the Decision Support Table (DST). These DSTs will be populated with the scenarios identified as relevant in each area by stakeholders in the first phase of the project and discussed with stakeholders to identify priorities based on our best estimates of the effect on the ecosystem and the economy and stability of the fishery of pursuing specific aims.

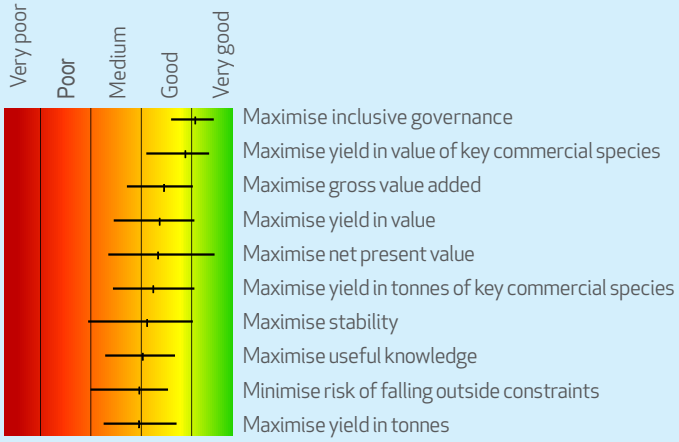

Figure 1: Graphic summary of means and ranges of rankings assigned to the top 10 ranked MSY variants – indicates the average and vertical lines indicate the minimum and maximum ratings across all regions.

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The history of the MSY

(Adapted from: C. Finley & N. Oreskes 2013 –Maximum sustained yield: a policy disguised as science – ICES Journal of Marine Science, 70(2): 245 – 250; S. Bell & S. Morse 2008 - Sustainability Indicators: Measuring the Immeasurable - Earthscan, London 2008)

1930s – Preliminary evidence that stocks were beginning to decline mainly in the North Sea and North Pacific Ocean

1939/45 – Second World War - together with trauma and ruins, the Second World War led to a world hungry for protein

1943 – The British scientist Michael Graham and Britain's Director of Fisheries Investigations, E.S. Russell, propose a radical new plan: that each country fishing the North Sea restricts the tonnage of its fleet

1945 – USA unilaterally adopts the Truman Proclamation – USA has the right to establish conservation zones to protect fish in the high sea contiguous to the US coasts

1945 – After Truman Proclamation: Mexico, Argentina, Peru, Chile, Costa Rica adopted an expanded territorial fishing zone. Korea filed territorial claims against Japan. Soviet Union claimed 12 miles and seized vessels in the Barents Sea

1947 – The Pacific Fisheries Congress, the industry lobby set up to increase industry voice within the US Department, together with the Secretary of State, G. Marshall, agreed to appoint an Under Secretary of State for Fisheries. The industry backed an ichthyologist: Wilbert M. Chapman (University of Washington)

1948 – Chapman crafted the "U.S. Policy on High Fishery" which enshrined the concept of Maximum Sustained Yield (MSY) as the goal of American fisheries management. MSY was defined by Chapman as: "the maximum production of food from the sea on a sustainable basis year after year"

1955 – UN sponsors a meeting at FAO Headquarters. The meeting's recommendations called for countries to fish until critical biological point had been reached where proof of biological points had to come from scientific studies

1956 – United Nations first Conference on the Law of the Sea (UNCLOS I)

1957 – Raymond Beverton and Sidney Holt provided equations to estimate the maximum yield from each cort of a fish population – the Yield per Recruit Theory

1962 – UN Convention on the High Seas

1966 – UN Convention on Fishing and Conservation of Living Resources of the High Seas

1977 – Adoption of the Exclusive Economic Zone. Larkin proposes to abandon the concept of MSY as not sufficient from a biological point of view though it provides a valuable index of production potential

1982 – UN Convention on the Law of the Sea (UNCLOS III) relating to the conservation and management of straddling fish stocks and highly migratory fish stocks (adoption of the Exclusive Economic Zone)

1985 – New Zealand is the first country to adopt the Individual Transferable Quotas (ITQs) as a national policy (for *Habalone* spp.)

