



OSPAR
COMMISSION

OSPAR background document on Sustainable Fishing Education at fishing academies in OSPAR countries

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OSPAR Convention

The Convention for the Protection of the Marine Environment of the North-East Atlantic (the “OSPAR Convention”) was opened for signature at the Ministerial Meeting of the former Oslo and Paris Commissions in Paris on 22 September 1992. The Convention entered into force on 25 March 1998. The Contracting Parties are Belgium, Denmark, the European Union, Finland, France, Germany, Iceland, Ireland, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Convention OSPAR

La Convention pour la protection du milieu marin de l'Atlantique du Nord-Est, dite Convention OSPAR, a été ouverte à la signature à la réunion ministérielle des anciennes Commissions d'Oslo et de Paris, à Paris le 22 septembre 1992. La Convention est entrée en vigueur le 25 mars 1998. Les Parties contractantes sont l'Allemagne, la Belgique, le Danemark, l'Espagne, la Finlande, la France, l'Irlande, l'Islande, le Luxembourg, la Norvège, les Pays-Bas, le Portugal, le Royaume- Uni de Grande Bretagne et d'Irlande du Nord, la Suède, la Suisse et l'Union européenne

Contents

Presented by The Netherlands and KIMO International	Error! Bookmark not defined.
Definitions/Glossary	4
Summary.....	5
1. Introduction.....	5
2. Background Information.....	6
2.1. OSPAR monitoring of marine litter	6
2.2. Marine environmental awareness training in the shipping industry.....	7
2.3. Sustainable fishing education in the Netherlands	7
2.4. Sustainable fishing education in other OSPAR countries	8
2.5. Lesson learned, challenges identified.....	9
2.6. Other relevant projects	10
2.7. RAP Action 58	11
3. Conclusions.....	11
4. Proposal.....	12
4.1. Key elements of the implementation strategy.....	12
4.2. Course framework	13
4.3. Country specific courses	15
4.4. International network of fishing academies.....	17
4.5. An international standard at the policy level	17
5. Recommendations for OSPAR	17
6. References.....	17

Definitions/Glossary

In the context of this background document, the following technical and scientific terms are used:

- **Attitude:** A way of thinking or feeling about someone or something, typically one that is reflected in a person's behaviour.
- **Behaviour:** The way in which one acts or conducts oneself.
- **CFP:** Common Fisheries Policy (European Commission)
- **Fish Stock Assessment:** A way of calculating the abundance of a certain fish species in the sea.
- **Fishing for Litter:** KIMO's initiative that aims to reduce marine litter by involving one of the key stakeholders, the fishing industry. Participating vessels are given hardwearing bags to collect marine litter that is caught in their nets during their normal fishing activities.
- **IMO:** International Maritime Organization
- **KIMO:** Local Authorities International Environmental Organisation
- **Marine environmental awareness:** Awareness is knowledge and understanding that is processed and incorporated into an individual's thinking and has consequences for his/her attitude. Marine Environmental Awareness focusses on the contribution of the human element to the prevention of pollution.
- **MARPOL:** International Convention for the Prevention of Pollution from Ships
- **Ocean Literacy:** Understanding the ocean's influence on you and your influence on the ocean.
- **RAP:** OSPAR's Reginal Action Plan for Prevention and Management of Marine Litter in the North-East Atlantic
- **School curriculum:** The educational program including subjects studied in a school, and what each subject includes.
- **STCW:** International Convention on Standards of Training, Certification, and Watch keeping for Seafarers
- **STCW-F:** International Convention on Standards of Training, Certification, and Watch keeping for Fishing Vessel Personnel
- **Sustainable development:** Development that meets the needs of the present without compromising the ability of future generations to meet their own needs, often seen as simultaneous pursuit of economic prosperity (profit), environmental quality (planet) and social equity (people).
- **Sustainable fishing:** Sustainable development of the fishing industry.

Summary

To abreast of changes in the fishing industry, including an increased demand for sustainable development, fishers need additional skills, knowledge and information. For many fishers, accepting these changes is difficult, and embracing the need for sustainable development is even more challenging. Consequently, a sound process of including sustainable fishing training in the initial education of fishers would benefit fishers, the fishing sector and the marine environment in general.

Sustainable fishing training empowers (future) fishers to protect fish stocks and the marine environment for future generations and helps future fishers to find a balance between planet (environmental challenges), profit (economic viability), and people (acceptance of your business by society – a license to operate) in shaping their sustainable and successful businesses. Sustainable fishing training covers a wide variety of subjects including marine litter.

Inspired by the successful implementation of marine environmental awareness training in the shipping industry, the ProSea Foundation has developed a set of sustainable fishing courses for fishing academies and active fishers in the Netherlands over the last 15 years. In several other OSPAR countries, schools are starting to implement a diverse set of course elements, but outside of the Netherlands, there is no comprehensive approach to sustainable fishing training.

