

# Catching THE Potential

## D5.1 International standard

### Sustainable fisheries training standard

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## TERMS AND ABBREVIATIONS

In the context of this WP5-report, the following terms and abbreviations are used:

**CFP:** Common Fisheries Policy

**CTP:** Catching the Potential project

**EU:** European Union

**FAO:** Food and Agriculture Organization

**Fisher** (plural fishers): Every person employed or engaged in any capacity or carrying out an occupation on board any fishing vessel, including persons working on board who are paid based on a share of the catch, but excluding pilots, naval personnel, other persons in the permanent service of a government, shore-based persons carrying out work aboard a fishing vessel and fisheries observers

**ILO:** International Labour Organization

**IMO:** International Maritime Organization

**ITF:** International Transport Workers' Federation

**MARPOL:** International Convention for the Prevention of Pollution from Ships

**MSY:** The highest theoretical equilibrium yield that can be continuously taken on average from a stock under existing average environmental conditions without significantly affecting the reproduction process

**STCW-F:** The International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel, 1995

**Sustainable development:** Development that meets the needs of the present without compromising the ability of future generations to meet their own needs

**Sustainable fisheries:** The CFP shall ensure that fishing and aquaculture activities are environmentally sustainable in the long-term and are managed in a way that is consistent with the objectives of achieving economic, social and employment benefits, and of contributing to the availability of food supplies



**Sustainable fisheries training:** All trainings, courses, workshops, and other educational programs that give participants knowledge and understanding of (the importance and the implementation of) sustainable fisheries. These programs enable fishers to gain understanding of the importance of social aspects of fishing and acceptance of a business by society (People), marine environment, environmental challenges, and fisheries management (Planet) and economic viability (Profit), and inspires them to contribute to a responsible, sustainable, and successful fishing industry

**TAC:** Total Allowable Catch

**WP:** Work Package – the work carried out by the CTP project is divided in seven Work Packages



# Document 1: Training standard

## INTRODUCTION

For the fishing industry to develop sustainably, fishers need competences, skills, and knowledge about sustainable fisheries.

The need for training about sustainable fisheries 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, competition with farmed fish products on the market, import of fish from other countries and even continents, and a higher demand for responsible and sustainable fish products. In addition, our seas are used for more activities than fishing, so fishing must compete for space. Also, in many countries, the fishing industry itself has experienced large changes in the past decades, such as new fishing techniques and more market-focused thinking. To continue to successfully operate in a changing society and the changing fishing industry, competences of those working in the industry need to evolve and grow.

The Catching the Potential project (CTP) recognized the need for sustainable fisheries training of fishers in the EU. Its main objective was to work together with partners across the EU to develop a standard for sustainable fisheries training for the EU and, to start the implementation of this standard.

This report describes the development process and the resulting EU standard for sustainable fisheries training, as developed in the CTP project.

## SET UP OF THIS DOCUMENT

This document describes the CTP-standard for sustainable fisheries training for all fishers in the EU. It is based on the requirements as described in the tables from the STCW-F Convention from the International Maritime Organization (see attachment 1) and combines these with the experiences and lessons learned in the CTP project. This has resulted in a program that satisfies the mandatory STCW-F requirements in



an attractive training that prepares fishers to participate in the sustainable development of the fishing industry.

The description of the standard is divided in five parts:

PART I –Lessons learned from CTP activities

PART II – The training framework

PART III – Training outline and timetable

Part IV – Detailed teaching syllabus

Part V - Add-ons for specific groups of fishers

## LESSONS LEARNED FROM CTP ACTIVITIES

### DESK STUDY

At the start of the project, CTP started with a desk study to gather information about sustainable fisheries training for fishers, including the identification of best practices in sustainability training of fishers in EU countries and identification of elements on sustainable fisheries in existing instruments and guidelines. The desk study showed that several countries provide training on various aspects of sustainable fisheries to fishers, but it also showed that the ProSea training ‘Fishing with a Future’ offered the most holistic approach to sustainable fisheries training. The desk study also revealed that some additional topics should be added to this training, mainly on social sustainability topics such as fair wages, safe working environment, slavery, and corruption.

### PILOT TRAININGS

With the results from the desk study in mind, CTP decided to use the educational materials from the ‘Fishing with a Future’ training as a starting point for the development of the pilot trainings and to add the additional topics to the content.

This base set of material was translated, and local content was added for the pilot trainings in Greece, Latvia, Germany, France, Spain, Ireland, and the Azores.



Together, the pilot trainings offered valuable insights into what sustainable fisheries training for fishers means on an overarching level. Overall, the CTP starting point materials and training approach used worked very well. All subjects are relevant for a wide range of fishers, from fishers on larger trawlers that are at sea for a week or more at a time, to small-scale fishers that work alone on small vessels. Several lessons learned in the different pilots were considered when writing the CTP-standard. In addition to the summary of these lessons learned below, they are included in the standard and the trainers manual as text boxes when relevant for the specific content.

### **Customizing the training**

- It is essential to customize the training to reflect the reality of the local situation (fishing fleet, supply chain, marine environment), so it is easier for participants to understand and to identify with the content.
- It is a challenge to customize the training – the aim is to keep the general content and approach and put that in the context of the local situation. One risk is that customizing simply means adding more (local) content, another is that too much of the original content is cut. It is important to keep in mind that (1) the training still reflects the training objectives and content as intended and as indicated by the STCW-F Convention, and (2) that the content is presented in such a way that participants can identify with the training, including by adding local examples.
- The training needs to be adjusted to fit with the target group. This includes language, cultural aspects, and comprehension level/experience.
- All parts of the training are included for a reason. Trainers and teachers should be aware of this and have good reasons to discard or change parts of the training.

### **Participants**

- Having a mixed group of participants (new entrants and experienced fishers) resulted in having good discussions and on bringing forward different perspectives.

### **Local network**

- In many countries, sustainable fisheries training was not included in the curriculum of the fishers. This indicates a gap in the training and education of





fishers. However, teachers and trainers are keen to include sustainable fisheries training, but do not have the resources or knowledge to do so.

- Building local networks can support and facilitate the training. This may include involving the fishing industry, fishing/maritime academies, fish supply chain, scientific institutes, and NGO's.

### **Skills of a trainer**

- It is effective to bring in external trainers that have experience with training fishers and speak the language of the fishers.
- The objective of the training is to involve fishers in the concept of sustainable fisheries and inspire them to include it in their own thinking and their (future) career in fisheries. The job of the trainer is to make the participants think about the subjects, even if that means that they are critical of the content. It is the job of the trainer to share information and examples, NOT to disagree and discuss with individual participants.

### **Length of the training**

- Sustainable fisheries training cannot be done in one day. It is not possible to cover all the subjects in enough detail in one day and address local examples. This creates the risk that there is no time to have a more in-depth discussion on sensitive topics and that content must be simplified too much. This diminishes the ability of participants to engage with the subject of sustainable fisheries and to form and share their opinions and ideas.

### **Objectives and approach**

- It should be very clear that the main objective of the CTP training standard is to give a broad view of the concept of sustainability. In the description of the individual parts, it should be made very clear how the individual parts of the training tie back to the overall theme of the training, to sustainable fisheries, and to the Triple P concept. In addition, it also needs to be clear that the objective of the CTP training standard is to involve fishers in the concept of sustainable fisheries and inspire them to include it in their own thinking and their (future) career in fisheries.
- It is important to be clear about the objectives of the training and to create the right expectations. In a training for stakeholders, some participants complained that there was not enough nuance and detail in the training, but by doing so they



reason from their own level of expertise, level of education, and their wishes and needs and not necessarily from the actual target group.

- The training needs to find a balance between theoretical content and interaction. The content is important to raise the knowledge level of the participants, but the interactive part gives the participants the possibility to talk about that content with peers and to connect that knowledge to their own circumstances. It is important to realize that active participation is not always common in our educational system. When possible, theoretical content could be reduced in favour of more interaction. The pilot training in the different countries showed that some participants are reluctant to participate in the (inter)active sessions, in every pilot it resulted in a better understanding of the subject, despite the different cultural backgrounds of participants.

### **About specific subjects**

- In France, the fisheries economics lecture triggered discussions about ‘small-scale vs. large-scale fisheries’ and ‘the unfair display between various fishing methods’. Social innovation, equality, a more local focus, and aiming for low-tech solutions rather than a strong focus on capital-intensive technological innovation were considered as important topics when talking about the sustainable future of the fishing industry in France. This makes it very clear that the way a society looks at fishing as a profession is crucial to consider when developing a sustainable fisheries training.
- The part in the fisheries management lecture on ‘fair division of fishing rights’ was a sensitive topic in Ireland. It led to interesting discussions on what is ‘fair’. Should it only be based on historic rights? Or should also be looked at other factors like importance of resource to coastal communities, the sustainability performance of the fisher or the entire fleet of a particular country. There is no ‘right’ or ‘wrong’ answer here, but it might be good to elaborate a bit more during the training on what participants consider ‘fair’ so that they can at least speak their minds and enable the trainer to prepare other perspectives.
- Participants in Ireland did express the feeling of not being heard in the policymaking process. Often, they come across regulations that are ‘unfair’ or ‘unclear’ in their perspective, but they feel powerless to address this. In their eyes things become political quickly and leave little room for discussion. They would like to learn more on how they can let their voice be heard and become involved in the policymaking process.



- In Greece, participants have a few local challenges such as the relation between fishers and dolphins. This is an interesting subject or example to explain parts of the training like fishing and society. It is a good idea to give more attention to this subject and get some scientific data to back up this part of the training.

## STCW-F CONVENTION INCLUSION

The STCW-F Convention from the International Maritime Organization (IMO) is a binding treaty that sets certification and minimum training requirements for crews of seagoing fishing vessels with the aim to promote the safety of life at sea and the protection of the marine environment. The STCW-F Convention and the STCW-F Code are considered the global standard for the training and certification of fishers.

The STCW-F Convention and Code have been under review by the IMO during the CTP project. CTP and its partners ProSea, PFA and Europêche have been consulting with the Dutch government, FAO, ITF, and the IMO to include (aspects of) sustainable fisheries in the proposed text for the revised STCW-F Convention. The revised STCW-F Convention is expected to enter into force in 2024.

The expected text with references to aspects of sustainable fisheries in the revised STCW-F Convention is included in attachment 1. The CTP-standard on sustainable fisheries training is based on the revised STCW-F Convention and Code.

## SECOND SEMINAR EDUCATORS NETWORK

The CTP-standard was discussed by the CTP educators' network at the second Catching the Potential Seminar on the 23rd of May 2023. All CTP project partners were represented. In addition, various fisheries educators from the Netherlands were present, as well as MATER, an organisation from Basque Country identified from the best practices (WP2). All participants had participated in at least one pilot training in their country.

The CTP-standard was discussed in two parts. First, the development of the standard, the structure and the main points were presented and discussed in a plenary session. After that, participants worked together in groups to discuss parts of the standard and make suggestions for improvements, guided by a set of questions.



## Questions:

- Share your experiences with this part of the training in your country.
- Discuss the learning objectives:
  - Do they cover the content well enough?
  - Will you be able to achieve these with 'your' training?
  - Any changes recommended? Additions? Text changes?
- Should we include anything else in the CTP-standard for 'new' teachers? (in addition to these detailed objectives, the teachers' manual and the PowerPoint presentation)
- Select one group member to share the main points of your conversation in the plenary session later today.

Overall, the standard was received well with several suggestions made to improve it, especially regarding the manual for teachers. The main feedback points for the standard were:

- To further adapt current lectures to the reality of different countries by using local examples and initiatives.
- To organize more excursions and opportunities to showcase examples in real life rather than digitally.
- To further discuss the relations aboard fishing vessels and how good leadership and crew management can lead to more sustainable fishing practices.
- To discuss the personal role and responsibility of the fishers in their practice, such as the recycling of fishing gear.
- To add more details to the trainers manual to facilitate the training execution for trainers who have not priorly witnessed sustainable fisheries training.