1992 – UN Rio Earth Summit. MSY proposed as Sustainable Indicator for the "Protection of the Oceans, all Kinds of Seas and Coastal Areas" (Chapter 17 of the Rio Convention)

2001 – Ecological Sustainable Yield (ESY): the yield an ecosystem can sustain without shifting to an undesirable state (definition: *American Scientist)*

2002 – Johannesburg World Summit on Sustainable Development to bring all European fish stocks to a state where they can produce at MSY by 2015

2013* – New Common Fisheries Policy (CFP) pointing at an ecosystem-based approach for the fishery management agreed at political level

2015* – Stocks managed at MSY

*Myfish aims to contribute to the implementation and achievement of these EU milestones.

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Feedback from partners and stakeholders on the work in progress

Chris Hopkins

AquaMarine Advisers (AMA) – Responsible for information analysis, synthesis, consultations and communications with key higher level stakeholders: Myfish 2013 Conference and Outward: Looking at Best Practices Case Studies in Fisheries Governance

In an innovative, multidisciplinary project like **Myfish**, nothing will keep me away from participating in the project's Annual Conference. I do this to enjoy networking with good friends and colleagues, and because the various presentations provide a great opportunity to gain first-hand knowledge of what is going on across the project. Additionally, I want to be aware of how the various stakeholders, including the diverse "tribes" of science, respond and interact concerning the focus of the meeting agenda/issues and with regard to each other. Over the last decades, there has been progress in multi-stakeholder engagement, dialogue and understanding which has been essential for the uptake of fishery science that is "fit for purpose" regarding operational use. **Myfish** has been aware of the increasing need for a regular, iterative feedback process that gathers the views of a range of relevant stakeholders concerning what we are doing and how we are doing it.

Credit: USTAN

An important part of the ongoing discussion concerns defining and identifying the stakeholders and how to approach them. A key ingredient of success for **Myfish** is the importance of the human dimension in which we bond by listening, learning and so provide informed feedback in a constructive atmosphere. To do this effectively there is the recognition that we should deftly balance humility (to truly listen) with courage (to meaningfully engage). I felt that the 2013 Conference was enjoyable and productive, yet mindful that our strategy for stakeholder engagement is crucial.

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In **Myfish**, colleagues from Innovative Fisheries Management (Doug Wilson, Maria Hadjimichael and Troels Hegland) and I (AMA) have been looking outwards from the EU to other parts of the world, by selecting three fisheries to investigate as case studies which illustrate various aspects of sound governance in the context of bio-ecological, economic and social objectives. The fisheries we have focused on are*: 1) the Faroe Islands' mixed fishery for gadoids, which is days-at-sea effort-based, all catch landed, and is being pressured by outside influences to adopt MSY; 2) the US Bering Sea and Aleutian Islands pollock fishery, the world's largest whitefish fishery, which is TAC-based and MSY-related; and 3) the Australian Northern Prawn mixed fishery, which is effort-based and aims at Maximum Economic Yield (MEY), targeting a suite of different prawns. We want to discover best practices and lessons learned with respect to MSY variants, objective (goal) setting and implementation processes (i.e. means to achieve objectives), including strengths and weaknesses concerning the overall governance system. We first produced a desk-top study on each fishery's management and overall governance from the available literature, and then interviewed involved stakeholders, spanning the fishing industry at sea and ashore, environmental NGOs, fishery managers and scientists. We have used the same standardised, open-ended interview questions for all case studies (personal identities remain anonymous), and apply "discourse analysis" to the recorded texts to see how various stakeholders, and even sub-groupings of these, view the same issues from various perspectives. We found that it is important to also interview stakeholders not financially related to the fishery albeit they are not always easy to identify.

We believe that these case studies provide us with very worthwhile insights into best practices and lessons learned concerning governance for feeding back into **Myfish** and its stakeholders. The key to approaching our stakeholders has been : a) using a network of respected "door-openers" in the particular community to recommend appropriate people who they personally knew and would agree to be interviewed; b) recognition by the door-openers and the interviewees of the legitimacy of what we are doing in **Myfish** (c.f. website) as a good cause, and our own credibility to be objective; and c) our positive motivation in finding out their experiences and insight in order to learn from them. Add the good measure of humility and courage mentioned above, together with determination to book a time slot for a very busy potential interviewee and have a good list of back-up candidates.