The fishing sector is unique in many aspects and setting up sustainable fishing training for fishery students in different countries requires that the courses are custom made, and adjusted to education level, language, culture, specifics of the fishing sector and the local environment. Given these special challenges, an important aspect of the implementation process is the building of a national network of partners that work together in customising the course content for their country, and the execution of pilot courses in different countries to gain hands-on experience.

This background document forms the basis of an OSPAR Recommendation and sets out a clear step-wise approach to develop and implement sustainable fishing educational programmes at fishing academies in OSPAR countries.

The proposal for a Recommendation includes four elements: an overarching course framework, the development and execution of a country specific course, an international network of fishing academies and an international standard for sustainable fishing training at the policy level.

1. Introduction

The Regional Action Plan for Prevention and Management of Marine Litter in the North-East Atlantic (RAP) sets out the policy context for OSPAR's work on marine litter. The RAP describes the various actions that OSPAR is working on, considering both land-based and sea-based sources of marine litter. In addition to the prevention and reduction of litter pollution, and the removal of existing litter, one of the objectives of the RAP is to enhance knowledge and awareness of marine litter.

The need for education about marine litter for fishers is part of a broader concept of being a fisher in a changing world. Being a fisher today is different compared to 10 or 20 years ago. The job has changed due to increasing costs, more regulations, farmed fish products on the market and a higher demand for responsible and sustainable fish products. In addition, our seas are used for more than fishing alone, so fishing grounds are under pressure. Also, and partially as a reaction to these developments, the fishing sector itself has experienced great changes in the past 10 years, such as new fishing techniques and more market-focused thinking. To continue to successfully operate in a changing society and the changing fishing sector, competences of those working in the sector need to evolve and grow.

For the fishing industry to develop sustainably, fishers need additional skills, knowledge and information. The way society perceives the environmental consequences of fishing is changing and fishers are operating today in a world with multiple stakeholders. This is where sustainability education and marine environmental awareness training come in. Sustainable fishing education addresses marine ecology and the role of fishing in the marine ecosystem. It provides

knowledge and understanding of current issues, such as fish stock assessment, marine litter, climate change, certification schemes, cooperation within the fish supply chain, and it enhances communication skills.

Marine litter education can address the contribution of the fishing industry to the problem, the (changing) attitude of fishers towards marine litter, and, projects like Fishing for Litter where the fishing industry contributes to solutions for the problem. However, marine litter education will be more successful when it is part of the broader concept of sustainable development of the fishing industry. Changing attitudes and behaviour of (future) fishers towards marine litter requires a comprehensive approach towards sustainability. The issue of marine litter is a very relevant and practical aspect of sustainable fishing and should be addressed as an integral part of sustainable fishing education.

This background document describes existing educational programs, as well as outlining the opportunities and challenges of including sustainable fishing education in existing curricula of fishing academies, and, gives recommendations for the education of future fishers as mentioned in RAP actions 58 and 79.

2. Background Information

2.1. OSPAR monitoring of marine litter

OSPAR has a stated aim to 'substantially reduce marine litter in the OSPAR Maritime Area to levels where the properties and quantities of marine litter do not cause harm to the coastal and marine environment', and the Regional Action Plan for Prevention and Management of Marine Litter in the North-East Atlantic (RAP describes various types of actions that OSPAR is working on.

The impacts of management measures designed to protect the North-East Atlantic often require years to take effect because change in human activity, although potentially significant, will only elicit a slow response in the marine ecosystem. Furthermore, there are natural changes occurring continuously across the North-East Atlantic. In this context, there is a need for continuous assessment and updating thereby ensuring that the best possible advice is available to policymakers.

OSPAR has been working with other Regional Seas Conventions and the European Commission to develop common and widely applicable assessment tools. The Intermediate Assessment 2017 (IA 2017) includes an indicator assessment that describes the abundance and composition of beach litter in the OSPAR Maritime Area across 76 beaches in 2014/2015, and trends in litter items that have been identified across 19 beaches in the period 2009-2014.

IA 2017 results show that the majority of litter items were made of plastic or polystyrene. Across all OSPAR survey sites, plastic fragments are the most commonly found type of litter item, followed by packaging (food and drink), and fishing-related items. Packaging mainly consists of plastic items (including caps and lids, food containers, crisp / sweet packets / lolly sticks and plastic bags). Fishing-related items comprise nets and ropes and tangled nets / cord. Drink bottles and containers are among the most recorded items at survey sites in all seas except the northern North Sea. All these items are considered harmful to the marine environment, due to their potential for entanglement, ingestion or injury.