## PART I: CTP-STANDARD - FRAMEWORK

This part of the document describes the framework of the CTP-standard for sustainable fisheries training. It includes a description of the target group and the general objectives, scope, and instructor/teacher requirements. It also describes the importance of customizing the training to the local situation and target group.



## TARGET GROUP AND GENERAL OBJECTIVES

### Lessons learned from the pilots:

- It should be very clear that the main objective of the CTP training standard is to give a broad view of the concept of sustainability. In the description of the individual parts, it should be made very clear how the individual parts of the training tie back to the overall theme of the training, to sustainable fisheries, and to the Triple P concept. In addition, the CTP-standard also needs to make clear that the objective of the training is to involve fishers in the concept of sustainable fisheries and inspire them to include it in their own thinking and their (future) career in fisheries.
- It is important to be clear about the objectives of the training and to create the right expectations. In a training for stakeholders, some participants complained that there was not enough nuance and detail in the training, but by doing so they reason from their own level of expertise, level of education, and their wishes and needs and not necessarily from the actual target group.

The target group for sustainable fisheries training in the EU comprises of all fishers (both active fishers and future fishers), regardless of vessel size, type of fishing technique, position on board, and region.

The CTP-standard on sustainable fisheries training is to give a broad view of sustainable fisheries, to involve fishers in the concept of sustainable fisheries, and inspire them to include it in their own thinking and their (future) career in fisheries.

Those who have successfully completed the training will be able to demonstrate knowledge and understanding of the importance of sustainable development of the fishing industry. This knowledge and understanding shall include, but is not limited to the following topics:

- Concept of sustainable fishing
- Complexity and diversity of the marine environment
- Impact of fishing on the environment
- International instruments concerning protection of the marine environment, fisheries management, and responsible fisheries.



- Personal responsibilities and activities that have a positive influence on the sustainable development of a fishing company and industry.
- Communication with other fishers and with the world surrounding the fishing industry.

Those who have successfully completed the training shall demonstrate the intention to:

- Fully observe procedures and ensure compliance with requirements for environmental protection.
- Act to work towards sustainable development of the fishing industry and to ensure a positive environmental reputation of fishing.

## SCOPE

### Lessons learned from the training pilots:

- In many countries, sustainable fisheries training was not included in the curriculum of the fishers. This indicates a gap in the training and education of fishers. However, teachers and trainers are keen to include sustainable fisheries training, but do not have the resources or knowledge to do so.

The purpose of the CTP-standard is to inspire and assist EU Member States, fishing/maritime academies and training institutes, their teaching staff, and other experts to introduce and implement sustainable fisheries training for all fishers (both active fishers and future fishers) with the goal to implement this as a structural element in the training of fishers in the EU.

The CTP-standard specifically focuses on the contribution of the human element in fishing and is intended to educate, stimulate, and empower fishers to contribute to a more sustainable fishing industry. The content of the training is largely based on the mandatory requirements in the STCW-F Code (Part A) under the function: 'Controlling the operation of a ship and care for persons on board at the operational level.

- Competence 'ensure compliance with prevention pollution requirements and the protection of the marine environment' (chapter II).
- Competence 'monitor compliance with legislative requirements' (chapter II).



- Competence ‘take precautions to prevent pollution of the marine environment’ (basic training, chapter III).

In addition, part B of the STCW-F Code describes additional voluntary requirements regarding sustainable fisheries training. Based on the experiences with sustainable fisheries in the CTP-project, some of these requirements have also been included in the CTP-standard.

## ENTRY STANDARDS

The training is designed for all fishers and only requires background in or motivation to work in the fishing industry.

## TRAINING GROUP SIZE

### Lessons learned from the training pilots:

- Having a mixed group of participants (new entrants and experienced fishers) resulted in having good discussions and on bringing forward different perspectives.

The sustainable fisheries training comprises of a wide variety of teaching methods, including interactive lectures, workshops, group assignments, games, and group presentations. To ensure effective sharing of information and exchange of opinions, the group size should be between 4 and 25 participants.

Making sure that the training is attended by a mixing group of participants with different types of fishers or different levels of experience will enhance the exchange of opinions and lead to bringing forward different perspectives that all participants may benefit from.

For the assignments and workshops, the participants work in smaller groups. These groups should be between 4 and 8 participants.

## TRAINING CERTIFICATE

On successful completion of the training, a certificate should be issued to the participant. Alternatively, in case the contents are part of the school curriculum, it



should be reflected on the transcript of records or grade sheet that the participant has completed the sustainable fisheries training.

During the implementation of the CTP-standard in the EU and in individual countries, CTP will engage in conversation to highlight the benefits of an official recognition of the training by the EU and/or national training requirements.

## REQUIREMENTS FOR THE TEACHER/TRAINER

### Lessons learned from the pilots:

- It is effective to bring in external trainers that have experience with training fishers and speak the language of the fishers.
- The objective of the training is to involve fishers in the concept of sustainable fisheries and inspire them to include it in their own thinking and their (future) career in fisheries. The job of the trainer is to make the participants think about the subjects, even if that means that they are critical of the content. It is the job of the trainer to share information and examples, NOT to disagree and discuss with individual participants.

The trainer in charge shall have experience with working with the target group, has had training and/or equivalent knowledge in the subject matter of this training, or will work together with knowledgeable external experts. This knowledge includes but is not limited to sustainable fisheries, the marine environment, fishing economy, the fish supply chain, fisheries management, communication skills, and environmental aspects of fishing.

The role of the instructor encompasses more than being a lecturer. The instructor in charge should have sufficient knowledge of and/or experience with different teaching methods and techniques, to be able to focus on the process of creating awareness and creating a sense of personal responsibility. The job of the instructor is to make the participants think about the subjects, even if that means that they are critical of the content. It is the job of the instructor to share information and examples, NOT to disagree and discuss with individual participants.





## TRAINING FACILITIES AND EQUIPMENT

For the theoretical part of the training, a classroom equipped with presentation facilities and audio-visual materials is recommended. To facilitate the workshops, space should be available to facilitate group work so groups can work without being influenced or disturbed by other groups. In addition, materials such as flipcharts, PowerPoint presentations combined with an overhead projector or (interactive) whiteboards/tv screen, or any other means of visual presentation should be available to enable groups to present their results.

## THE IMPORTANCE OF CUSTOMIZING THE TRAINING

### Lessons learned from the training pilots:

- It is essential to customize the training to reflect the reality of the local situation (fishing fleet, supply chain, marine environment), so it is easier for participants to understand and to identify with the content.
- It is a challenge to customize the trainings – the aim is to keep the general content and approach and put that in the context of the local situation. One risk is that customizing simply means adding more (local) content, another is that too much of the original content is cut. It is important to keep in mind that (1) the training still reflects the training objectives and content as intended and as indicated by the STCW-F Convention, and (2) that the content is presented in such a way that participants can identify with the training, including by adding local examples.
- The training needs to be adjusted to fit with the target group. This includes language, cultural aspects, and comprehension level/experience.
- All parts of the training are included for a reason. Trainers and teachers should be aware of this and have good reasons to discard or change parts of the training.

The CTP-standard presents the framework and content of sustainability training for all fishers. However, to conduct a successful training it is essential to customize the training to reflect the reality of the local situation (including fishing fleet, supply chain, marine environment, social circumstances), so it is easier for participants to understand and to identify with the content. Customizing means taking the general



CTP-standard as presented in this document and putting that content in the context of the local situation.

Customizing the training is a challenge that requires finding a balance between the general content and approach and adding local examples that are familiar to the participants. It is important to keep in mind that (1) the training still reflects the training objectives and content as intended and as indicated by the STCW-F Code, and (2) that the content is presented in such a way that participants can identify with the training, including by adding local examples. Keep in mind that all parts of the training are included for a reason. Trainers and instructors should be aware of this and have good reasons to discard or change parts of the training.

The training also needs to be adjusted to fit with the target group. This includes language, cultural aspects, and comprehension level/experience.

#### **Lessons learned from the training pilots:**

- Building local networks can support and facilitate the training. This may include involving the fishing sector, fishing/maritime academies, fish supply chain, scientific institutes, and NGO's.

Building local networks can support and facilitate the set-up, customization, and execution of the training. This may include involving the fishing industry, fishing/maritime academies, fish supply chain, scientific institutes, and NGOs.

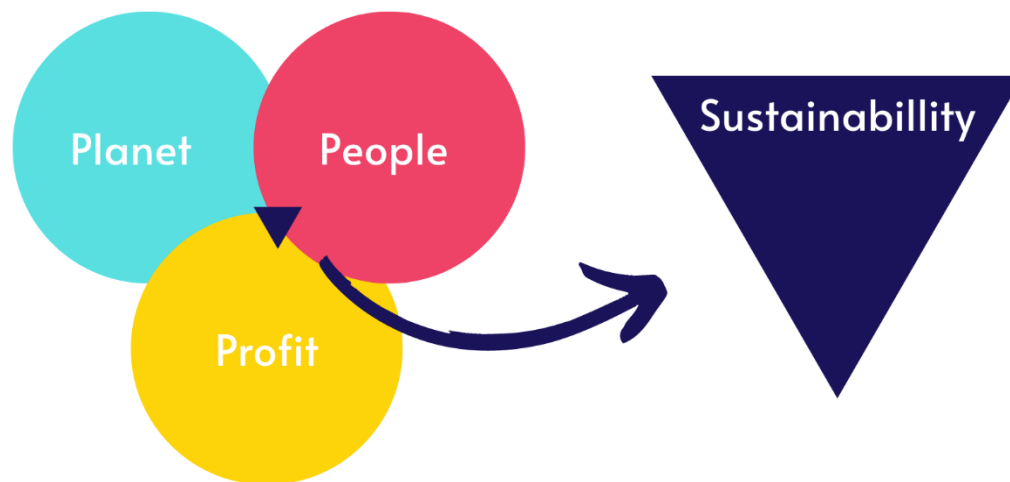


## PART II: CTP-STANDARD - OUTLINE AND TIMETABLE

### Lessons learned from the pilots:

- Sustainable fisheries training cannot be done in one day. It is not possible to cover all the subjects in enough detail in one day and address local examples. This creates the risk that there is no time to have a more in-depth discussion on sensitive topics and that content must be simplified too much. This diminishes the ability of participants to engage with the subject of sustainable fisheries and to form and share their opinions and ideas.

The CTP-standard is an introduction to the concept of sustainable fisheries. This program gets participants acquainted with the general concept of sustainability as a balance between Planet (environmental challenges), Profit (prosperity, economic viability), and People (social and societal aspects). It translates the requirements in the STCW-F Code into an attractive and inspiring training and puts basic knowledge of the impact of shipping and fishing, the prevention of pollution, and the protection of the marine environment in the context of current developments and the importance of a sustainable future for the fishing industry.



The CTP-standard covers a wide variety of subjects related to sustainable fisheries. The following elements should be represented in the training program about sustainable fisheries:

## Introduction to sustainable fisheries

### Planet P



- Marine environment
- Basic marine ecology
- Environmental challenges
- Prevention of pollution
- Fisheries management

### People P



- Social aspects of fishing
- Acceptance by society
- Communication

### Profit P



- Fishing as a business
- Supply chain and market

Sustainable fisheries – opportunities, my role, and responsibilities

The sustainable fisheries training comprises of a wide variety of training methods, including interactive lectures, e-learnings, video's, animations, workshops, group assignments, games, quizzes, and group presentations. These elements combine to an attractive program that takes about 12 hours to complete. The training can be conducted in several ways. Below is an example of a time schedule for a two-day program, but the training can also be conducted in multiple shorter days or combined with e-learning programs.