***These case studies are referred to in greater detail on page 6 of this newsletter.**

Rudi Voss

Christian-Albrechts-Universität zu Kiel (CAU) – Baltic Sea Case Study Leader: Regional trade-offs in multi -species management in the Baltic Sea

We developed and applied an age-structured ecological-economic optimisation model for the three main species in the Baltic Sea (cod, herring, sprat), which is taking predator-prey relationships into account. The aim was to investigate the distributional effects of different management scenarios, including the rebuilding of a large cod (predator) stock versus the continued dominance of clupeids (herring and sprat). Unconstrained economic optimisation leads to a cod-dominated system which is highly profitable. However, the regional (country-specific) increase in profits is very different, and two Baltic countries would even loose in terms of combined profits from all three fisheries. This highlights potential management trade-offs, and new forms of compensation might be needed to avoid inequity, and to secure common acceptance of economically reasonable management decisions.

Martin Pastoors

Institute for Marine Resources and Ecosystem Studies (IMARES) – WP3 Leader: Making a difference

Ultimately, a major challenge in many of the FP7-funded research projects dealing with fisheries management is to achieve a meaningful, operational application of the results from the project to the practice of decision-making. Many natural (fisheries) scientists are quite familiar with the direct links between science and policy (e.g. the European Commission). But many also think that it is a bit of an uncomfortable position to also be in association with the "real" stakeholders (fishers, environmental non-governmental organisations, European Regional Advisory Councils. So these FP7 projects could be seen as a testing ground for this multi-level interaction processes. For me personally, the **Myfish** project seems to develop in a very similar mode as the GAP2 project. In both projects I am the work package leader for WP3. In GAP2 this is called "Making a difference" while in **Myfish** it is called "Implement". But in both cases it is about linking the scientific work to the actual practice of decision-making, mostly through the development of long term management plans.

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Kenn Skau Fischer

North Sea RAC – Stakeholder participating at the Myfish 2nd Annual Conference

Myfish is a win-win project. MSY-values necessary for a sustainable fisheries management in the EU are defined through regional case studies where scientists and all stakeholders are working together and learning from each other.

The potential of this working method in respect of improving the management fish stocks in the EU should not be underestimated.

John Mumford

Imperial College of London – WP4 Leader: Making the most out of science

Initial responses to the **Myfish** project show a range of variants on MSY that may be appropriate to consider in practical terms. These include technical objectives, such as maximising key species value or value added in the fisheries to stakeholder oriented processes, such as increasing participation by stakeholders in decisions and enhancing the use of knowledge from both scientists and the fishing industry. The project is an important step in developing methods that bring together different interest groups to jointly set management aims and processes.

Credit: www.CGPGrey.com

Sean O'Donoghue

Killybegs Fishermen's Organisation Ltd (KFO): The industry perspective

KFO, together with its associate members the Pelagic Freezer-trawler Association, Netherlands, and the Danish Pelagic Producers Organisation, is a vital component of the partner line-up in **Myfish**. These organisations bring a wealth of experience and knowledge to the table when considering the effects of implementing MSY. The workshops and annual partner meetings feature project work structured around actual case studies. This gives **Myfish** a basis of credibility and reality with wide acceptance among the stakeholders.

Following his participation in the project workshop in Brussels in early 2013 and the 2nd Annual Partner Meeting in Copenhagen, Sean O'Donoghue, Chief Executive of KFO, said: "**Myfish** has provided a sensible forum, scientific but not academic, where industry stakeholders can engage with fisheries scientists, economists and policy-makers to ensure MSY is implemented in a commonsense and workable format." He went on to commend the approach the **Myfish** project had taken by examining the wide range of possible MSY variants and the innovative strategies and techniques available for their implementation. The fishing industry hopes **Myfish** will go a long way in providing the effective means of implementing MSY without serious negative impact on fishing activities and fisheries-dependent communities while still achieving Good Environmental Status (GES) as required.

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A focus on: Non-EU fisheries models – Lessons learnt[1]

As part of the activities of WP1 (Define), a due-diligence exercise aiming to review existing and proposed MSY variants, constraints and management measures outside EU borders was carried out by partners from AquaMarine Advisers (Sweden) and Innovative Fisheries Management (Aalborg University, Denmark). They interviewed stakeholders and analysed fisheries management outwards from the EU (Australia, Alaska and the Faroe Islands) to investigate (as case studies) various aspects of sound governance from which the EU can potentially learn. As a result best practices and lessons learnt - regarding MSY variants, objective (i.e. aim or goal) setting and implementation processes (i.e. means to achieve objectives), including the strengths and weaknesses, constraints and trade-offs – concerning the overall governance system for the particular fishery have been identified. **Detailed accessible summaries of these case studies are available on the Myfish website.**

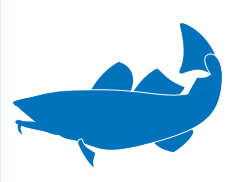
[1]Authors: Christopher C.E. Hopkins (AquaMarine Advisers, Sweden), Maria M. Hadjimichael, Troels J. Hegland, Douglas C.K. Wilson (Innovative Fisheries Management - University of Aalborg, Denmark).