According to the data from the beach monitoring, it is apparent that fishing is one of the main sources of litter. The composition of marine litter found in the OSPAR Maritime Area for the period 2014 – 2015 was 15%-30% fisheries-related.

In the RAP, marine litter from fishing is identified as a key area for action, and two actions are specifically aimed at the education of fishers:

- OSPAR Action 58: Develop marine litter assessment sheets to assist Contracting Parties in developing material for education programs, including those for professional seafarers and fishers.

- Contracting Parties National Action 79: Promoting or adopting environmental awareness courses for fishers and the fishing sector.

2.2. Marine environmental awareness training in the shipping industry

The International Maritime Organization (IMO) sets training standards for seafarers on merchant ships in the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW). In 2010, with the revision of the STCW Code, IMO included that seafarers should gain knowledge and awareness of the prevention of pollution in the marine environment.

The Dutch Ministry of Infrastructure and Environment¹ submitted an IMO model course 'marine environmental awareness' (MC 1.38), that was accepted by the IMO in 2011. This two-day course actively involves (future) seafarers in the subject of sustainable shipping, and forms a concrete basis for knowledge and awareness of the marine environment in the prevention of pollution as prescribed in the STCW Code.

The model course that was submitted by The Netherlands is based on the experience of the ProSea Foundation, a Dutch non-profit organisation that specialises in educating maritime professionals. ProSea's mission is to teach, inspire, and convince current and future marine professionals to protect their working environment – the sea – with the long-term goal of ecological and commercial sustainability. The model course was the result of a development process of more than 10 years, with a number of significant steps:

- 1) Sustainable shipping/marine environmental awareness courses for shipping academies in the Netherlands have been organised since 1999;
- 2) In 2002, international implementation of the courses started with a pilot project as part of the Save the North Sea Interreg Project², in close cooperation with KIMO and other partners. Courses were organised at shipping academies in other European countries, including Denmark, Sweden, and later, the United Kingdom (UK);
- 3) Since 2006, ProSea offers dedicated courses to maritime companies, including to BP shipping (UK), Royal Boskalis (Netherlands), Eletson tankers (Greece) and KOTC (Kuwait);
- 4) In 2010, as part of the development process of the IMO model course, a set of courses was conducted for a shipping academy in the Philippines.

The inclusion in the STCW Code and the acceptance of the IMO model course are important steps in making sustainable shipping, care for the environment, and the role of human behaviour a 'normal' element in the training of seafarers.

2.3. Sustainable fishing education in the Netherlands

With the sustainable shipping courses as an inspiration, the ProSea Foundation started working with the Dutch fishing sector, scientific institutes and teachers from fishing academies to develop a sustainable fishing course for students of fishing academies. After a test run with and for all fishing teachers, the first four-day sustainability in fishing course for fishing school students (future fishers), called 'fishing with a future' was organised in 2004. Although the course content has developed and changed over the years, the course still has the following general content:

- **Day 1:** Sustainability (seen as a balance between the three P's: People, Planet and Profit) and marine environment (planet P)

¹ Recently renamed to Ministry of Infrastructure and Water Management consequential to the establishment of a new parliament

² <http://archive.northsearegion.eu/iiib/projectpresentation/details/&tid=39&theme=4>

- **Day 2:** Profit P and People P
- **Day 3:** Fisheries management and People P - continued (communication skills)
- **Day 4:** Environmental challenges (planet P) and sustainability futuring

Day 1	Day 2	Day 3	Day 4
<ul style="list-style-type: none"> • Introduction sustainability: what is it? Why we talk about it? • Workshop: own opinion about important sustainability issues • Marine Environment: lecture and field trip 	<ul style="list-style-type: none"> • The Dutch fleet: developments, past 20 years and current trends • Fisheries economy: how to earn money with fishing and the fish supply chain • Workshop Image and Identity: acceptance by society 	<ul style="list-style-type: none"> • Fisheries management: lecture and exercises • Game: tragedy of the commons • People P – communication skills (theory and role-playing exercises with an actor) 	<ul style="list-style-type: none"> • Environmental challenges: oil, marine litter and air emissions • Workshop: drawing the ship of the future • Final assignment: presentation of sustainable future plans

The students, teachers and fishing sector received it so well that ProSea has been providing the course continuously since 2004. Over the years, the course content has become more and more part of the school curriculum and fishing school teachers have been including elements of the course in their own teaching. In 2011, the entire course content was included in the official fishing school curriculum and teaching materials, and in 2017, in close cooperation with the fishing sector and the Ministry of Economic Affairs, the course content was included in the newly developed website 'Vistikhetmaar' (translated as 'I_fish I_knew').