### Day 1

Time	Activity
0.00	Introduction Sustainable Fisheries – Triple P concept of sustainability (People, Planet, Profit)
0.30	Top 5 group workshop and presentations (opinions about challenges for sustainable fisheries)
1.30	The marine environment and basic marine ecology: How does the sea work?
2.30	<b>Break</b>
3.00	Profit P - the fishing fleet, fishing as a business and the fish supply chain
4.30	People P – introduction
5.00	People P - workshop – fishing and society



6.00	End of day 1
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## Day 2

Time	Activity
0.00	Planet P - Environmental challenges <ul style="list-style-type: none"> <li>- IMO and MARPOL</li> <li>- Climate change and other air emissions</li> <li>- Oil and marine litter, including abandoned, lost or otherwise discarded fishing gear</li> <li>- Prevention of pollution</li> </ul>
2.00	People P - Workshop – the importance of communication
2.45	<b>Lunch</b>
3.15	Planet P – Fisheries management, Common Fisheries Policy (CFP)
4.30	<i>Back to the future</i> – workshop and presentations about solutions, roles, and responsibilities
6.00	End of day 2

## PART III: CTP-STANDARD - DETAILED TRAINING SYLLABUS

The detailed training syllabus has been written in learning objective format. Each objective describes what the participant should be able to do to demonstrate that knowledge and understanding has been transferred and awareness has been achieved. This format is an appropriate training and assessment tool to express:

- the depth of understanding of a subject and the degree of familiarization with the subject on the part of the participant.
- what capabilities the participant should have and be able to demonstrate.

All detailed learning objectives are understood to be prefixed by the words: "After completing this training the participant will be able to ..."



## INTRODUCTION TO SUSTAINABLE FISHERIES

- Explain why the fishing industry works towards sustainable fisheries.
- Relate the specifics of the local fisheries in the area/region, to the general context of sustainable fisheries.
- Define sustainable development as a balance of People, Planet, Profit, where all three P's get sufficient attention (the Triple P concept).
- Name several practical examples of sustainable fisheries (initiatives) in the fishing industry.
- Express an opinion about challenges (problems) for a sustainable fishing industry.
- Relate his/her opinion to other participants.

## MARINE ENVIRONMENT AND BASIC MARINE ECOLOGY

- Describe why the oceans are important for all people worldwide, including production of food, climate, and oxygen.
- Describe basic principles of marine ecology and the production of fish.
- Explain the role of phytoplankton as the primary producer (photosynthesis).
- Give an example of a food chain with phytoplankton at the base.
- Explain that food chains are connected in food webs.
- Describe how all large sea life, including fish, depend on small sea life (phytoplankton, zooplankton, bacteria, and viruses).
- Explain that coastal seas and the open ocean are different, for example in physical circumstances, abundance of marine life, the production of fish, and environmental regulations.

## PLANET P - ENVIRONMENTAL CHALLENGES

- Name the main impacts of fishing on the marine environment and the effects of operational or accidental pollution.
- Describe the environmental impact of oil in the marine environment, including the effects of oil on sea birds and zooplankton.
- Show awareness of the contribution of the fishing industry to plastic pollution, including abandoned, lost or otherwise discarded fishing gear.



- Describe the impacts of plastic waste in the marine environment, including the plastic soup, entanglement, ingestion, and microplastics.
- Show awareness that the climate is changing.
- Describe (potential) impacts of climate change, including effects on temperature, weather events, sea level, the marine environment, and fisheries management.

#### PLANET P - PREVENTION OF POLLUTION

- Name relevant IMO conventions and other international instruments to prevent pollution to the marine environment.
- Describe personal responsibilities to prevent pollution of the marine environment.
- Describe the role fishers can play in decreasing marine litter in the ocean, including proper garbage handling on board and disposal in ports, use of materials, recycling of fishing gear, and participation in the Fishing for Litter program.
- Show awareness of the importance of pro-active measures to protect the marine environment.

#### PLANET P - FISHERIES MANAGEMENT

- Define fisheries management.
- Explain why fisheries management is needed.
- Name relevant international instruments concerning the responsible conservation, fishing management, responsible fisheries, and development of living aquatic resources as well as key international instruments related to the fight against illegal, unreported, and unregulated (IUU) fishing.
- Realize that rules for fishing are not only made in one country, but in a European context (and often stem from international conventions and declarations).
- Describe the different roles of scientists, governments, fishers, and NGOs in fisheries management.
- Describe central themes of the Common Fisheries Policy from the EU, such as technical measures, closed areas, fish stock assessment, Maximum Sustainable Yield (MSY), and the landing obligation.
- Show awareness of possible challenges that arise with fishing activities and protected animals present in the area.



## PROFIT P

- Appreciate that the Profit P is part of sustainable fisheries.
- Realize that making money as a fisher does not only depend on the number of fish you catch.
- Describe the size of the fishing fleet in his/her country/region.
- Explain the economics of fishing in general, including all costs and proceeds associated with operating a fishing vessel and/or company.
- Explain the steps in the fish supply chain (the way fish travels from fishers to consumers).
- Explain how being a fishing entrepreneur is different from being 'just' a fisher.

## PEOPLE P

- Realize that the People P is part of sustainable fisheries.
- Describe the ILO Work in Fishing convention which sets standards for decent working conditions in the fishing industry.
- Describe what your rights are as a fisher.
- Acknowledge that many players (stakeholders) are interested in the fishing industry, including governments, NGOs, and consumers.
- Describe his/her opinion of (the importance of) the reputation or image of the fishing industry.
- Realize the importance of communication with other fishers, stakeholders outside the industry and consumers.

## SUSTAINABLE FISHERIES – OPPORTUNITIES, MY ROLE AND RESPONSIBILITIES

- Express ideas about the (sustainable) future of the fishing industry.
- Show awareness of personal responsibility towards the marine environment.

## PART IV: ADD-ONS - PLANET, PROFIT, PEOPLE

The CTP-standard is set up as a basic sustainable fishery training for all fishers, young and old, small- or large-scale, independent of the level of education of the





fisher, target species, market strategies, size of fishing vessel, role on board, and fishing company initiatives.

However, not all fishing operations are the same and there are large differences between different EU countries, between fishing industries, fishing vessels, fishing techniques, and between the fishers themselves. Some fishers may need extra information, for example if they are dealing with additional regulations, are working together with scientists or other stakeholders, or are engaged in projects that require extra information or knowledge. For that reason, we present a set of CTP-standard add-ons. These add-ons are focused around one of the three Ps of sustainable fisheries (People, Planet, and Profit) and are directly related to the voluntary parts of the STCW-F requirements.

While implementing the CTP-standard itself, countries may choose to include one or more of these add-ons, or choose to do so in the future.

## PLANET P - FISHERIES MANAGEMENT IN DEPTH

The content of this Planet P add-on can be included in the Fisheries Management part of the CTP-standard and is particularly interesting for fishers that need or want to know more about the background of fisheries management regulations in the Common Fisheries Policy, including the background of technical measures, the landing obligation, and fish stock assessment.

All detailed learning objectives are understood to be prefixed by the words: "After completing this training the participant will be able to ...."

### COMMON FISHERIES POLICY

- Describe the goals of different elements of the Common Fisheries Policy to achieve responsible harvesting practices and the use of responsible fishing gear, including technical measures, closed areas, Maximum Sustainable Yield (MSY), and the ecosystem approach.

### LANDING OBLIGATION

- Recognize the objective of the landing obligation as part of the Common Fisheries Policy.



- Recognize the importance of responsible fishing gear selectivity.

## ROLES OF STAKEHOLDERS

- Describe the roles of scientists and managers in fisheries management.
- Describe how fishers can play an active role in fisheries management policy.

## FISH STOCK ASSESSMENT

- Describe in general terms how data are collected, and fish stocks are assessed.
- Understand that for stock assessment, information from research vessels and from the fishery itself is used.

## PROFIT P – FISHERS ARE ENTREPRENEURS

The content of this add-on can be included in the Profit P part of the CTP-standard and is particularly interesting for entrepreneurs that are looking for opportunities and diversification and/or fishers that are interested in working with partners in the fish supply chain.

All detailed learning objectives are understood to be prefixed by the words: "After completing this training the participant will be able to ...."

- Describe the development of the fishing fleet in the last 10-50 years with regard to size (number of vessels) and engine power.
- Recognize challenges and opportunities of the increase of other activities at sea (Marine Spatial Planning).
- Explain the economic context of (recent) developments in the fishing industry, such as cost reduction and the use of other fishing techniques.
- Identify partners and their roles in the fish supply chain.
- Describe the economics of the supply chain (what determines the price of fish for the consumer).
- Describe ways that fishers can be involved in the fish supply chain.
- Recognize that successful fishers are entrepreneurs.



## PEOPLE P – ILO REGULATIONS

The content of this add-on can be included in the People P part of the CTP-standard and is particularly interesting for countries with large scale fishing operations.

All detailed learning objectives are understood to be prefixed by the words: "After completing this training the participant will be able to ...."

- Describe the general content of the ILO Work in Fishing convention and national legislation concerning safe and humane working conditions in the fishing industry.
- Recognize the importance of fair treatment of fishing vessel personnel, including but not limited to fair wages, safe working conditions, and humane treatment.
- Recognize that social standards are important for (some) supply chain parties and consumers.
- Recognise the role of leadership to guide the crew to sustainable fishing.

## CLOSE OUT

The sustainable fisheries training standard for fishers is one of the results of the Catching the Potential project. This CTP project runs from November 2019 until October 2023 and is funded by the European Maritime and Fisheries Fund Blue Economy call.

The project consortium consists of 10 partners bringing together expertise on sustainable fisheries training (ProSea), the fishing industry (Europêche & PFA) and education/training of fishers (CEFCM-France, Novikontas-Latvia, BBZ-Germany, Enaleia-Greece, BIM-Ireland, CETMAR-Spain, and DRP in combination with EDM-Azores, Portugal).

The description of the CTP training standard gives guidance to the implementation of sustainable fisheries training in European countries and can be used by a variety of target groups. To further facilitate implementation of sustainable fisheries training, a wide range of materials is made available by the CTP project:



1. An 'Implementation protocol' that describes a set of steps to take to implement sustainable fisheries training in a new country or region.
2. A 'Training manual' that provides additional information to instructors and teachers. In this training manual the learning objectives above are connected to a recommended training method and to available materials.
3. 'Training materials', available on request for anyone who wants to teach the training in their own country or region. Because the CTP project has conducted trainings in The Netherlands, Belgium, Germany, Latvia, France, Greece, Spain, Ireland and the Azores, the training materials are available in a wide variety of languages and circumstances.

To realize the structural implementation of the standard, the CTP project advises the European Commission to develop a directive on a minimum standard for sustainable fisheries training.

The CTP partners, the educators' network, and all materials developed are available as resources for anyone that wants to conduct sustainable fisheries training. In addition, the CTP partners have gained valuable experiences with customising the training to new circumstances and situations. Therefore we recommend that anyone interested in implementing the training should contact the project to profit from these experiences and receive guidance on the implementation process.

## ATTACHMENT 1: (EXPECTED) TEXT ABOUT SUSTAINABLE FISHERIES TRAINING IN THE NEW STCW-F CONVENTION

Section A, chapter II, officers in charge of a navigational watch on fishing vessels of 24 metres in length and over operating in unlimited and limited waters (A-II/2 and A-II/4).

Function: Controlling the operation of the vessel and care for persons on board at the operational level.