The Faroe Islands' fisheries governance system[2] : from output to input controls

Area: Faroe Islands

Type of fishery: Mixed-fishery: demersal gadoid stocks (cod, haddock and saithe)

FAROE ISLANDS



GADOID - CODFISH

Fishery governance			
Years	**Adopted measures**	**A closer look**	**Best practices for EU fisheries**
1996 - 2013	**Managing organisation: Ministry of Fisheries** **Legislation: Commercial Fisheries Act** The Faroese Total Allowable Effort (TAE) is a fishing licence system framework regulating i) the number of participating vessels (assigned to diverse fleet categories/ segments) in particular areas/ depth zones, ii) fishing days (ie. the amount of time each vessel in a fleet category/segment is allowed to fish in approved areas/depth zones, and iii) the conservation of juvenile and spawning fish and protected species including comprehensive use of closed areas. Thus, the TAE system allocates Individual Transferrable Fishing Effort (ITE). The precondition for the use of the TAE system is that the total fleet is under Faroese control. A group F = 0.45 target for cod, haddock and saithe is one of the central components of the Faroese TAE system.	Bio-ecological sustainability is a central objective of the Faroese Commercial Fishery Act and accordingly the Faroese TAE/ITE system. However, the objective of constraining exploitation on the major demersal stocks by the effort management system, via controlling F at a level ⩽ 0.45 on each of the three component stocks, has not been achieved partly because the original number of fishing days allocated was too high. Also, according to conventional scientific practice, as elucidated by ICES and other intergovernmental advisory organisations, the Faroese system allows too high fishing pressure on the three main demersal stocks.	• **BP1 - Large closed areas as established in the Faroe Islands are not incompatible with prolific fisheries, but the positive effects of the areas need to be documented to maintain legitimacy:** when the areas are as wide-ranging as in the Faroese context, they definitely have an effect in relation to the bio-ecological objective. Nevertheless, to maintain legitimacy, the effects need eventually to be documented, something that has not happened sufficiently on the Faroe Islands • **BP2 - Effort (input control) management can under some circumstances be a competitive approach as it goes a long way towards solving the discards issue:** although catch quota (output control) management for a variety of reasons is the preferred option in most European fisheries, the Faroe Islands have shown that it is possible to use effort management especially in mixed-fisheries due to problems that would otherwise occur with discards. • **BP3 - The experiences of the Faroe Islands show that self-regulation can be an important element in a TAE/ITE management system:** although there may in general be too many days-at-sea available in the system, it is argued that the TAE/ITE system is an example of a system where the presence of overcapacity does not lead necessarily to overfishing due to a combination of vessel owners deciding not to use their days and the presence of large closed areas, etc.

[2] The authors consider fishery governance as the sum of the legal, social, economic and political arrangements used to manage the fishery.