While it has become a normal element of the school program, and teachers are using elements of the course in their own program, ProSea is still brought in as experts to organise and teach this special part of the school program. The next step in implementation in the Netherlands is to transfer that responsibility to the teachers and, together with the schools and the Ministry of Infrastructure and Water Management, ProSea is looking into the best way to do this (for example by organising train the trainer programs).

In addition to the courses for the fishing students, ProSea also develops and conducts courses for future leaders in the industry, practicing fishers and fish vendors. Overall, ProSea has developed three different training series for the fishing sector in the Netherlands:

What	For whom	Course duration
1. Fishing with a future	Future fishermen (students at fishing colleges)	4 consecutive days
2. Cooperation in a sustainable fish supply chain	Practicing fishermen and fish vendors - <i>with the ambition of increasing cooperation in a sustainable fish supply chain</i>	3 workshops of 2 consecutive days over the course of 9 months
3. Future leaders' course	Practicing fishermen and fish vendors - <i>with the ambition of becoming future leaders in a sustainable fish industry</i>	6 workshops of 2 consecutive days over the course of 2 years

2.4. Sustainable fishing education in other OSPAR countries

As part of the RAP Action 58, a survey was conducted to get an impression of current education of fishers in OSPAR countries, with the emphasis on 1. sustainability in the school curricula of fishing academies, and 2. on the needs and wishes to include this.

To get a general overview over the OSPAR Maritime Area, governments and fishing academies from Denmark, Belgium, Sweden, UK, Ireland, Germany, France and Spain were approached by email and by phone. When the quick survey was concluded in January 2017, responses were limited to fisheries education in Denmark, Belgium, Ireland and the UK. Since then, responses were also received from Germany and Spain.

While the quick survey is by no means comprehensive and complete, it gives an impression on how sustainability education is implemented in fisheries education in OSPAR countries. The main conclusions are:

- Standards for fishing education are set by national governments, sometimes in cooperation with the fishing industry, and based on international regulations (STCW-F);
- The number of fishing schools in most countries is limited (at least in Denmark (2), Belgium (1), Ireland (2));
- Sustainability (People, Planet, Profit) is not structurally implemented as a separate theme in the curricula of fishery education; and
- All schools claim they include some elements of sustainable fishing and marine litter as part of the curriculum, but it is not always clear what sustainable fishing education means and what it comprises. In addition, the way the training elements are included vary greatly per country. Fisheries academies address sustainability/marine litter as part of innovation in fishing techniques (Belgium), as part of MARPOL related prevention of pollution (Ireland), as part of the 3-week Introduction to Commercial Seafish Course for new entrants (UK), and/or on a project basis with external experts (Scotland).

All interviewed fishing academies (Denmark, Belgium, Ireland and Scotland) are interested in participating in a project to enhance sustainable fishing education.

2.5. Lesson learned, challenges identified

The implementation of marine environmental awareness training in the shipping industry can serve as a blueprint for the implementation of sustainable fishing training. Within 15 years, the Dutch initiative to develop a marine environmental awareness course for a shipping academy in 1999, has led to the development of an international course for shipping academies in northern Europe (2002), dedicated courses for shipping companies in Europe (2006), courses for all shipping academies in the Netherlands (2008), courses in Kuwait (2009) and the Philippines (2010), and finally, the development of the IMO model course (2011).

The implementation of sustainable fishing courses has been successful in the Netherlands, where ProSea started with courses for all fishing academies in 2004, developed a course for active fishers and businesses (2008), and completed the implementation of sustainability related subjects in the school curriculum (2011) and communication with fishers (2016). However, developing an international course has been a far bigger challenge, due to several unique factors related to fishers and the fishing industry:

- Sustainable Fishing training entails all aspects of sustainability: planet (environmental challenges), profit (economic viability), and people (acceptance of your business by society - a license to operate). Compared to shipping, sustainable fishing includes a much wider variety of subjects, such as fishing methods, economics, fish stock assessment, certification schemes, and communication skills.
- Compared to the worldwide shipping business, the fishing industry is regional/local and often unique. Even within a country, the variation on fishing methods and regional/local circumstances is stunning. Developing a course for the fishing industry means that all those subjects need to be customised and adjusted to not just national, but regional/local circumstances.
- Fishing communities are often small and being a fisher has a large cultural component. It is essential to strike the right tone and take the cultural aspects of the fishing community in account.

