

Deliverable No. 7.5

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FarFish

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¹ Document will be a draft until it was approved by the coordinator

² PU: Public, PP: Restricted to other programme participants (including the Commission Services), RE: Restricted to a group specified by the consortium (including the Commission Services), CO: Confidential, only for members of the consortium (including the Commission Services)

³ The initials of the revising individual in capital letters

Deliverable D7.5

Demonstrator: University-level diploma programme in Marine Management and Innovation launched

30/05/2019



Executive Summary

Within task 7.4 in the FarFish project, **Development of a university level Certificate program in Marine Management and Innovation**, a certificate-awarding programme has been set up consisting of short courses taught by different FarFish institutions. The short-term courses are designed to further educate especially **fish business operators** and **EU fleet representatives**.

The planned programme is made up by several short-term courses and two main topics have been selected for the focus of the programme: **Laws and regulations, and Value chain analysis**. The first course will be run in **March 2020** in Tromsø, Norway, with parallel streamed sessions in Vigo, Spain, and Reykjavik, Iceland. UiT the Arctic University of Norway is responsible for coordination and administration of the programme. The aim is to **educate at least 5 students** to graduation, and to provide an open access and adaptable **on-line course** for at least five years after project end.

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Abbreviations

ABNJ	Areas Beyond National Jurisdiction
AIS	Automatic Identification System
CECAF	Regional Fishery Advisory Body for the Eastern Central Atlantic Fisheries
CFP	Common Fisheries Policy
CSs	Case Studies
ECTS	European Credit Transfer and Accumulation System
EEZ	Exclusive Economic Zone
EFCA	European Fisheries Control Agency
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GFW	Global Fishing Watch
ICCAT	International Commission for the Conservation of Atlantic Tunas
IEO	The Spanish Institute of Oceanography (Spain)
IUU	Illegal, unreported and unregulated fishing
MCS	Marine Stewardship Council
MCS	Monitoring, Control and Surveillance
MSP	Maritime Spatial Planning
MPA	Marine Protected Area
MR	Management Recommendations
OROP	Regional Organization of Fisheries (Spanish abbreviation)
PESCAO	Project financed by DG DEVCO for supporting fisheries governance, and improving MCS in West Africa
PMG	Project Management Group
RFMO	Regional Fisheries Management Organisations
SDG	Sustainable Development Goals
SFPA	Sustainable Fisheries Partnership Agreements
TMT	Trygg Mat Tracking
UNUFTP	The United Nations University Fisheries Training Programme
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
VME	Vulnerable Marine Ecosystems
VMS	Vessel Monitoring System
WP	Work package

1 Introduction

Within task 7.4 in the FarFish project, **Development of a university level Certificate program in Marine Management and Innovation**, a certificate-awarding programme is in the process of being set-up, consisting of short courses taught by different FarFish institutions. The short-term courses are designed to further educate the following stakeholders; fish business operators, EU fleet representatives, people working in fisheries ministries, marine research institutes, directorates of fisheries, etc. As people in positions within the Case Studies (CSs) from marine research institutions and people working in fisheries ministries have other courses which are provided under other tasks in Work Package 7 (WP7, it was decided to address especially **fish business operators**, and **EU fleet representatives** at the courses under this task. This report explains the development of the programme and is meant to be a “working document” as the content will be developed further with stakeholders up until the courses start.

The programme is made up by several short-term courses on topics within fisheries management, laws and regulations, stock assessment methodologies, bioeconomics, value chain analysis, business administration, quality and processing as well as food safety. The selected topics are based on stakeholders’ interests brought up by operators and training needs communicated at a stakeholder meeting (the MR Kick-off meeting) which was held in June 2018 in Vigo, Spain. As a result of further discussions with the stakeholders regarding avoiding duplication of work done elsewhere (e.g. European Fisheries Control Agency, EFCA), two main topics have been selected for the focus of the programme:

1. **Laws and regulations.**
2. **Value chain analysis (including food safety)**

The development of the programme, its launching and expected outcomes are identified as official key milestones and deliverables in the FarFish project, as shown in Table 1.