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The Faroe Islands *Contd.*

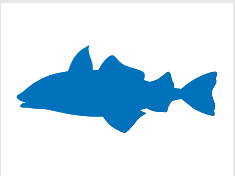
Years	Adopted measures	A closer look	Best practices for EU fisheries
2013 - 2015	**Long Term Management Plans including Harvest Control Rules are under discussion** There is ongoing Faroese work to move away from the F = 0.45 target and to formulate a management plan for cod, haddock and saithe based on the precautionary approach (PA) and associated Maximum Sustainable Yield (MSY) target and limit reference points estimated by ICES.	With the exception of small fish regulations and protected species, fishers are allowed to land and sell whatever they can catch within their quotas. Technological creep coupled with improvement of knowledge regarding best fishing practice to maximise potential catches over time, acts to increase fishing efficiency of fishing vessels, and thereby increased fishing capacity in terms of catch levels per fishing day. One of the problems of the TAE/ITE system has been the lack of agreement on to what extent the system was self-regulating and thereby disagreement on the conditions on which the (from the outset) available pool of fishing days should be adjusted.	• **BP4 - Overall acceptance and ownership over management is crucial in fostering compliance:** the fact that the TAE/ITE system to a large extent came out of the fishing industry itself has resulted in a management system that is considered highly legitimate, and this has led to only negligible problems with compliance. • **BP5 - Clear, common understanding of the mechanisms of the system between scientists and fishers is needed from the outset:** one of the problems of the TAE/ITE system has been the lack of agreement on to what extent the system was self-regulating and thereby disagreement on the conditions on which the (from the outset) available pool of fishing days should be adjusted. • **BP6 - Allocation of durable rights based on the overall TAE system helps to overcome the tragedy of the commons:** on the Faroe Islands this has been done by ITEs. The actual transferability has been restricted to ensure the maintenance of a varied fleet structure • **BP7 - Systematic monitoring of effort creep in different fleet sectors or métiers is a vital element of an effort-based system:** the Faroe Islands failed to set up a credible system for monitoring effort creep and this has contributed to the problems of getting a systematic approach to adjusting the available pool of fishing days.

The fisheries governance system for Alaska Pollock under the North Pacific Fishery Management Council (NPFMC): adaptive legislation and benchmarking

Area: Alaska (United States) Bering Sea, Aleutian Islands (BSAI)

Type of fishery: Large-scale highly industrialised gadoid fishery


ALASKA


GADOID - POLLOCK

Fishery governance

Years	Adopted measures	A closer look	Best practices for EU fisheries
Since 1976, supported by additional Acts	**Managing organisation: North Pacific Fishery Management Council (NPFMC)** Legislation: US Magnuson – Stevens Act (MSA) The 1st policy objective of the MSA and standard to be achieved is the Optimum Yield (OY) based on MSY, thus preventing overfishing. National Standard No. 9 requires the minimisation of bycatch and bycatch mortality.	The US Congress oversees the MSA and its revision/reauthorisation, and demands annual benchmarking reports on the performance of all federal fisheries. Part of the OY must be held as a reserve to allow for factors such as uncertainties in stock assessments and catch levels including incidental catch of a stock (e.g. pollock) in another fishery Regulatory compliance is facilitated by a range of accountability measures including 100% coverage by scientific observers of key fleet components, funded by the industry, combined with Vessel Monitoring Systems (VMS) and near real-time reporting of catch and by catch.	• **BP1 - The decision-making process:** the NPFMC represents a very good model for science-based, transparent, inclusive participation and responsible decision-making. The NPFMC forms the core of the governance system. **The model potentially provides, with appropriate adaptation, an extension to the EU's Regional Advisory Councils (RACs).** • **BP2 - The Acceptable Biological Catch (ABC) Control Rule as practiced in a MSY-related context:** this provides the basis for identifying and implementing legally binding overfishing limits (OFL) where OFL is set as the catch that corresponds to FMSY. The stock biomass for MSY is the initial target for rebuilding an overfished stock or stock complex. Thus, ABC is the annual sustainable catch limit (ACL) and shall be set lower than OFL (i.e. OFL≥ABC≥ACL), so that catch quotas (TAC) must not exceed the ABC level. Supporting the ABC Control Rule, comprehensive and dynamic Fishery Management Plans and HCRs adaptively counteract overfishing and aim to achieve OY. • **BP3 - Durable fishing entitlements with associated responsibilities:** limited entry to the fishery and catch shares have contributed to removing the "race for fish" and incentives to overfish. Given the setting of effective catch limits, fishing rights contribute to enhanced resource stewardship and regulatory compliance. However, one must appropriately consider the distribution and longevity of these entitlements to ensure fair access to the fishery.