- Traditionally, the relationship between fishers and environmental organisations has been, to say the least, difficult. Implementing a course about sustainable fishing requires a thorough process that is based on respect for their profession, building trust and avoiding blame, as much as, transferring course content.
- The level of training and education of fishers is often limited to high school and/or vocational training, and they often speak limited or no English. This has important implications for the course that includes new and conceptual subjects like fish stock management or economics. The course language needs to be their native language, and, information level needs to be customised.
- Fishers on a small vessel don't need a very extensive education to be able to work in the fishing industry and often do not attend a fishing academy. Working on vessels larger than 24 metres does require more extensive education, but since fishing fleets are often small, in most countries there are only a few fishing academies with a limited number of students. Therefore, the academies have limited budgets for the development of new materials and the inclusion of new subjects like sustainable fishing. Furthermore it is difficult to encourage human resources to teach materials outside of the legal requirements.

For successful implementation of sustainable fishing training in the OSPAR Maritime Area, these challenges need to be considered.

2.6. Other relevant projects

Several related projects have produced insights and/or materials that will be useful in the development of sustainable fishing training:

Clean Seas Campaign

UN Environment launched #CleanSeas in February 2017, with the aim of engaging governments, the general public, civil society and the private sector in the fight against marine plastic litter. The campaign will address the root-cause of marine litter by targeting the production and consumption of non-recoverable and single-use plastic. To do this effectively, citizens need to be aware, engaged and active in addressing the problem in their own lives and beyond. The campaign gives a platform to hundreds of local organisations who are already doing important work on marine litter to highlight their efforts. By connecting individuals, civil society groups, industry and governments, UN Environment aims to transform habits, practices, standards and policies around the globe to dramatically reduce marine litter and the harm it causes. The website of the campaign (www.cleans seas.org) contains a set of useful infographics.

Marlisco project

MARLISCO, MARine Litter in Europe Seas: Social Awareness and CO-Responsibility, is an EU sponsored project with partners in 15 coastal countries. Its goal is to raise public awareness, facilitate dialogue and promote co-responsibility among the different actors towards a joint vision for the sustainable management of marine litter across all European seas. With the development of innovative mechanisms and tools, MARLISCO aims to effectively engage, inform and empower society, reaching the widest possible audience. Its activities include a scoping study of the sources and trends regarding marine litter in each Regional Sea, a collection of best practices from all partner countries, a survey on the prevailing perceptions and attitudes of different stakeholders, a European video contest for youngsters, national debates in 12 partner countries, and diversified, tailor-made national activities including exhibitions, workshops, festivals, clean ups, etc. The website, www.marlisco.eu, contains downloadable educational material about marine litter.

EU Horizon 2020 project ResponSEAbLe

The EU sponsored Horizon 2020 project ResponSEAbLe aims at developing (cost)-effective Ocean Literacy (OL) products about several themes, called key-stories, for a variety of target groups. The key-stories include microplastics from consumer products, marine renewable resources, invasive species, and sustainable fisheries.

As a project partner in ResponSEable, the ProSea Foundation is developing seven OL tools for the key stories sustainable fisheries, and, translation and further development of the original Dutch program for sustainable fisheries education at fishing academies. The results of ResponSEable provide building blocks for the implementation process of sustainable fishing training at fishing academies. More information about the project and the OL tools that are being developed can be found on the website www.responseable.eu.

2.7. RAP Action 58

As the lead Contracting Party for RAP Action 58, the Netherlands has worked with the ProSea Foundation on the implementation of sustainable fishing education in OSPAR countries. A quick survey was conducted to get an impression of current education of fishers in OSPAR countries, an information package was developed, and a detailed proposal to develop and test sustainable fishing education courses and materials in (a selection of) OSPAR countries was written.

This proposal focusses on enhancing sustainable fishing education at fishing academies in the OSPAR region with the aim to empower (future) fishers to protect fish stocks and the sea environment for future generations. The training course aims to help future fishers find a balance between planet (environmental challenges), profit (economic viability), and people (acceptance of your business by society – a license to operate) in shaping their sustainable and successful businesses. The proposal enhances the international sharing of experience with respect to (sustainable fishing) education, given the special challenges of the target group of fishery students, and the building of an international network of fishery schools, to exchange experiences, ideas and materials, to continuously improve the quality of fishery education in the OSPAR/EU countries.

The proposal was presented at meetings of the Intersessional Correspondence Group on Marine Litter (ICG-ML) in May 2017 and November 2017. Individual countries were asked to consider participation and (financial) support of the proposal. Belgium, UK, Denmark and Spain have shown interest in the proposal, and a first pilot course has been conducted in San Sebastian in Spain in February 2018. In addition, the Belgium government has confirmed that they will make funds available for a pilot course and a funding request has been submitted to a private fund in Denmark. More pilot courses are expected to take place in 2018.

3. Conclusions

Sustainable fishing training empowers (future) fishers to understand better what is happening in/around their sector and to protect fish stocks and the marine environment for future generations. Sustainable fishing trainings aim to help future fishers find a balance between planet (environmental challenges), profit (economic viability), and people (acceptance of your business by society – a license to operate) in shaping their businesses. It is important that the course inspires the students, since they will have to choose to use the course content to become a more successful and more sustainable fisher.