Table 1: Deliverables and milestones connected to the University-level diploma programme in FarFish

FarFish commitment	Title	Deadline
Milestone 7	University-level diploma program launched	M24 (June 2019)
Deliverable 7.5	Demonstrator, University-level diploma programme in Marine Management and Innovation launched	M 24 (June2019)
Milestone 15	At least five students graduated from University-level diploma program	M47 (April 2021)
Deliverable 7.9	Report on University-level certificate programme in Marine Management and Innovation	M47 (April 2021)

2 Potential students for the diploma programme

The aim is to recruit at least 10 enrolled students in order to ensure that at least five will graduate within the lifetime of the project. The motivation for potential students to participate include; career development, personal certificate, funding for attendance, and that the outcome can be used by their company, e.g. added to the company home page.

2.1 EU fleet, business owners and EU fleet representatives

Target organizations: OPAGAC (PS, Spanish), ORTHONGEL (PS, French), OPROMAR (Trawl, Spanish), ORPAGU (Spanish LL), Fish business operators (e.g. ANFACO, ATUNLO), SW Atlantic stakeholders (e.g. catch: ARVI, processors: Anfaco, Frescomar), and crew members and administrative officers will also be considered.

2.2 Other potential students

International Fisheries Management Master and PhD students in Tromsø at UiT and Reykjavik at UNUFTP and/or in case study countries, and Sri Lanka (Nor-Lanka Blue).

2.3 Funding of travel and subsistence

Budget for course 10,000 EUR – funds are meant for covering participation of students.

3 FarFish institutions responsible for teaching in the programme

Vast knowledge and experience relevant for the programme resides within the staff of FarFish project partners. UiT, UNUFTP, NOFIMA, MATIS, CSIC, Syntesa, LDAC, University of Portsmouth are examples of project partners that will contribute to teaching within the programme. We will as well facilitate for further diversification of speakers from different areas of expertise by inviting fleet operators (e.g. ANFACO) to lecture or hold work-shops on the course (e.g. data reporting, food safety challenges within the processing industry) in order to maximise input from, and appeal for other stakeholders.

UiT has overall responsibility for the programme, but other key contributors are identified in Table 2 and Table 3. Additional contributors will be introduced once the programme starts.

Table 2: Institutions and persons responsible for progress of the programme

	FarFish partner	Country	Persons	Field of expertise
UiT	University	Norway	E. Halttunen M. Aschan A. Eide	Programme management, governance, fisheries economics
UNUFTP	University	Iceland	M. Francis	Reykjavik workshop
MATIS	Research institute	Iceland	J.Vidarsson T.Dagsson	Dissemination
CSIC	Research institute	Spain	J. Ruiz	Workshop in Vigo
SYN	European SME	Denmark	O. Gregersen U. Laksá	Evaluation of programme and student work

Table 3: UiT diploma course modules, FarFish institution responsible, Teaching personnel.

Topic	FarFish Institution	Person (lecture)	Potential Supervisors
Law and regulations	LDAC NOFIMA UiT	A. Rodriguez I. Kvalvik A. Eide	A. Rodriguez I. Kvalvik A. Eide K. Nilsen
Value Chain	NOFIMA UiT UoP	P. Olsen, Ø. Hermansen M. Esaissen E. Elvevoll M. Aschan P. Failler A. Thorpe	I. Kvalvik P. Olsen, M. Borit M.Aschan External examiner of essays

4 Description of programme and practicalities

The programme will be officially launched at the FarFish annual meeting in Las Palmas, June 2019 (MS7), CETMAR will help identify the potential students, while Mátís will assist in dissemination. UiT will pay for travel and accommodation for five persons attending the physical course in Tromsø.