<p>Ensure compliance with pollution prevention requirements and the protection of the marine environment</p>	<p><i>Prevention of pollution of the marine environment</i></p> <p>Knowledge of the precautions to be observed to prevent pollution of the marine environment</p> <p>Knowledge of the impacts of fishing on the environment including pollution related to abandoned, lost or otherwise discarded fishing gear in the context of annex V to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 thereto, as amended</p> <p>Understanding the importance of proactive measures to protect the marine environment</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training vessel experience</p> <p>.3 approved simulator training, where appropriate</p> <p>.4 approved laboratory equipment training</p>	<p>Procedures for monitoring shipboard operations and ensuring compliance with the requirements of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 thereto, as amended</p>
<p>Monitor compliance with legislative requirements</p>	<p>Basic working knowledge of the relevant IMO conventions and other relevant international instruments concerning safety of life at sea and</p>	<p>Assessment of evidence obtained from examination or approved training</p>	<p>Legislative requirements relating to safety of life at sea and protection of the marine environment are correctly identified</p>



	<p>protection of the marine environment.</p> <p>Basic working knowledge of relevant international instruments concerning the responsible conservation, fishing management, responsible fisheries and development of living aquatic resources as well as key international instruments related to the fight against illegal, unreported and unregulated (IUU) fishing</p> <p>Understanding of the requirements which crews shall comply with</p> <p>Understanding the importance of sustainable development of the fishing industry</p>		
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Section A, chapter II, officers in charge of an engineering watch in a manned engine-room or designated duty engineers in a periodically unmanned engine-room (A-II/5).

Function: Controlling the operation of the vessel and care for persons on board at the operational level.



<p>Ensure compliance with pollution-prevention requirements</p>	<p><i>Prevention of pollution of the marine environment</i></p> <p>Knowledge of the impacts of fishing on the environment</p> <p>Knowledge of the precautions to be taken to prevent pollution of the marine environment</p> <p>Anti-pollution procedures and all associated equipment</p> <p>Understanding the importance of proactive measures to protect the marine environment</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training vessel experience</p> <p>.3 approved training</p>	<p>Procedures for monitoring shipboard operations and ensuring compliance with MARPOL requirements are fully observed</p> <p>Actions to ensure that a positive environmental reputation is maintained</p>
<p>Monitor compliance with legislative requirements</p>	<p>Basic working knowledge of the relevant IMO conventions and other relevant international instruments concerning safety of life at sea and protection of the marine environment</p> <p>Basic working knowledge of relevant international instruments concerning the responsible conservation, fishing</p>	<p>Assessment of evidence obtained from examination or approved training</p>	<p>Legislative requirements relating to safety of life at sea and protection of the marine environment are correctly identified</p>



	<p>management, responsible fisheries and development of living aquatic resources as well as key international instruments related to the fight against illegal, unreported and unregulated (IUU) fishing</p> <p>Understanding of the requirements which crews shall comply with</p> <p>Understanding the importance of sustainable development of the fishing industry</p>		
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Section A, chapter III, basic training for all seafarers (A-III/1-4)

Specification of minimum standard of competence in personal safety and social responsibilities.

Take precautions to prevent pollution of the marine environment	<p>Basic knowledge of the impact of fishing on the marine environment and the effects of operational or accidental pollution on it</p> <p>Basic knowledge of environmental</p>	Assessment of evidence obtained from approved instruction or during attendance at an approved training	<p>Organizational procedures designed to safeguard the marine environment are observed at all times</p> <p>Legislative requirements relating to the protection of the</p>
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	<p>protection procedures</p> <p>Basic knowledge of marine ecology and understanding of the complexity and diversity of the marine environment</p> <p>Basic knowledge of the responsibilities of fishing vessel personnel under the MARPOL Convention with regards to pollution response equipment</p> <p>Recognition and measures to be taken to prevent pollution by abandoned, lost or otherwise discarded fishing gear and fish packing material</p> <p>Basic knowledge of correct disposal of fishing gear and fish packing material</p> <p>Knowledge of the impacts of plastic waste in the marine environment</p> <p>Understanding the scale of the marine plastic litter problem and the</p>		<p>marine environment are correctly identified</p>
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	<p>way the maritime industry contributes to the problem, including the issue of abandoned, lost or otherwise discard fishing gear (ALDFG)</p>		
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Section B, chapter II, guidance regarding the certification of officers in charge of a navigational watch on fishing vessels of 24 metres in length and over operating in unlimited and limited waters, and officers in charge of an engineering watch in a manned engine-room or designated duty engineers in a periodically unmanned engine room of fishing vessels powered by main propulsion machinery of 750 kW.

<p>1. The training regarding sustainable fisheries required in sections A-II/2, A-II/4 and A-II/5 should include the following theoretical and practical knowledge:</p>
<p>1.1. Recognize economic aspects of sustainable fisheries, including:</p>
<p>1.1.1. Knowledge of economic aspects of fishing, including all costs and benefits associated with operating a fishing vessel;</p>
<p>1.1.2. Understanding the position of fishers in the supply chain (the way in which fish travel from vessel to consumers); and</p>
<p>1.1.3. Be able to identify ways to make fishing more economically sustainable.</p>
<p>1.2. Apply fishing management and conservation principles, including understanding:</p>
<p>1.2.1. The need for sustainable management and development of the fishing industry;</p>
<p>1.2.2. The international instruments on fisheries conservation and management and to prevent, deter and eliminate illegal, unreported, and unregulated (IUU) fishing;</p>
<p>1.2.3. The roles of scientists, governments, and competent fisheries management authorities in fisheries management; and</p>



1.2.4. The goals of different elements of fishing management, including responsible harvesting practices and responsible fishing gear/selectivity.
1.3. Recognize the social aspects of sustainable fisheries, including:
1.3.1. Understanding that care for the human element (social equity) and interaction with society (societal acceptance) are part of a sustainable fishing industry;
1.3.2. Understanding the elements of fair treatment of fishing vessel personnel, including but not limited to fair wages, safe working conditions and humane treatment; and
1.3.3. Basic knowledge of relevant ILO conventions and national legislation concerning safe and humane working conditions.

Section B, chapter III, guidance on basic sustainable fisheries training for all fishing vessel personnel (B-III/a)

1. Fishing vessel personnel should, before being assigned to any shipboard duties, receive appropriate approved basic sustainable fisheries training in:
.1 sustainable fisheries;
.2 prevention of pollution of the marine environment; and
.3 efficient use of energy and reduction of air pollution.
Above trainings should cover competences given hereunder.
<b>Define sustainable fisheries</b>
2. Understanding that sustainable development requires a balance of social responsibility (People), care for the environment (Planet) and economic prosperity (Profit).
3. Be able to apply the principles of sustainable development to the fishing industry.
<b>Recognize the ocean as a diverse and valuable environment</b>
4. Understanding the importance of healthy oceans for the fishing industry.



**Prevent plastic pollution to the (marine) environment**

5. Be able to properly handle garbage, as defined in MARPOL Annex V, aboard ships, and the correct disposal in ports.

**Contribute to the efficient use of energy and reduction of air emissions**

6. Knowledge of the impacts of air pollution to the environment.

7. Understanding the urgency of climate change and the way the maritime industry contributes to the problem.

8. Be able to contribute to the efficient use of energy and the reduction of air pollution.

**Ensure a positive reputation of the fishing industry**

9. Understanding the importance of interaction with society, transparency, and accountability to ensure a good reputation and a "license to operate".



# Document 2: Training manual

## INSTRUCTOR MANUAL FOR TRAINERS

This instruction manual describes general training content, notes, and tips on general training didactics for trainers. It starts with general descriptions of the importance of customizing the training, the different training elements included and sections about teaching theory, conducting workshops and methods of evaluation. After these general parts, the manual gives a more detailed description of individual program parts. Finally, in a table at the end, a training manual overview is presented that connects the content to the learning objectives in the CTP-standard.

The manual reflects the views of the training developers with respect to methodology and organization, as well as what they consider important, based on their experience as instructors of this training.

## THE IMPORTANCE OF CUSTOMIZING THE TRAINING

### **Lessons learned from the training pilots:**

- It is essential to customize the training to reflect the reality of the local situation (fishing fleet, supply chain, marine environment), so it is easier for participants to understand and to identify with the content.
- The training needs to be adjusted to fit with the target group. This includes language, cultural aspects, and comprehension level/experience.
- All parts of the training are included for a reason. Trainers and teachers should be aware of this and have good reasons to discard or change parts of the training.

It is essential to recognize that the fishing industry in every European member state is different and unique in many aspects. The guidance given is intended to give the instructor an operational baseline to develop a training that will meet the local requirements and to use the instructor's own experience and ideas. Setting up sustainable fisheries training for fishers in different countries requires the training to



be adjusted to the specific situation for that country or region, and adjusted to education level, language, culture, specifics of the fishing industry and the local environment. This manual is therefore to be used as a starting point and inspiration, and not as a strict blueprint.

For a successful implementation of the sustainability training for fishers it is important to take into consideration that:

- Sustainable fisheries training entails all aspects of sustainability: Planet (environmental challenges), Profit (prosperity, economic viability), and People (social and societal aspects – license to operate).
- The fishing industry is regional/local and often unique. Even within a country, there can be a wide variety of fishing methods and regional/local circumstances. Developing a training for the fishing industry means that all those subjects need to be customized and adjusted to not just national, but regional/local circumstances. Therefore, there should be a region-specific aspect to the design of the training program.
- 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 into account.
- Traditionally, the relationship between fishers and external stakeholders like environmental organizations has been difficult. Implementing a training about sustainable fisheries requires a thorough process that is based on respect for their profession, building trust and staying away from blaming, as much as, transferring training content. It is important that the training inspires the participants to take up their own role.
- The level of training and education of fishers is often limited to high school and/or vocational training, and they may speak limited or no English. This has important implications for the training that includes new and conceptual subjects like fish stock management or economics. The training language needs to be their native language, and the information level needs to be adjusted.



## TRAINING ELEMENTS

### Lessons learned from the pilots:

- The training needs to find a balance between theoretical content and interaction. The content is important to raise the knowledge level of the participants, but the interactive part gives the participants the possibility to talk about that content with peers and to connect that knowledge to their own circumstances. It is important to realize that active participation is not always common in our educational system. When possible, theoretical content could be reduced in favor of more interaction. The pilot training in the different countries showed that some participants are reluctant to participate in the (inter)active sessions, in every pilot it resulted in a better understanding of the subject, despite the different cultural backgrounds of participants.

The sustainable fisheries training comprises of a wide variety of teaching methods, including interactive lectures, e-learnings, video's, animations, workshops, group assignments, games, quizzes, and group presentations. Overall, the training has four main elements:

### Content and theory

Knowledge is power. Participants get current and independent information about a wide variety of aspects of sustainability. Training methods used are presentations by trainers/instructors and experts, combined with Q&A sessions, excursions, and video material.

### Communication and presentation skills

Communication and presentation skills are crucial for successful implementation of knowledge and awareness gained in the training, as well as for cooperation, sharing ideas, and discussing important issues. Skills include participating in group work, personal conversations, discussions (talking with someone you disagree with), and presentations. Training methods used include demonstrations, discussions, and communication exercises.



### Opinion forming and future thinking

Enable individual participants to process information and challenge them to develop an opinion about (aspects of) sustainable fisheries, and to think about the (sustainable) future of the fishing industry. Training methods include assignments, group work, workshops, and exchange of opinions.

### Motivating and activating

This training should activate participants to put the information into practice. Keep asking 'what's in it for me' from a fisher's perspective. For instance, the role and responsibilities in fisheries management often seem unrelatable, incomprehensible/vague to many participants. They can, however, play a role in fisheries management by contacting their representatives or associations. As a trainer, you have the responsibility to make participants aware of the options they have.