Based on the quick survey, and the extensive experiences of the ProSea Foundation, it can be concluded that whilst all schools include some elements of sustainable fishing and marine litter as part of their curriculum, sustainability (People, Planet, Profit) is not structurally implemented as a separate theme in the curricula of fishery education in any OSPAR country other than The Netherlands.

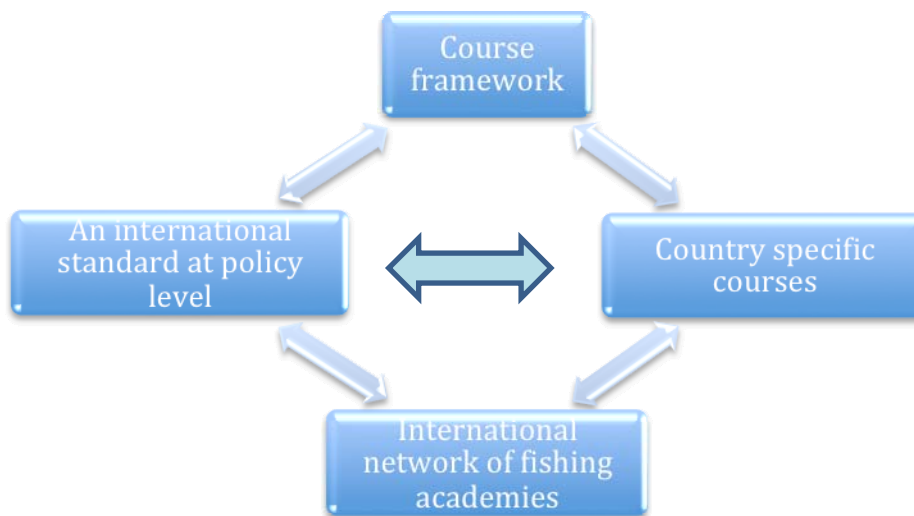
However, because of the specifics of the regional/local fishing sector, e.g. local context and ecology, language and culture, the conclusion can be made that unlike the sustainable shipping course (IMO Model course 1.38), country specific courses are necessary. Therefore, for OSPAR wide implementation (embedding) of sustainable fishing courses to be successful, courses should be tailored to suit the relevant specific regional/local requirements.

4. Proposal

This background document sets out a clear step-wise approach for the development and structural embedding of sustainable fishing training at fishing academies in OSPAR countries. A possible OSPAR recommendation to achieve this could have the form of a universal implementation framework, which can include a course framework, an international network of fishing academies and an international standard at policy level. With this implementation framework sustainable fishing training can be successfully adjusted to regional/local (circumstances) specifics and therefore successfully be embedded in the curriculum of fishing schools in the OSPAR Region.

4.1. Key elements of the implementation strategy

This chapter describes the set-up of the envisioned implementation strategy. Inspired by the implementation of the shipping courses, the implementation of sustainable fishing training in OSPAR countries could consist of four key elements.



These four elements complement each other to form the implementation framework for sustainable fishing training in OSPAR countries. The illustration above represents the interconnectedness of the different elements, and represents an interactive process, where the different elements inspire each other and happen simultaneously. There will be continuous interaction between the country specific courses and the international standard to ensure a realistic/effective international standard on one hand and sufficiently similar country specific courses of high quality.

- The course framework (section 4.2) describes course objectives, target groups, content and a time schedule that can be used as a starting point for the implementation process and serves as the basis for customising to the regional/local situation. It is based on the experiences of the ProSea Foundation in the Netherlands, combined with the knowledge of sustainable training aspects from school curricula from other OSPAR countries and the ‘on the ground’ experience of international fishery school teachers (and other relevant experts).
- Using the course framework as a basis, country specific courses (section 4.3) will be developed for as many countries as possible. In close cooperation with a network of partners, the course should be adjusted for the specifics of the fishing sector, regional/local context and ecology, language and culture.
- An international network of fishing academies (section 4.4) that brings together experiences with the implementation in the separate countries could be very helpful and add to the effectiveness and quality of international sustainable fisheries education. This network could serve as a sounding board and support for teachers that are working on the inclusion of sustainable fishing in their own curriculum. However, setting up an

international network is only reasonable if enough countries participate. It is not essential to develop this in parallel with the other key elements.

- The experiences from separate countries, brought together in the international network of fishing academies, serve as a firm foundation for the more formal setting of an international standard for sustainable fishing training at the policy level (section 4.5) that, in its turn, will also set the standard for a new course framework.