4.1 Timing, locations, selection criteria and language

Following are details on planned dates for the courses, locations, explanations on selection criteria for the students, what languages to use.

Dates: 9-13th March 2020, (approved by the PMG)

Locations:

The course will be run parallel in three or four locations:

- 1) Norway, Tromsø, UiT the Arctic University of Norway – physical lectures, facilitated seminars- UiT/Nofima
- 2) Vigo, Spain – streamed lectures, facilitated seminars by CSIC/CETMAR
- 3) Reykjavik, Iceland – streamed lectures, facilitated seminars by UNUFTP- M.Francis
- 4) Sri Lanka – streamed lectures, facilitated seminars by UiT/Nor-Lanka Blue J. dos Santos

Selection criteria for attendance:

Regarding participation of industry and NGO stakeholders, FarFish offers the possibility to attend one of the two big themes of the course, i.e. Law and regulations (Mon-Tue) or Value Chain Analysis (Thu-Fri). This would allow those professionals only interested in one block or not available to participate for the full week to do the course and get an adjusted certificate. Yet, we recommend that students traveling to Tromsø participate in all the courses in the week-long programme.

Language: We are considerate of potential language issues; as the lectures are run in English, we assume that all participants of the programme have working knowledge of English. However, local seminars may be facilitated in Spanish or any other language. The local seminars will also allow for any clarifications on the streamed lecture topics. The essay supervision will be tailored to the student needs regarding language.

4.2 Taught topics

The course will focus on two topics: Laws and regulations and Value chain analysis. These two topics will be embedded in the overarching themes of Sustainability and Transparency. The topics will be taught through case studies and concrete examples and exercises. The case studies will be chosen according to interests of attendees.

4.2.1 *Laws and regulations*

This module will cover an introduction on international legal framework related to fisheries management. All legislative instruments derived from United Nations Convention on the Law of the Sea (UNCLOS) will be explained, including their impact on national legislations and obligations imposed over flag / port / market and coastal states. Specific examples will be provided during lectures and elaborated during seminar activities, for example role plays and games. The lectures will also build a knowledge base for the local industry visit.

Topics covered during the lectures include:

- Law of the Sea, agreements and guidelines, Common Fisheries Policy (CFP), Sustainable Fisheries Partnership Agreements (SFPAs) and Regional Fisheries Management Organisations (RFMOs)
- Regulatory Framework for International Fisheries Law (including both United Nation (UN) provisions, relevant Sustainable Development Goals (SDGs) and External Dimension of the CFP)
- Practical implementation of the management of the high seas regarding to SDGs 14 (Life Below Water), 2 (Zero hunger), and 6 (Labour and Employment).
- Three case studies covering the three key maritime areas: Exclusive Economic Zone (EEZ), Sustainable Fisheries Partnership Agreements (SFPAs), High Seas and International Waters subject to Regional Fisheries Management Organisations (RFMOs).
- Environmental, labour and safety at sea aspects, industry responsibilities
- The concept of sustainable fisheries, how your industry is going meet SDGs 2 & 14? CSs related to European Union (EU)→CFP
- Implementation of target SFPAs (e.g. Seychelles or Senegal): actions linked to fishing operations (landing in local ports and benefits for social communities) and use of sectoral support
- High Seas Governance: areas needing better regulation (Food and Agriculture Organization of the United Nations (FAO) 41 (Atlantic Southwest))
- Vessel Monitoring System (VMS) / Automatic Identification System (AIS) Regulatory or implementation gaps related to Marine Stewardship Council (MCS) in SFPAs, RFMOs and international waters: example on regional initiatives to fight Illegal, unreported and

unregulated (IUU) fishing in West Africa (PESCAO project) or control measures adopted by OROPs (list of IUU fishing vessels, transshipments programmes)

- An economic perspective on the management of fisheries
- Surplus production models, harvest production theory, reference equilibriums, opportunity costs in fishing

4.2.2 Value Chain

This module of the programme will focus on every aspect of value chain analysis, from identifying an existing one to creating one for a future product. Decision trees will be discussed, and exercises will be done with specialized software and games.