## THEORY

Sustainable fisheries require knowledge of sustainable development, the marine environment, fishing economy, the fish supply chain, fisheries management, communication skills, and environmental aspects of fishing. Theory gives participants a better understanding of a wide variety of subjects relevant to sustainable fisheries. Theory can be taught as classroom lectures, preferably supported by expert speakers, video's, pictures, and visual presentations.

Tips to present theory:

- Relate subjects to situations which are familiar to participants.
- Use enthusiastic presenters.
- Ask questions, as this makes participants think about the issue themselves.
- Encourage participants to ask questions themselves and to interact during the lectures.
- Some points are more important than others and should be emphasized. To ensure that such points are remembered, they must be restated several times, preferably in different words.
- Reiterate things that are complex – don't worry about repeating information. Find more than one way to get a point across. If someone doesn't understand the first time, you can word it differently and it might be clear the second time (or





the third time). Simple analogies are good. Ask if the audience understood the principle.

- Relate to important values of your target audience, being proud at their profession is a strong value in most fishing communities. Stating things such as “being proud of your environment means you take care of your environment” is useful in addressing environmental challenges by relating it to them on a personal level. It is therefore strongly advised to emphasize that fishers have reason to be proud of their profession.

## WORKSHOPS

The objective of the training is to achieve awareness of the importance of sustainable fisheries, stimulate personal involvement, a sense of personal responsibility and commitment to contribute to sustainable fisheries.

Awareness and involvement require more than knowledge and theory. To achieve awareness and to instigate a thinking process, the training developers have included several workshops for small groups of participants. These workshops are seen as essential to achieve awareness. The assignments are designed to give participants structured time to talk and think, and process the information acquired through the theoretical lectures and videos.

In addition, during the workshops participants are asked to voice their ideas and opinions, to listen to the opinions of other participants and to think about their own role and responsibilities. The training developers stress the importance that participants are given time and space to share their ideas and opinions. In many cases there is not "one solution", and sharing different ideas and opinions about different aspects of sustainable fisheries gives the participants a chance to develop their personal views and sense of responsibility.

Tips for leading workshops:

- Create an “open atmosphere” of acceptance of the opinions of participants to lower the threshold to participate.
- At the start of each workshop, make sure all groups understand the assignment.
- All participants bring their ideas and opinions to the room. Allow them to share these to add to the value of the workshop.



- Give groups enough time to work on the assignments at their own pace. Sharing ideas and opinions takes time.
- Do not allow individual members to monopolize the group activity but ensure that all members have a chance to express opinions and ideas.
- Do not steer the group in the direction you want by superimposing your opinion. Giving suggestions (“Have you thought about...?”) is often more helpful. In achieving awareness, the thinking process is just as important as the result of the assignment.
- Be prepared to get some unexpected results – some results you might not agree with!

## EVALUATION

Because the training includes knowledge as well as awareness, the method of evaluation and the criteria for evaluating competency should take both these aspects into account. The learning objectives used in the detailed training syllabus should provide a sound basis for the construction of suitable tests for evaluating the participants’ progress. The effectiveness of any evaluation depends upon the accuracy of the description of what is to be measured.



## DESCRIPTION OF PROGRAM PARTS

### OPENING LECTURE - INTRODUCTION TO SUSTAINABLE FISHERIES

#### Lessons learned from the pilots:

- The CTP-standard should be very clear that the main objective of the training is to give a broad view of the concept of sustainability. In the description of the individual parts, it should be made very clear how the individual parts of the training tie back to the overall theme of the training, to sustainable fisheries, and to the Triple P concept. In addition, the CTP-standard also needs to be clear that the objective of the training is to involve fishers in the concept of sustainable fisheries and inspire them to include it in their own thinking and their (future) career in fisheries.
- It is important to be clear about the objectives of the training and to create the right expectations. In a training for stakeholders, some participants complained that there was not enough nuance and detail in the training, but by doing so they reason from their own level of expertise, level of education, and their wishes and needs and not necessarily from the actual target group.

The introduction is the best place to connect the training to local reality, as it is the first part that draws the participants in. It is deemed important for the participants to recognise the fisheries situation of their region for self-identification.

The starting point of the training should be a reference to the long history of local fishing by showing an old fishing vessel. Comparing this to a picture of a modern vessel shows that fishing is not the same as it used to be. Going through some of the recent changes in fishing emphasizes that being a fisher today is different than 100, even 10 to 20 years ago. The job has changed due to increasing costs, more regulations, competition with 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 industry itself has experienced large changes in the past 10 to 20 years such as new fishing techniques and more market-focused thinking.

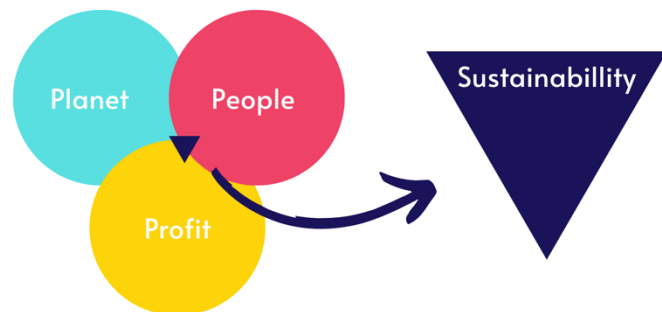


In these modern times, fishers need to operate as entrepreneurs, who can make well-informed choices in their fishing practices, and operate in an ever-changing world. To be able to do this, fishers need new knowledge and new skills, different than the knowledge and skills needed in the past.

The concept of sustainable fisheries is introduced as a way of long-term thinking about solving economic, social, and environmental challenges.

Sustainable development is defined as: “Meeting the needs of the present without compromising

the ability of future generations to meet their own needs.” Sustainability is not just focusing on making as much profit as possible in the short term but taking social aspects and care for the environment into account as well. In business terms, finding an acceptable balance between social, economic, and environmental performance, often illustrated as the Triple P concept or three P’s: People, Planet and Profit.



Several examples from other businesses should be given.

Legislation, technical installations, procedures, and technological innovation all help in the sustainable development of the fishing industry. It should be emphasized that these can only be effective if people, fishers, and all others involved, have the right competences and attitude to strive for sustainable fisheries and to make the right choices. Competent people are essential, and this training is designed to give fishers awareness, knowledge and skills related to the three P’s of sustainable fisheries, with the goal to enable fishers to make the right business choices, to minimize pressures, and to participate in the sustainable development of the fishing industry.

A time schedule of the training should be presented – special attention should be given to the varied setup of the training as a mix of lectures and workshops. Instructors should stress that the training is more than listening to information about different aspects of sustainable fisheries. Participants are invited to be actively involved and to share their knowledge, ideas, and opinions (also when these are different than what is presented!).



## WORKSHOP TOP 5

This workshop is set up early in the training program to establish a starting point and assess the current knowledge of the participants about sustainable fisheries. It invites them to become actively involved in the training, shows them that their opinions matter, and gives a feeling of ownership of the training content. It also enables participants to relate their ideas and opinions to the ideas and opinions of other participants.

Participants will have prior knowledge, ideas, and experiences with sustainable fisheries. In this workshop, they are asked to share this knowledge and their opinions about different aspects of sustainable fisheries. The group is divided in subgroups of 4-8 participants and each group works on an assignment. Different types of assignments can be used. One that works very well is asking the groups to make a list of different aspects of sustainable fisheries and give their opinion about their respective importance, for example: Make a Top 5 of the most important aspects of sustainable fisheries (your opinion).

All groups present their results in a plenary session, so all participants are aware of the results of the other groups. The plenary session gives instructors the chance to ask questions when things are not clear and to point out common themes or differences between the groups.

Instructors are encouraged to give participants the chance to voice their opinions and to listen to the opinions of others. At this point in the training, little attention should be given to the correctness of arguments. It is important for the participants to feel that their opinions and ideas are important, so they are more likely to share their opinions, thoughts, and feelings during the rest of the training. The instructor should listen closely to the groups and the plenary presentations, because it will give him or her information about the current knowledge and awareness of the participants. This will enable the instructor to emphasize certain information in his/her lectures later.



# MARINE ENVIRONMENT AND BASIC MARINE ECOLOGY

## Lessons learned from the second seminar:

- Organize more excursions and opportunities to showcase examples in real life rather than digitally.

Starting point of sustainable fisheries is basic knowledge and a (personal) connection with the marine environment. The marine environment lecture consists of 4 parts: the importance of the ocean for humans (ecosystem services), basic ecological knowledge of 'how the ocean works', an explanation of the differences between open ocean and coastal seas, and a description of the diversity and difference between marine areas.

Over 70% of the world's surface is covered with water – the ocean. The biodiversity in the ocean is enormous. The ocean also plays a very important role for human life on earth. It provides food and oxygen, regulates our climate, and is economically important, for instance because it provides a means for transport, and over 200 million people work in the fishing industry. The video 'The importance of the Ocean' shows many ecosystem services in a dynamic video of 2 minutes.

Most people are familiar with bigger ocean life like fish and whales, and fishers have first-hand experience with amazing sightings. However, most plants and animals in the ocean are small, and they are very important. Microscopic organisms called phytoplankton or algae are the basis of almost all ocean life. These green plants transform carbon dioxide and water into glucose (sugar) by using sunlight. This process is called photosynthesis. It has oxygen as a by-product. Plants use nutrients to produce other compounds and the organic matter (sugars, proteins, lipids, etc.) generated by phytoplankton is passed on to other marine organisms in the food chain. In a food chain, primary producers such as phytoplankton are consumed by plant-eating organisms (herbivores), which in turn are consumed by animal-eating organisms (carnivores or predators). All food chains are connected in more complex food webs. After all, most organisms eat more than one type of food and can be eaten by more than one type of predator.

In marine food chains, about 90% of the energy of the ingested food is used for processes like movement, breathing, eating, and reproduction. A considerable part



of the energy is lost as heat. Only 10% of the energy gained from food is used to grow. When a plant or animal is eaten, it is the organic material from this 10% weight gain that is passed on to the next level in the food chain. This 10% rule means that you need a huge number of algae at the base of the food chain to produce one big fish at the top of the food chain.

Food chains are not straight lines: they are circular, because nutrients are recycled. Here, bacteria play an important role. Bacteria break down waste products and dead organisms, releasing nutrients and carbon, which can re-enter the food chain via the primary producers.

Oceans can roughly be divided into the open ocean and coastal seas. The coastal sea is the shallow (<200 m) sea area above the continental shelf. Beyond that, the open ocean extends. The open ocean is relatively deep, on average 3.7 km. The physical and biological characteristics of the open ocean and coastal seas are very different. The open ocean is a nutrient-poor environment, whereas coastal waters contain many nutrients, thanks to run-off from rivers. Other differences include the penetration of sunlight, the temperature, the salinity, and mixing of water layers.

This also has consequences for the living conditions for marine organisms in these areas, and for types of plankton, levels of primary production, and food chain lengths. In the open ocean, only the very small phytoplankton cells can survive the nutrient-poor and stable waters. In nutrient rich coastal areas plankton is large (diameter up to 300  $\mu\text{m}$ ) and has more complex shapes. Bigger plankton means more food for fish, shorter food chains and therefore, better fishing!

After the general information about marine ecology and the difference between open ocean and coastal seas, it is important to apply this knowledge to a variety of different marine areas, including the specific sea that the fishers are working in. Show pictures that emphasize the beauty and biodiversity, elaborate on the importance for humans, and show a local area as an example of a coastal sea (with a food chain, food web etc.). Finally, address that the ocean is not used by fishers alone but has lots of activities going on by other (economic) sectors. As a fisher, you need to be aware of the environment that you are working in and of the other activities taking place in the ocean.