4.2. Course framework

The intended outcome of an implementation process is the introduction of sustainable fishing training at fishing academies in as many OSPAR countries as possible. The successful course in the Netherlands could form the basis for the course framework. The experiences of ProSea with the development and implementation of sustainable shipping courses worldwide (IMO Model course 1.38) and sustainable fishing courses in the Netherlands, combined with the knowledge of sustainable training aspects from school curricula from other OSPAR countries and the 'on the ground' experience of international fishery school teachers (and other relevant experts) are all essential for the development of this framework.

Course Objectives

Every sustainable fishing course has the following main objectives: Those who have successfully completed the course will:

1. realise that commercial fishing is much more than catching as many fish as possible;
2. realise that working towards sustainable fishing is an important part of a successful fishing sector now and in the future;
3. be able to demonstrate knowledge and understanding of several aspects of sustainable fishing, including but not limited to:
 - marine ecology,
 - fishing economics and entrepreneurship,
 - the fish supply chain,
 - fishery management,
 - environmental challenges (oil, solid waste (marine Litter) and air emissions),
 - reputation and societal acceptance;
4. realise that the modern fishers profession involves interaction with other fishers and with the world surrounding the fishing sector;
5. be able to demonstrate basic communication skills;
6. understand the importance of a positive reputation of the fishing sector;
7. be able to point out (some) personal responsibilities and activities that have a positive influence on (different aspects of) a sustainable fishing company and sector.

Target group

The course is designed for (future) fishers at fishing academies and other relevant actors in local context (e.g. on shore vessel support in Ireland). The maximum number of course participants in the course should depend on course setup and the facilities and equipment available, bearing in mind the aims and objectives of this course.

Course outline and timetable

The course could include an outline and timetable as shown below. This outline is based upon the ProSea Foundation's experiences in the Netherlands.

Day 1: Sustainability, the Sea (theory and practice)

Time	Activity
9.00	Introduction Sustainable Fishing – 3 P's of sustainability (People, Planet, Profit)
09.30	Group assignment (TOP 5)
10.00	Group assignment (TOP 5)
10.30	Break
10.45	Marine Ecology or ... how does the sea work? Special regional/local areas
12.00	Lunch
13.00	Excursion to local 'sea area'
16.00	End of day 1

Day 2: Fishing economy (profit P) and Societal acceptance (People P)

Time	Activity
9.00	The fishing fleet in my country
10.15	Break
10.30	Profit P <ul style="list-style-type: none"> – Fishing as a business (making money) – The fish chain – Economy and sustainability
12.00	Lunch
13.00	Profit P – part 2
14.00	People P <ul style="list-style-type: none"> - Societal acceptance - Image of fishing
16:00	End of day 2

Day 3 – Fisheries Management (Planet P), Communication (People P)

Time	Activity
9:00	Fisheries management <ul style="list-style-type: none"> - Who owns the fish? - About fishing effort, mesh size, catch rates - Fishing management - Fish stock assessment
10.30	Break
10.45	Fisheries management – part 2
12:00	Lunch
13.00	PEOPLE P <ul style="list-style-type: none"> – Communication
16.00	End of day 3

Day 4 - Environment (Planet P), marine litter workshop, Final workshop

Time	Activity
9.00	Environmental challenges <ul style="list-style-type: none"> - Climate change and other air emissions - Oil and marine litter
10.30	Break
10.45	Workshop – marine litter solutions
12.00	Lunch
13.00	<i>Back to the future</i> – close out workshop
15.00	Group presentations
16.00	End of course

4.3. Country specific courses

To be able to substantiate this framework on international experiences, pilots are needed. Pilot courses must be conducted at fishing academies, when possible combined with ‘Train the Trainer’ programs³.

The experiences gained will help implementing sustainable fishing as a structural element in the school curriculum. After these programs, the schools should be able to take the lead in implementing the training (or elements of the training) in their own curriculum. In every country that participates, the intended outcomes are:

- Set up of a network of partners;
- Development of a custom-made sustainable fishing course for students of fishing academies, based on regional/local circumstances;
- A pilot course for fishing students and their teachers;
- Inspired teachers that are facilitated to take over the sustainable fishing course through:
 - a network of local partners,
 - a ‘Train the Trainer’ program for teachers, and,
 - a set of educational materials made available for teachers.

Local partners are essential

An important aspect of the implementation process is the building of a network in every country involved. It is essential to have a good overview of, and connections with, a wide range of partners, including:

- Fishing academies;
- Fishing organisations;
- Scientific institutes or research projects;
- Non-government organisations (NGO); and
- Policymakers/government.