Topics covered during the lectures include:

- The flow of goods and services between links in the value chain, from raw material source to consumers
- Identification and mapping (in general for seafood: Catch, processing, marketing); Input-throughput-output structure
- Bargaining power and co-ordination between links (dominant actors?)
- Upgrading/vertical integration
- Competitive strategies (Porter: Cost leadership, Differentiation or Focus Segmentation)
- Institutional governance framework (legislation, standards)
- Informal institutions (culture, relation, trust)
- Information logistics/traceability
- Technologies for identification and labelling; barcodes, QR-codes, RF-ID chips, blockchain technology
- Internal company traceability and chain traceability, drivers for traceability
- Legal requirements relating to labelling and product traceability
- What happens if traceability is missing, examples from various industries
- How to implement traceability; gaps and challenges?
- What is a value chain?
- What is a supply chain?
- How to analyse material flow and information flow?
- Material and information logistics
- Quality and processing
- Food safety
- Business administration: nature of production costs, cost structure, cost allocation, break-even analysis, profitability measures, and investment evaluation

4.3 Learning objectives

Main objectives for the programme are as follows:

- To provide the students with an overview of central concepts and actors in fisheries management and international law
- To provide the opportunity for students to learn about the challenges of managing resources sustainably in a common pool resource setting, with realistic resource dynamics

4.4 Course requirements and organisation

To receive funding, the candidates must physically attend the course. In order to acquire credits (European Credit Transfer and Accumulation System, ECTS), the students are required to submit an essay (see below). All attendees will receive a diploma of attendance with course description.

Before course

The attendees are expected to fill in pre-questionnaire on role in organization, any specific educational needs and other background information (e.g. problematic/successful catches in fleet). The course content will be tailored after results to fit the target group/students.

On course

Active participation on lectures and seminars.

For those applying for ECTS for the course

1. Identify essay theme and submit a preliminary outline of the essay based on UiT template before the course (15.12.2019).
2. Obligatory reading (240 pages) before course.
3. Written supervision by email and one supervision-session by Skype after course.
4. Submit 5 pages essay (1500 words) by 15.5.2020.
5. Grading: Pass/Fail, 3 ECTS (ECT points are awarded according to EU recommendations, e.g. 28 t =1 ECT. We plan for 1-week lectures= 1 ECTS, 1-week reading = 1 ECTS and 1-week essay = 1 ECTS).

4.5 Course programme

Time	Monday Laws and regulations	Tuesday Laws and regulations	Wednesday Traceability, excursion	Thursday Value chain analysis	Friday Business, evaluation and end
09.15-10.00	Welcome and introduction to the course (M. Aschan , UiT)	Control in practice: use of Vessel Monitoring System VMS / Automatic Identification System AIS (A. Rodriguez , LDAC)	Information logistics and traceability (P. Olsen , Nofima)	Supply chains and value chain (P. Olsen , Nofima)	Fishing vessel economics (Ø. Hermansen , Nofima)
10.15-11.00	Fisheries management and international law I (I. Kvalvik , Nofima)	Marine Protected Areas MPAs/ Vulnerable Marine Ecosystems VMEs: what, how and why? (A. Rodriguez , LDAC)			
11.15-12.00	I Seminar groups	III Seminar groups	V Seminar groups	VI Seminar groups	VIII Seminar groups
12.00-13.15	Lunch	Lunch	Lunch	Lunch	Lunch
13.15-14.00	Fisheries management and international law II (A. Rodriguez , LDAC)	Fisheries economy (A. Eide , UiT)	Excursion to visit local industry: Hermes Tracking, Traceability, Safety	Quality and processing (M. Esaiszen , UiT)	IX Seminar in plenary: Questions and Answers
14.15-15.00	Data flows between fleets and administrations (A. Rodriguez , LDAC)			Food safety (E. Elvevoll , UiT)	Course evaluation, description of exam assignment
15.15-16.00	II Seminar groups	IV Seminar groups	Other industry visits	VII Seminar groups	
Evening			Social gathering		

4.6 Webpage for the programme

The programme will have a webpage (under construction) including information and [these introductory videos for the lectures](#) (links in the programme above):



The video player shows a presentation slide with a map of Tromsø, Norway, and a list of program details. The speaker is Michaela Aschan.