## Add on Marine Ecology

The participants could benefit from having an excursion or seeing marine organism in real life, such as under a microscope. This could be realised through:

- Excursion to aquarium;
- Excursion to marine laboratory;
- Inviting a researcher with expertise about the marine environment;
- Physical examples e.g., larvae, fish eggs, otoliths, seaweed or taxidermized fish.

## PROFIT P – FISHERY ECONOMICS

### Lessons learned from the pilots:

- In France, the fisheries economics lecture triggered discussions about 'small-scale vs. large-scale fisheries' and 'the unfair display between various fishing methods.' Social innovation, equality, a more local focus, and aiming for low-tech solutions rather than a strong focus on technological innovation were considered as important topics when talking about the sustainable future of the fishing industry in France. This makes it very clear that the way a society looks at fishing as a profession is crucial to consider when developing a sustainable fisheries training.
- Organize more excursions and opportunities to showcase examples in real life rather than digitally.

The profit P is part of sustainable fisheries. This training emphasizes that fishers should have a basic understanding of the economic aspects of fisheries, about the size of the fishing fleet and fish consumption, about proceeds and costs of a business, about the way fish travels from their ship to consumers (the fish supply chain), and about the role of certification.

The lecture starts with a set of cartoons that show participants that there is no clear answer to the question "when are you the best fisher". These cartoons show that catching the most fish does not always make you the most successful fisher. A smart fisher also takes other economic aspects into account, including costs, quality and size of the catch, and demand by consumers.





By asking questions to the participants, the instructor addresses the history, size, and composition of the national (or regional) fishing fleet.

Fishing entrepreneurs need to have a clear understanding of the proceeds and costs of a fishing business and how to influence them. Participants will have some prior knowledge and it is the instructor's job to make an inventory of what they know and fill the gaps, and, to challenge them to come up with ideas how fishers can influence both proceeds and costs.

- **Proceeds:** Fishers sell the fish they catch, either at an auction, to wholesale, or directly to customers. The price they get will be influenced by the selling method, but also, for example, by the assortment, quality, and certificates/labels.
- **Costs:** Running a fishing business requires making costs and the participants probably can come up with a long list of costs. These costs can be divided in technical cost (e.g., ship, nets), fuel cost, crew salaries, auction cost, insurance costs, cost for the ship owner (loan interest, and depreciation), and taxes.

After completing the list of costs for the ship owner, it is important to focus on how they earn money as crew, as fishers. How does the salary system work? And how about taxes?

After the fishers land the fish, the fish travels (sometimes a long way) to the consumer, the person eating the fish. As a fishing entrepreneur, it is important to understand the different steps the fish takes (e.g., auction, wholesale, processor, exporters, restaurants, retail).

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### Add-on PROFIT P

The PROFIT P add-on gives more in-depth information that can be included in the fishery economics lecture. This add-on emphasizes that fishers are entrepreneurs that make informed choices, including those related to sustainable fisheries.

In addition to knowing the history and size of the fleet and the fishing methods they use, it is important to talk about the economic importance (macro-economy) of fishing and discuss the economic context of (recent) developments in the fishing industry, including impact of regulations, cost reduction, and the use of other fishing techniques. In addition, when possible, a connection between the catch and (national) fish consumption should be made. Let's put this in perspective: Who eats



the fish that we catch? How much fish do people eat? Do we catch enough to supply that fish? How much fish would we need to catch if everyone ate fish twice a week, or once a month, as an example.

After identifying the different steps in the fish supply chain, participants should identify which partners are involved in the fish supply chain, what their roles are, what happens to the fish during those different steps, and, how that influences the price of the fish. Why is the fish in the supermarket so expensive, while I as a fisher only get this low price? What determines the price of fish for the consumer?

Ask the participants for ideas how they can work with partners in the supply chain in an economical profitable way. As trainer, research the local examples on creating more value for a fishing product or shortening the chain and communication to the consumer.

It is beneficial to the participants to visit one or more parts of the supply chain such as a fish auction or processing plant. This helps in visualisation and understanding of the next steps in the supply chain.



# FISHERIES MANAGEMENT

## Lessons learned from the pilots:

- The part in the fisheries management lecture on ‘fair division of fishing rights’ was a sensitive topic in Ireland. It led to interesting discussions on what is ‘fair’. Should it only be based on historic rights? Or should also be looked at other factors like importance of resource to coastal communities, the sustainability performance of the fisher or the entire fleet of a particular country. There is no ‘right’ or ‘wrong’ answer here, but it might be good to elaborate a bit more during the training on what participants consider ‘fair’ so that they can at least speak their minds and enable the trainer to prepare other perspectives.
- In Greece, participants have a few local challenges such as the relation between fishers and dolphins. This is an interesting subject or example to explain parts of the training like fishing and society. It is a good idea to give more attention to this subject and get some scientific data to back up this part of the training.

Sustainable development of the fishing industry means sustainable management of fish stocks. This part of the training provides basic understanding of fisheries management, including why management of fisheries is necessary for a sustainable fishing industry, what fisheries management entails and who is responsible for it.

This program starts with a fishing game that illustrates the principle of the tragedy of the commons. In the game, participants with blindfolds are fishing for candy (fish) with their fishing gear (teaspoon) in several plastic tubs (the sea). Several rounds of fishing often involve investment in better fishing gear, severe competition, and empty seas. The game illustrates that when more fishers operate in the same sea, it seems profitable for every individual fisher to catch as much fish as possible (and make the most profit in the short term), but when everyone does that without limits, the sea suffers, fish stocks get depleted and the catch for all fishers goes down. To avoid this, proper management of fish stocks and fisheries is important, not just for the sea, but also for business (in the short and long term).

A lecture shows relevant international instruments concerning responsible conservation, fisheries management, responsible fisheries, and development of



living aquatic resources as well as key international instruments related to the fight against illegal, unreported, and unregulated (IUU) fishing.

Participants should be able to identify protected animals that are present in their fishing areas.

The lecture then focusses on the EU Common Fisheries Policy (CFP). EU countries share seas and share the common resource of fish in those seas. That is why the EU is responsible for fisheries management. The CFP is a set of EU rules for managing the European fishing fleets and for conserving fish stocks. It gives European fishing fleets equal access to EU waters and fishing grounds and allows fishers to compete fairly. The CFP aims to ensure that fishing is environmentally, economically, and socially sustainable (People, Planet, Profit) and that it provides a source of healthy food for EU citizens. Its goal is to have a dynamic fishing industry and to ensure a fair standard of living for fishing communities. Although it is important to maximize catches, there must be limits to make sure that fishing does not have excessive impact on the marine environment and that fishing practices do not harm the ability of fish populations to reproduce.

The current policy sets catch limits that are sustainable and maintain fish stocks in the long term. Central themes in the CFP are technical measures (like mesh size, selective fishing, fishing effort, fishing gear choice and real time closures), closed areas, fish stock assessment, Maximum Sustainable Yield (MSY), and the landing obligation.

Emphasize that the EU, the fisheries manager, is responsible for the policies. Scientists, NGOs, and fishers also play a role in fisheries management. Scientists research fish stocks, measure and calculate, and advice the EU. In advisory committees (advisory councils), fishers and environmental NGOs meet and give advice to the manager about the policies. However, at the end, it is the EU that decides.

#### Add-on PLANET stock assessment

The PLANET P add-on gives more in-depth information that can be included in the fisheries management lecture. This add-on is an interactive session where the participants work on several assignments to gain understanding about several key aspects of fisheries management.



The biomass of fish (in kg) will increase when fish grow and reproduce, and will decrease when fish die, by natural causes or because they are caught by a fisher. Both nature and humans influence the fish stocks in the sea. However, we cannot change the natural causes (only try to understand them) and therefore, fishery management focusses on the role of humans.

Central themes connected to fisheries management are technical measures (like mesh size, selective fishing, fishing effort, fish gear choice and real time closures), fish stock assessment, and the landing obligation. Instructors are encouraged to give the participants a series of assignments to help them understand (some of) these important themes. The assignments should be designed with the specific local situation in mind and may vary greatly per country. However, the goal of the selection of exercises is to gain a basic understanding of the background of fishery management and understanding of where rules and regulations come from.

Possible assignments include:

- Elements of the Common Fisheries Policy to achieve responsible harvesting practices and the use of responsible fishing gear, including technical measures, closed areas, Maximum Sustainable Yield (MSY), and the ecosystem approach
- Fishing gear selectivity
- Landing obligation
- Fish stock assessment
- Role of fishers in fisheries management and stock assessment

[Add on local context.](#)

Be aware of the local marine environments' protected species like sharks, rays, dolphins, birds, and seals which cause conflict with fishing practices. If this is the case, the trainer should be prepared for discussions on these species and provide some context on protective status, challenges that arise and possible solutions for fishers.

## ENVIRONMENTAL CHALLENGES

Environmental challenges connected to and relevant for the fishing industry include oil pollution, marine litter, and climate change. It is important to have a basic understanding of the environmental challenge, the connection to the fishing



industry, MARPOL-regulations, and the role fishers are playing and can play to contribute to solutions for these environmental challenges.

## OIL

Ecological impacts of oil include toxic effects on zooplankton, fouling of the plumage of birds and the fur of mammals, tainting of shellfish, and oiling of coastal habitat such as beaches, mangroves, and tidal areas. Economic effects include clean-up costs and damage to fisheries and the tourism industry. The exact impacts from an oil spill depend on several factors, including where an oil spill takes place. Not only accidents with oil tankers are a problem. A small spill or discharge at the wrong place, at the wrong time, can cause a lot of damage.

## MARINE LITTER

### Lessons learned from the second seminar:

- Discuss the personal role and responsibility of the fishers in their practice, such as the recycling of fishing gear.

When solid waste ends up in the marine environment, it is called marine litter. This includes all man-made objects that do not naturally occur in the marine and coastal environment. In many regions, plastics constitute the majority (up to 90%) of the total amount of marine litter. Marine litter includes items that are abandoned, discarded, or lost directly into the sea, brought to the sea indirectly by rivers, or left by people on beaches, in harbours and on shores. Marine litter is found everywhere in the marine environment, all around the world. It is a truly global problem, illustrated by the plastic soup, floating garbage that collects in so-called gyres. Besides on beaches and in the water column, most litter is found on the seafloor.

Entanglement and ingestion are the two primary kinds of direct damage to wildlife:

- **Entanglement** means that an animal becomes encircled or ensnared by litter. This may happen accidentally or because the animal is attracted to litter out of curiosity or when in search of food or shelter. Entanglement can impede natural behavior in all sorts of ways and can eventually lead to death.
- **Ingestion** occurs when animals swallow litter items. Generally, animals swallow litter items because they resemble their natural prey. Typical examples of such



food mix ups are when turtles eat plastic bags (mistaking them for jellyfish), birds feed plastic to their young, or fish mistake plastic pallets for fish eggs. In addition, shellfish may ingest plastic when filtering plankton out of the water. Ingestion can lead to malnutrition or starvation. The swallowed litter items can accumulate in the digestive tract and make the animal feel “full”, while the litter has no nutritional value.

The marine environment now contains a vast quantity of tiny pieces of plastic smaller than 5 millimetres in diameter. These are called microplastics, as much of this material is microscopic in size. As small animals at the base of the food chain ingest microplastics, the toxic chemicals in plastic enter the food chain. These chemicals interact with numerous biological processes and may eventually pose health risks for humans eating contaminated marine organisms.

Marine litter also causes serious damage to people, property, and livelihood, and has significant economic repercussions on coastal and fishing communities. Adverse impacts include damage to fishing vessels and gear, safety risks at sea, damage to power stations, contamination of beaches, and clean-up costs.