Partners are essential for building support in the fishing academies and fishing community, for financial support of the program, and for help in customising the course content to the regional/local situation and/or the delivery of the pilot course. Ultimately, to achieve results in the long run, the local network will have to adopt the courses. Local fishing

³ Possibility to ask ProSea to help with their extensive experience after the implementation framework is development

communities need to hear and learn the new and sometimes challenging information in their own language with people who share, or at least partially share, their own culture.

Tailor course to regional/local community needs

Some parts of the sustainable fishing course will be the same in every country, others will have to be customised to the regional/local situation, some might already be available and in use at the fishing academies. An important aspect of the implementation process is to work with the local partners to determine which aspects of the current course are applicable in their specific country or region, and work on a custom-made course that is applicable to their situation.

The following course elements will likely have to be customised:

- Marine ecology – local knowledge and excursion;
- The fishing fleet;
- Profit P, fishing economy and regional/local fish supply chain;
- Fisheries management; and
- Communication training.

Conduct pilot course(s)

The organisation of a pilot course would include preparation, course delivery and evaluation.

Preparation of a pilot course includes:

- Select course site(s), preferably at a fishing academy;
- Writing course program and detailed time schedule;
- Select speakers and workshop leaders;
- Organise logistics, accommodation and catering (hotel, catering, transport);
- Bring in participants from fishing academies (students and teachers); and
- Produce program materials (lectures, reader, worksheets).

Planning a course in a specific country will depend on the progress of the network and possibilities that arise through the network.

The sustainable fishing course for fishing academies is a three or four-day course, conducted by two course leaders, in close cooperation with local speakers and experts. The maximum number of participants is 30. The ideal course is a mix of plenary sessions, workshops, question and answer sessions, lectures, discussions, simulations and outdoor activities. The course language should be determined as appropriate in the regional/local circumstances.

Every course will be evaluated by means of an evaluation form that is filled out by all participants. This evaluation will give insight into the quality of the course and will help to improve the next course. In addition, all courses will be subject to an evaluation from teachers, experts and local partners.

Based upon these pilots courses the course framework can be made to allow adjustments to regional/local specifics without changing the outcomes of the course.

Structural embedding of the training

The partner network will determine the best way to structurally set up the training in the country or region. This will include supplying educational materials, and 'Train the Trainer' programmes, and will enable local teachers/lecturers to carry out the courses themselves so that the partner country will eventually take over the training altogether.

A comprehensive package of educational materials (lectures, worksheets, animations, short films) will be compiled and given to the teachers and local partners. This will help them to embed the content into their school curriculum. Teachers may choose to use the materials to conduct the course in three or four days, they may also opt to include elements of the course at different moments in the school program.

During a 'Train the Trainer' session with teachers and local partners the weaknesses, strengths, and possible improvements of the course will be discussed. Through this, challenges for future trainers will be identified. The aim of this 'Train the Trainer' programme is to enable and empower the teachers and local partners to organise the course by themselves.

4.4. International network of fishing academies

During the implementation process in OSPAR countries, the possibility of setting up an international network of teachers and fishing academies will be explored. This network would bring experiences of implementation in each country together and would serve as a sounding board and support for teachers who are working on the inclusion of sustainable fishing in their own curriculum. It could include a website, background documents, exchanging ideas, materials and lesson plans, and teachers could share challenges and successes. However, this international network would only be successful if enough countries participate in the implementation process.

4.5. An international standard at the policy level

The implementation process in each participating country, combined with the exchange of experiences in the international network of fishing academies, will provide valuable insight in to what sustainable fishing means on an overarching and international level. This insight would serve as a firm foundation for the more formal setting of an international standard for sustainable fishing training at the policy level. This could take the shape of an OSPAR Recommendation or an IMO model course.

This element of the implementation process involves different actors than the elements described in sections 4.2, 4.3 and 4.4. Where these elements mainly involve fishing academies (namely their teachers and content experts at the national level), the setting of an international standard involves actors with interest, skills and position to influence and set policy at the international level. This initiative could be coordinated with existing initiatives to document safety/sustainability education in fishing and implement this as a standard in STCW-F, and should involve partners like the EU, FISH platform, Europêche and OSPAR.

5. Recommendations for OSPAR

OSPAR is asked to take note of and adopt the Background Document on RAP-ML Action 58. Furthermore all Contracting Parties are asked to assist in the development of the implementation framework including a course framework and network of partners, by considering participation in pilots projects and finding a delegation for the network of fishing academies partners, and to adopt this framework in the form of a Recommendation at EIHA 2019 to structurally imbed the implementation of sustainable fishing education in the OSPAR Maritime Area.

6. References

IMO model course 1.38 Marine Environmental Awareness

Regional Action Plan for Prevention and Management of Marine Litter in the North-East Atlantic. OSPAR Commission, 2014.



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**OSPAR's vision is of a clean, healthy and biologically diverse
North-East Atlantic used sustainably**

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