- One week in early March 2020
- We stream all lectures and discussions
- Group work in Reykjavik and Vigo

Michaela Aschan - Introduction: University-level diploma programme in Marine Management and Innovation



The video player shows a presentation slide titled "INTRODUCTION TO INTERNATIONAL FISHERIES MANAGEMENT" with a list of topics. The speaker is Ingrid Kvalvik.

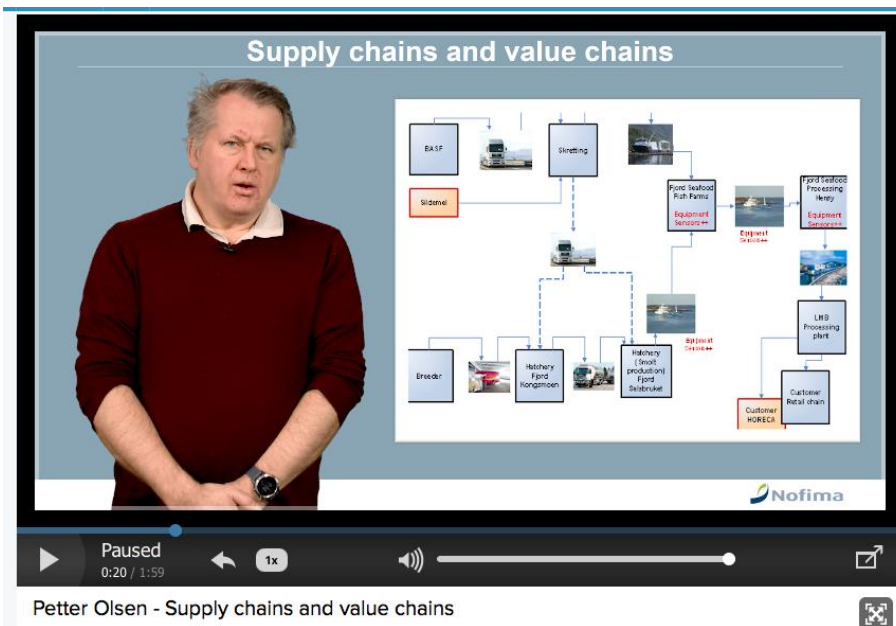
- ▶ Law of the Sea and the external dimension of the CFP
 - ▶ General principles for fisheries management
- ▶ Rights and obligations of
 - ▶ flag states
 - ▶ coastal states
 - ▶ port states
 - ▶ market state
- ▶ SPPA
- ▶ RFMOs
- ▶ Fishing in unregulated areas
- ▶ Basis for modules on reporting requirements (catch certificates etc, VMS/AIS), protection of biodiversity (MPA/VME)