Fishing is one of the contributors to the marine litter problem, for example through improper waste management on board or in ports, loss of fishing nets and ropes, or abrasion of plastic materials. Fishing can also be part of the solution, for example through programs like ‘Fishing for Litter’.

As a trainer it is important to research the local activities on recycling, limiting of pollution and cleaning initiatives. Regulations from the EU directive Single Use Plastics entail challenges for fishers and their gear recycling. Fishing gear is now part of the Extensive User Responsibility. This regulation will create new challenges for fishers in buying, using, and recycling of fish nets. The trainer should be aware of and research the latest status on these regulations.

## CLIMATE CHANGE

Climate change is a pressing issue on political agendas and in the media. Climate change has been investigated by scientists for decades, of which the last two decades by the Intergovernmental Panel on Climate Change (IPCC). The IPCC defines climate change as: "Any change in climate over time, whether due to natural variability or as a result of human activity".



The sun warms the earth's surface and atmosphere. Some of the sunlight striking the earth is absorbed and converted to infrared radiation (heat), which warms the surface. The surface also emits this infrared radiation back to the atmosphere. Greenhouse gases (GHGs) like carbon dioxide, methane, and nitrous oxide in the atmosphere trap this infrared radiation like the glass walls of a greenhouse. This process warms the atmosphere and is called the "greenhouse effect". Without the natural greenhouse effect, life on earth as we know it would not be possible. The average world temperature would be  $-18^{\circ}\text{C}$ , rather than  $+14.5^{\circ}\text{C}$  which is the current average.

Greenhouse gases are produced by natural processes, such as volcano eruptions, natural forest fires, and decaying plants and trees. Since the beginning of industrialization around 1750, humans have also started producing GHG. Some examples of human activities producing GHG are combustion of fossil fuels (by cars, airplanes, ships, etc.), electricity and heat production, and agriculture. Since the beginning of industrialization, concentrations of GHG in the atmosphere have notably increased. This enhances the natural greenhouse effect. Of all greenhouse gases produced by humans, the amount of  $\text{CO}_2$  is the most influential.

During the past century, scientists have measured that, on average and worldwide, global air and ocean temperatures are rising, snow and ice are melting, and sea levels are rising. According to the IPCC, anthropogenic (human) greenhouse gases have very likely caused most of these changes over the last 50 years. The IPCC-report states that it is extremely likely that the observed change in world temperatures is not only due to natural processes.

There is scientific consensus about the causes and occurrence of climate change. But the future effects, consequences and developments of climate change are much more difficult to predict and subject to many uncertainties. That's due to the complexity of processes in the earth's climate system. Nonetheless, some predicted effects include sea level rise, loss of biodiversity, increase of human diseases, damage to coral reefs, and unpredictable weather patterns, including increase of storm intensity.

As a trainer it is important to familiarize themselves with local impacts, current regulations, and local projects.  $\text{CO}_2$  emissions from fishing have decreased to a 40% reduction compared to 1990 and the energy efficiency (ton of fish/litter of fuel) of





the industry has increased tremendously over the years. Energy efficiency, gear selection and innovation will be important aspects of a sustainable fishing industry.

## PEOPLE P

With the changes in the fishing industry in the last 20 years, the interest of stakeholders for fishing and fishers has increased. Nowadays, everyone seems to have an opinion about fishing, including governments, environmental organisations, media, and consumers. People do realise that the fishing industry is important in supplying food, but the fishing industry also received attention because of an increased emphasis on the importance of a healthy marine environment. In addition, consumers are increasingly critical and demand to know where their products come from. This lecture should make the participants realise that improving communication with consumers can resolve this criticism and shorten the distance between producer and consumer.

Sustainable development of the fishing industry is more than earning good money in a responsible way (Profit P) and taking care of the environment (Planet P). A industry like fishing also must be aware of the people part of sustainability (People P). As a trainer it is important to explain what social sustainability entails.

Part of the People P is about fair salaries for workers, a safe and decent working environment and tolerable working hours as set out in the Work for Fishing Convention (Convention 188) from the International Labour Organisation (ILO). Participants should recognise that good practices, such as fair pay, good working conditions, and availability of space and privacy will attract more people to the industry.

It is also about crew management and on-board relations. Understanding that proper crew management and establishment of good relations among the crew benefit the results of activity and sustainable fishing. Mutual respect and asking, not demanding, were thought to be important factors of good leadership. Good leadership is crucial to steer the crew to more sustainable fishing, as IUU fishing often stems from the lack of a good example.

Another part of the People P is to recognise the importance of local communities, their importance in fisheries villages, and their vulnerability in the transition from family-owned business to a big business.



The People P is also about the relationship between fishing and society. It is often said that for economic sectors, acceptance by society is a license to operate, or in case of fishing, a license (privilege) to produce. As some stunning examples in the past (like the Brent Spar and the Dutch trawler Margiris) have shown, society can withdraw this license, for example by stopping to buy certain products (like fish) or voting in political parties that are more critical of the industry. It is important to add relevant local examples to strengthen the power of society. Another potential side effect of a negative image for the fishing industry is the challenge of attracting new entrants into the industry. This aspect of the People P will be explored during a workshop.

In this workshop, after an introduction of the People P, instructors should ask participants to think about the image of fishing (group assignment 1; what do others think about fishing and fishers) and about the identity (group assignment 2; what do I think about fishing and fishers). After the results are presented and summarized, participants are invited to share ideas and opinions about the difference between the image of fishing and their identity, and between what others think and what they think themselves. Keeping in mind that the image may give insight in how society thinks about fishing and about the acceptance by society, participants should be encouraged to think about the causes of this difference (why do we have this image), the consequences (how can a good image be helpful?), and ways to improve the image or to ensure that the image more closely resembles the identity of fishers and the fishing industry.

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#### Add-on PEOPLE P

The PEOPLE P add-on gives more in-depth information on the social aspect of the People P and can be included in the People P introduction lecture.

The ILO Work in Fishing Convention helps to prevent unacceptable forms of work for **all fishers**. It provides regulations that **prevent forced labour, trafficking, and other abuses**. The convention addresses a wide variety of social aspects of fishing, including minimum age, manning – number and qualifications of fishers, minimum hours of rest, wages and payment for work, accommodation requirements, medical care, accident prevention, and protection in the case of work-related sickness, injury, or death.



Not just stakeholders, but also consumers pay more attention to the fishing industry. Consumers are demanding more information about the products they buy. For example, they might want to know about the quality, sustainability, and where the product comes from. This information is communicated through standards and labels. There are three kinds of standards for fish: environmental standards, social standards, and standards about fish welfare.

Some of the first and most important organizations in social standards are the conservation alliance for seafood solutions, Fair trade USA, Fish Wise, and Seafish. However, it should be mentioned that a social standard does not necessarily exceed the minimum standards in international conventions and sometimes even fall below them.

## COMMUNICATION

### **Lessons learned from the pilots:**

Participants in Ireland did express the feeling of not being heard in the policymaking process. Often, they come across regulations that are 'unfair' or 'unclear' in their perspective, but they feel powerless to address this. In their eyes things become political quickly and leave little room for discussion. They would like to learn more on how they can let their voice be heard and become involved in the policymaking process.

When everyone seems to have an opinion about fishing, and the fishing industry and individual fishers must deal with more interested stakeholders, good communication is important. When the image of fishers and the fishing industry is different than you think it should be, communication might be essential. For a lot of fishers, communication to people outside the fishing industry is a new skill.

Good communication is difficult and as with most skills, practice makes perfect. In this workshop, the participants will practice basic communication skills, including being aware of non-verbal communication, communication styles, differences in perspective when communicating and the importance of listening. How do you talk to people that you do not agree with? How do you present a good story? How to ask questions? Why is it important to use understandable language?



## FINAL WORKSHOP

At the end of the training, the participants will get a final group assignment. This assignment should be focused on their ideas about the (sustainable) future of the fishing industry. Groups will choose a theme that is important for the future of the fishing industry, for example:

- Sustainable fisheries techniques/net design
- Ship of the future
- Cooperation in the fish supply chain
- Fishing and marine litter

Guided by a set of questions, and using the knowledge, awareness, and skills they have gained during this training, they will prepare a presentation about their ideas of the future of this theme. Special attention should be paid to how they view their own involvement and responsibilities. The training is concluded by the presentations of the different groups.



## TRAINING MANUAL OVERVIEW

Training manual				
Time needed in min	Topic	Content	Learning goals/results “After completing this training, the participant will be able to...”	Materials needed
30min & 60min	<b>Introduction to sustainable fisheries</b> & <b>Workshop Top 5</b>	<p>The first part of the training allows the trainer to introduce themselves and have a round of introductions. The participants are informed of what they can expect from the training and what is expected from them.</p> <p>It is then discussed how fisheries have changed overtime, and subsequently, the role of a fisher. The concept of sustainability is introduced by asking the participants their opinion. Ask participants to write down what they</p>	<ul style="list-style-type: none"> <li>• Explain why the fishing industry works towards sustainable fisheries.</li> <li>• Relate the specifics of the local fisheries in the area/region, to the general context of sustainable fisheries.</li> <li>• Define sustainable development as a balance of People, Planet, Profit, where all three P’s get sufficient attention (the Triple P concept).</li> <li>• Name several practical examples of sustainable fisheries (initiatives) in the fishing industry.</li> </ul>	<ul style="list-style-type: none"> <li>• Sticky notes</li> <li>• Programs</li> <li>• Pens</li> <li>• Flip chart</li> <li>• Markers (1 per group)</li> <li>• Tape</li> </ul>

		<p>think sustainability is on a sticky note; there are no right or wrong answers.</p> <p>Then the official definition of sustainability is given. After that the three P's (People, Planet, and Profit) are presented as a practical way of thinking about and working with sustainability.</p> <p>The introduction of the sustainable fisheries training is finished with the Top 5 workshop.</p> <p><i>The workshop takes an hour at maximum, but it usually ends earlier. Make sure to plan enough time though, to have a calm start of the training.</i></p> <p>In this workshop, the participants make a Top 5 of challenges that affect the development of a sustainable fishing industry in their opinion.</p>	<ul style="list-style-type: none"> <li>• Express an opinion about challenges (problems) for a sustainable fishing industry.</li> <li>• Relate his/her opinion to other participants.</li> </ul>	
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		See the trainers manual for a detailed description on how to conduct this workshop.		
<b>60 min</b>	<b>Marine environment and basic marine ecology</b>	<p>In order to understand sustainable fisheries, basic knowledge of the marine environment is presented.</p> <p>The lecture is divided into 4 parts: the importance of the sea for humans (ecosystem services), basic ecological knowledge of ‘how the ocean works’, the differences between open ocean and coastal seas, and the diversity and differences between marine areas.</p> <p>It is important to focus the lecture on the local reality and discuss local marine ecosystems for the participants to relate to.</p>	<ul style="list-style-type: none"> <li>• Describe why the oceans are important for all people worldwide, including production of food, climate, and oxygen.</li> <li>• Describe basic principles of marine ecology and the production of fish.</li> <li>• Explain the role of phytoplankton as the primary producer (photosynthesis).</li> <li>• Give an example of a food chain with phytoplankton at the base.</li> <li>• Explain that food chains are connected in food webs.</li> <li>• Describe how all large sea life, including fish, depend on small sea life (phytoplankton, zooplankton, bacteria, and viruses).</li> <li>• Explain that coastal seas and the open ocean are different, for</li> </ul>	