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The fisheries governance system for Alaska *Contd.*

Fishery governance

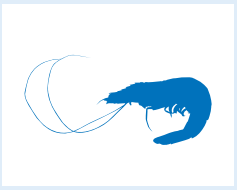
Years	Adopted measures	A closer look	Best practices for EU fisheries
Since 1976, supported by additional Acts	To support the objectives set by the MSA's National Standard No. 1, a dynamic and adaptable BSAI groundfish policy has been adopted under the remit of the NPFMC, applying Long-Term Fishery Management Plans (LTMPs)/Harvest Control Rules (HCRs), and the ABC (Acceptable Biological Catch) Control Rule which is precautionary regarding the setting of conservative (risk averse) and legally binding ACLs (Acceptable Catch Limits ≈ TACs) to prevent excessive fishing mortality/effort and hence overfishing. Moreover, discarding of pollock in the targeted fishery is virtually banned.	Wider stakeholder participation is encouraged in the form of following NPFMC meetings, which are generally open. With very few exceptions, all NPFMC documentation is easily found on the internet and freely available. The National Standard No. 1 preventing overfishing was reinforced by the 1998 American Fisheries Act which cut fleet overcapacity, limited entry to the fishery, allocated durable catch shares (i.e. Individual Fishing Quotas) and opened for harvest cooperatives. Catch shares facilitated the requirement for better handling and full utilisation (no discarding) of the pollock catch leading to a wide range of products and needs, and greater catch value.	• **BP4 - Real-time, verifiable reporting on catch and bycatch at sea:** the EBS pollock fishery is at the forefront of such reporting, often promoted and even paid for by the industry itself. This includes use of a comprehensive trained observer system on the main fleet segments, VMS, and triggers for time and area closures. The latter includes identification, warning and avoidance of 'rolling hotspots' by collaborating vessels. • **BP5 - Benchmarking of fishery performance: the US regularly assesses the status of its federal fisheries concerning:** i) stock status with regard to overfishing, being overfished and achieving OY in a MSY context; and ii) bycatch (incidental catch) status. Corresponding action plans provide solutions to deficiencies. **Benchmarking has shown itself to be an important, complementary mechanism in improving the performance of U.S. fisheries.** • **BP6 - Full resource retention/utilisation requirements:** this has resulted in minimising discarding/waste and increasing resource utilisation and revenues from enhanced product diversity. **Thereby the industry is better able to face fluctuating resource dynamics.** • **BP7 - The Community Development Quota (CDQ) Programme allowing Alaskan natives to benefit from the target fish resource:** this may provide a potential model, with appropriate adaptation, for helping coastal communities participate in fishing opportunities (either directly themselves or leasing out their quota) in their near-lying sea areas.

The Australian Northern Prawn Fishery (NPF) under the Australian Fisheries Management Authority (AFMA): combating overcapacity, from MSY to MEY, and input controls

Area: Australia

Type of fishery: Australian Northern Prawn Fishery (NPF)[3]

AUSTRALIA



PRAWN

Fishery governance

Years	Adopted measures	A closer look	Best practices for EU fisheries
Since 1995 (FMA and FAA) and their subsequent amendments	**Managing organisation: Australian Fisheries Management Authority (AFMA)** Legislation: Fisheries Management Act (FMA) and Fisheries Administration Act (FAA) (1991); National Strategy on Ecologically Sustainable Development (NSESD; 1992); Environmental Protection and Biodiversity Conservation Act (1999); Commonwealth Policy on Fisheries Bycatch (2000); Ministerial Direction (2005); Commonwealth Harvest Strategy Policy (CHSP; 2007).	NPF adopted a 'basket approach' management (i.e. a suite of prawn species): it is acknowledged that not all the target species will be able to achieve the MEY target at the same point in time. The NPF continues to be input controlled in the form of total allowable effort (TAE) for the fleet, split into individual tradable effort (ITE) quotas (Q). Additionally, there are seasonal as well as time of day and areal closures, plus gear restrictions.	• **BP1 - Clear and comprehensible policies:** the EU could benefit from having the equivalent of the CHSP laying out its current approach to fisheries management as an umbrella to the FMPs. • **BP2 - Fishery specific harvest control system:** given that prawns/shrimps are challenging to carry out good stock assessments and management for, the approach of the NPF is well worth learning from with respect to applying harvest control rules for shrimp/prawn fisheries in parts of the EU. Although AFMA has a default preference for output controls in the form of TAC/ITQs, the NPF has demonstrated that input controls (TAE/ITE(Qs)) are an effective and viable option for this fishery. • **BP3 -** Net economic returns and MEY (Maximum Economic Yield) target: the bioeconomic model produced specifically for the NPF has led to a 'win - win' situation for both the industry and the environment. An MEY target may form an appropriate aspirational model for some of the EU fisheries given that appropriate data are available. Buying-in to an MEY target, fishers can also be motivated to provide improved fleet-related economic data in accord with the aims of the CFP's Data Collection Framework Directive. It is emphasised that the MEY target is recommended as the second stage in optimising sustainable fisheries, following a first stage which has adopted MSY and progressed to it. The Australian lesson has underlined that removal of fishing overcapacity is an essential precursor for facilitating the move to successful MSY and MEY management.