			example in physical circumstances, abundance of marine life, the production of fish, and environmental regulations.	
<b>90 min</b>	<b>Profit P</b>	<p>This lecture starts with a set of cartoons that show that there is no clear answer to the question “when are you the best fisher?”. It is certainly not only catching the most fish. A smart fisher also takes other economic aspects into account, including costs, quality and size of the catch, and demand by consumers.</p> <p>The lecture then discusses basic factors of the local fishing fleet, such as size, revenue &amp; profit, and landings. The income and costs of fishing are discussed, and the participants are asked to make an income/cost calculation of their fishing situation. Lastly, the supply chain is discussed to make the participants understand what</p>	<ul style="list-style-type: none"> <li>• Appreciate that the Profit P is part of sustainable fisheries.</li> <li>• Realize that making money as a fisher does not only depend on the number of fish you catch.</li> <li>• Describe the size of the fishing fleet in his/her country/region.</li> <li>• Explain the economics of fishing in general, including all costs and proceeds associated with operating a fishing vessel and/or company.</li> <li>• Explain the steps in the fish supply chain (the way fish travels from fishers to consumers).</li> <li>• Explain how being a fishing entrepreneur is different from being ‘just’ a fisher.</li> </ul>	



		costs and steps are involved in the process. In addition, local examples of new products and diversification of goods are presented to show the different opportunities for a fishing entrepreneur.		
<b>75 min</b>	<b>Fisheries management</b>	<p>This part starts with a fishing game that illustrates the principle of the tragedy of the commons. See the trainers manual for a detailed description on how to conduct the game.</p> <p>The lecture introduces the participants to the local fisheries management, as well as the international instruments (e.g. EU Common Fisheries Policy) that apply. Concepts such as the Maximum Sustainable Yield (MSY) principle, the landing obligation, and fish stock assessments are explained to give the participants a background in fisheries management.</p>	<ul style="list-style-type: none"> <li>• Define fisheries management.</li> <li>• Explain why fisheries management is needed.</li> <li>• Name relevant international instruments concerning the responsible conservation, fishing management, responsible fisheries, and development of living aquatic resources as well as key international instruments related to the fight against illegal, unreported, and unregulated (IUU) fishing.</li> <li>• Realize that rules for fishing are not only made in one country, but in a European context (and often stem from international conventions and declarations).</li> </ul>	<p>Fishing game:</p> <ul style="list-style-type: none"> <li>• Blindfolds</li> <li>• 3 large tubs</li> <li>• Wrapped candy</li> <li>• Teaspoons</li> <li>• Tablespoons</li> <li>• Serving spoons</li> <li>• Tongs</li> <li>• (Digital) timer</li> </ul>

		<p>It is important that the participants understand the different roles and responsibilities of the parties involved in fisheries management, i.e. the EU, scientists, NGOs, and the fishers.</p>	<ul style="list-style-type: none"> <li>• Describe the different roles of scientists, governments, fishers, and NGOs in fisheries management.</li> <li>• Describe central themes of the Common Fisheries Policy from the EU, such as technical measures, closed areas, fish stock assessment, Maximum Sustainable Yield (MSY), and the landing obligation.</li> <li>• Show awareness of possible challenges that arise with fishing activities and protected animals present in the area.</li> </ul>	
<p><b>60 min</b></p>	<p><b>Oil &amp; marine litter</b></p>	<p>This lecture discusses two environmental challenges for the marine environment: oil and marine litter. The oil part focusses on what happens to oil in the ocean, the ecological and economic impacts of oil, and fisheries specifically.</p>	<ul style="list-style-type: none"> <li>• Name relevant IMO conventions and other international instruments to prevent pollution to the marine environment.</li> <li>• Name the main impacts of fishing on the marine environment and the effects of operational or accidental pollution.</li> </ul>	<ul style="list-style-type: none"> <li>• Kahoot</li> </ul>

		<p>The marine litter part of the lecture is mainly focused on plastic, as this constitutes most of the litter. Again, the impacts (ecological, economic, social) are discussed, as well as the role of fisheries and some solutions.</p>	<ul style="list-style-type: none"> <li>• Describe the environmental impact of oil in the marine environment, including the effects of oil on sea birds and zooplankton.</li> <li>• Show awareness of the contribution of the fishing industry to plastic pollution, including abandoned, lost or otherwise discarded fishing gear.</li> <li>• Describe the impacts of plastic waste in the marine environment, including the plastic soup, entanglement, ingestion, and microplastics.</li> <li>• Describe personal responsibilities to prevent pollution of the marine environment.</li> <li>• Describe the role fishers can play in decreasing marine litter in the ocean, including proper garbage handling on board and disposal in ports, use of materials, recycling</li> </ul>	
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			<p>of fishing gear, and participation in the Fishing for Litter program.</p> <ul style="list-style-type: none"> <li>• Show awareness of the importance of pro-active measures to protect the marine environment.</li> </ul>	
<b>60 min</b>	<b>Climate change</b>	<p>This lecture starts with an overview of the four main challenges connected to air pollutants from fishing vessels. It is important that the participants understand that CO<sub>2</sub> is only connected to climate change.</p> <p>The definition, changes, causes, and consequences of climate change are discussed with the participants. The greenhouse effect is explained, as well as the rise in CO<sub>2</sub> concentration. Emphasis should be placed on the graph showing the steep rise in CO<sub>2</sub> concentrations over the last 800,000 years, which illustrates that we know the climate is changing, but we can't know what the exact consequences are. Examples of local climatic changes</p>	<ul style="list-style-type: none"> <li>• Show awareness that the climate is changing.</li> <li>• Describe (potential) impacts of climate change, including effects on temperature, weather events, sea level, the marine environment, and fisheries management.</li> </ul>	<p>Use a slido/mentimeter or kahoot to get people to give their opinion on climate change, no right or wrong answers.</p>

		<p>should be given to familiarize the participants.</p> <p>Lastly, actions taken to fight climate change are discussed, with an emphasis on the fishing industry. International agreements, such as the Paris Agreement are explained.</p>		
<b>90 min</b>	<b>People P &amp; communication</b>	<p>This lecture is focused on the people part of sustainability (People P) and aims to make fishers understand their relationship with society. This includes having fair pay, safe working conditions, crew management, the importance of local communities. It is important to recognize that having better working conditions etc. can attract more people to the industry. To illustrate the power of society, examples of instances where acceptance by society was a license to operate and produce are discussed.</p>	<ul style="list-style-type: none"> <li>• Realize that the People P is part of sustainable fisheries.</li> <li>• Describe the ILO Work in Fishing convention which sets standards for decent working conditions in the fishing industry.</li> <li>• Describe what your rights are as a fisher.</li> <li>• Acknowledge that many players (stakeholders) are interested in the fishing industry, including governments, NGOs, and consumers.</li> <li>• Describe his/her opinion of (the importance of) the reputation or image of the fishing industry.</li> </ul>	<p>Fishing &amp; society workshop:</p> <ul style="list-style-type: none"> <li>• Flip chart</li> <li>• 2 different colored markers</li> </ul> <p>Communication workshop:</p> <ul style="list-style-type: none"> <li>• Sheet of paper (1 per participant)</li> <li>• Pen (1 per participant)</li> </ul>

		<p>The second part consists of a workshop about the reputation and identity of fishing. Here, the participants are encouraged to think about the two and how they differ. The reputation is first discussed with the whole class, and some keywords are written down by the trainer. In a workshop, participants will discuss if and why a good reputation is important.</p> <p>The participants are then made aware that communication is a crucial skill in changing their reputation. To further emphasize this, a workshop is carried out where the participants will practice their communication skills. For further details on the workshop, see the trainers manual.</p>	<ul style="list-style-type: none"> <li>• Realize the importance of communication with other fishers, stakeholders outside the industry and consumers.</li> </ul>	<ul style="list-style-type: none"> <li>• Two different drawings with figures</li> </ul>
<b>90 min</b>	<b>Final workshop</b>	The training is concluded with a final workshop on the participants' ideas	<ul style="list-style-type: none"> <li>• Express ideas about the (sustainable) future of the fishing industry.</li> </ul>	<ul style="list-style-type: none"> <li>• Computer or laptop</li> </ul>

		<p>about the sustainable future of the fishing industry.</p> <p>The final workshop brings together all the previous subjects and invites the participants to think about their own role and opinion regarding challenges that the fishing industry faces.</p> <p>The format of this workshop depends on the time available for this part.</p> <p>See the trainers manual for a detailed description on which format you can use.</p>	<ul style="list-style-type: none"> <li>• Show awareness of personal responsibility towards the marine environment.</li> </ul>	
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# Document 3: Implementation protocol

## IMPLEMENTATION PROTOCOL

This protocol describes a set of steps to take to implement sustainable fisheries training in a new country or region. It can be used by anyone who is interested in implementing this type of training in the fishing industry including the fishing industry, fishing academies, government, scientific institutes, and NGO's. The steps are based on the experiences in the 'Catching the Potential (CTP)' project. Please feel free to reach out to the partners in this project for help, to share experiences, challenges, results, and the use of materials.

### STEP 1 – Research, know your playing field

It is important to have a clear picture of the national and/or regional situation. This includes an analysis of the fishing industry, existing training and education of fishers and the local network and stakeholders involved. Knowledge that must be collected includes:

- Composition of the fishing industry, type of fisheries, fishing areas, economic data, structure of the fishing chain and national/specific regulations. It should also include an analysis of current issues, challenges, and opportunities, especially related to sustainability.
- Analysis of the target group of sustainable fisheries training, including number of fishers, their age and education. It is also important to know what the current training of (future) fishers looks like, and if any subjects related to sustainability are included. Has the country ratified the STCW-F Convention?
- Which stakeholders are involved in the fishing industry and what knowledge and experiences do they have with (aspects of) sustainable fisheries. Relevant network/stakeholders may include fishing industry representatives, fisheries educators, government, scientific institutes/knowledge providers, training institutes, NGOs, fish auctions, fish supply chain partners.

### STEP 2 – Bring stakeholders together and form a project team

Implementing sustainable fisheries and sustainable fisheries training can only be successful if it is supported by the fishing industry and the network connected to fishing. Communication is essential and it is important that all stakeholders are aware of the intentions and plans to develop and implement sustainable fisheries





training. When possible, invite stakeholders to be part of the project team that will develop and implement the training. An ideal project team consists of a fishing industry representative, the education/training institute(s), the government, and experts with knowledge of, for example, ecology, fisheries economics, and fisheries management.

### STEP 3 – Analyse the existing training material

The project team analyses the existing training material, including the CTP-standard and all materials that are already in use in the training and education of (future) fishers. The CTP-standard is described in detail in the document **CTP-standard** and in the **CTP-standard manual for trainers**. The project team decides on the goals and overarching approach of the training and will indicate where changes need to be made to make the training fit in the national, regional, or local circumstances.

### STEP 4 – Develop tailor-made training

Using the CTP-standard and training materials in English as a baseline, the project team adapts the training by adjusting the content to the local situation, providing local examples, and translating the training in the local language. Adjusting the content is especially important for information about fishing areas, fishing economy, fish supply chain and fisheries management. In addition, it is important to compose the training in such a way that it fits with the set-up of the fisheries training and the level of the participants.

### STEP 5 – Organization and evaluation of pilot training(s)

The project team organizes and conducts a pilot training with the target group. This pilot training is evaluated with the participants. The project team also provides an extensive evaluation, looking at both the content and the design of the training. Based on the experiences and evaluations, the training can be adjusted. If possible, invite stakeholders and regulators to attend a second pilot with the target group.

### STEP 6 – Identify actions for structural implementation

The project team invites stakeholders to discuss the structural implementation of sustainability training for fishers. Aspects to be discussed include national government ratification of the STCW-F Code, national regulations, curriculum inclusion and training funding.

### STEP 7 – Implement sustainability training for fishers

The final step is the actual inclusion of sustainable fisheries training in the training and education of fishers, and the continuous monitoring of the progress and results.