[3] http://www.afma.gov.au/managing-our-fisheries/harvest-strategies/harvest-strategy-for-the-northern-prawn-fishery-under-input-controls/

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Australia *Contd.*

Fishery governance			
Years	**Adopted measures**	**A closer look**	**Best practices for EU fisheries**
Since 1995 (FMA and FAA) and their subsequent amendments	Since 1995, the fishery has been managed according to the 1995 NPF Management Plan, with periodic amendments. In 2001, the Northern Prawn Management Advisory Committee (NORMAC) of AFMA set a target of reaching S_{MSY} (spawner biomass that produces MSY), with 70% certainty, by 2006. In 2004, NORMAC established Maximum Economic Yield (MEY) - with industry support - as the overall management objective of the fishery, and S_{MSY} was redefined as a limit reference point. In 2007, the Northern Prawn Fishery Harvest Strategy under Input Controls (NPFHS) was introduced. The NPFHS aims to pursue MEY and maximise profit, by varying effort levels, using bio-economic assessment of the important tiger prawn fishery. The NPFHS includes catch triggers and decision rules for banana prawn and tiger prawn fisheries.	The status and trends of the NPF fleet's effort are closely monitored and the length of a unit of headrope is adjusted by NORMAC, based on scientific advice, to reflect needs to either decrease or increase the fishing effort. The NPF as a whole, and specifically via CSIRO, has developed an innovative system of Ecological Risk Assessment (ERA) and Ecological Risk Management (ERM) primarily for addressing threatened, endangered and protected (TEP) species.	• **BP4 - The AFMA governance model:** this model bridges diverse aspects of fisheries and environmental policy/legislation focusing these in the operation of the NPF. What is important in the EU context is that the AFMA model, and more specifically AFMA itself, allows for the separation of politics from the everyday management of the fishery. Including wide and constructive stakeholder participation through both Management Advisory Committees (MACs, such the NPF's NORMAC) and Resource Assessment Groups (RAGs, such as the NPF's NPRAG) is also imperative. The model potentially can provide, with appropriate adaptation, a good outline for the EU's Regional Advisory Councils (RACs), especially when and if it is decided that the role of RACs should be strengthened. • **BP5 - Ecological Risk Assessment (ERA) and Ecological Risk Management (ERM) framework:** the Australian-developed ERA process framework uses a hierarchy of risk assessment methodologies which analyse the impact, both direct and indirect, that fishery activities have on five ecological components of the marine ecosystem (ie.: target species; byproduct and bycatch species; threatened, endangered and protected species; habitats; and ecological communities). The ERM process then promotes the application of appropriate mitigatory actions/measures for components at significant risk from the fishery. Uptake of the NPF's ERA/ERM system would be a very important step towards improved assessment and management of bycatch issues and thereby in advancing an ecosystem-based approach in EU fisheries. • **BP6 - The 1992 NSESD and the 1999 EPBC Act as overarching policy:** these provide the Environment Minister with a mandate to oversee fisheries management and step in when important issues of marine environmental protection and biodiversity conservation arise. This third party intervention is indispensable not only for the conservation of the resource and other ecosystem components, but also for allowing the public to feel assured that the necessary 'checks and balances' are being applied with respect to agreed legislation and policy standards. An understanding of the implementation of the EPBC Act concerning Australian fisheries is likely to help the EU consider how its new Marine Strategy Framework Directive ('Environmental Pillar') may operationally interact with the CFP. • **BP7 - Co-management with cost-recovery system:** there has been an increasing movement towards co-management in the NPF. The delegation of more power to the industry in the management of the fishery has a cost recovery function where the NPF industry pays 100% of recoverable management costs. Therefore, those who have been given the right to fish through statutory fishing rights, have the opportunity to co-manage the fishery, i.e. with rights come stewardship responsibilities. Given that the fishing industry has the right to benefit from the extraction of a public resource, there is a levy imposed for the government services provided in management of that resource (research/administrative component of the levy).

Keep in touch!

If you wish to know more or become involved in the **Myfish** project, please visit:

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Project-relevant news and event updates posted regularly

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