Ingrid Kvalvik - International fisheries management



Arne Eide - Fishery economics

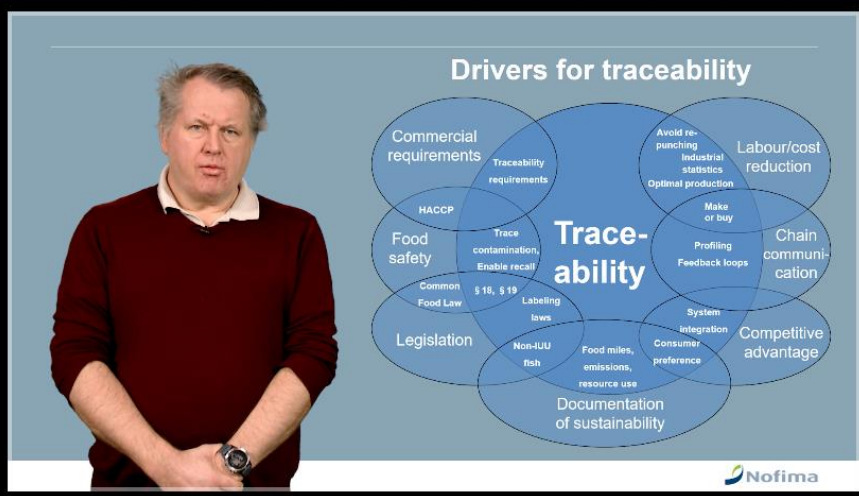
Supply chains and value chains



Nofima

Petter Olsen - Supply chains and value chains

Drivers for traceability

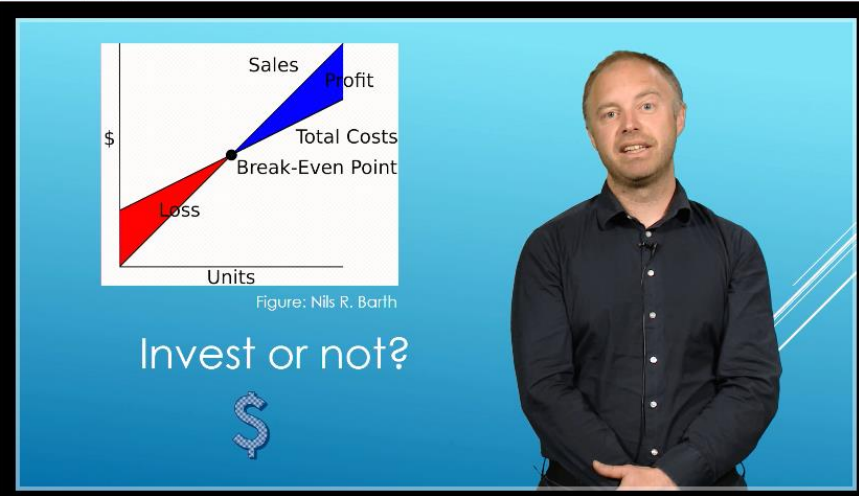


Commercial requirements
HACCP
Food safety
Common Food Law
Legislation
Traceability requirements
Trace contamination, Enable recall
§ 18, § 19
Labeling laws
Non-IUU fish
Food miles, emissions, resource use
Documentation of sustainability
Avoid re-purchasing industrial statistics
Optimal production
Make or buy
Profiling Feedback loops
Labour/cost reduction
Chain communication
System integration
Consumer preference
Competitive advantage

Nofima

Paused
0:21 / 2:15

Petter Olsen - Traceability



Sales
Profit
Total Costs
Break-Even Point
Loss

Figure: Nils R. Barth

Invest or not?

Paused
1:11 / 1:32

Øystein Hermansen - Fishing vessels economics

4.7 Suggested seminars

We will build the nine seminars on well-tested and easily adaptable games, roleplays and practical assignments to allow for interactive learning and for running the programme in several locations with minimum facilitation. In addition, we will visit the local industry to highlight the competitive advantage of transparency and safety. Keywords for the concept behind the used games and roleplays include active and blended learning; interdisciplinarity; problem-based learning; research-based education; role-playing games; simulations; student-centred teaching and learning.

The suggested seminars:

- I. Game: [Fishbanks](#) – a renewable resource management simulation
- II. Roleplay I
- III. Roleplay II and III
- IV. Game: Green grouper – builds on Fishbanks
- V. Whitefish app
- VI. [Kahoot](#) on traceability and value chain
- VII. Game: Beer Game – a production -demand simulation game
- VIII. Practical assignment on vessel economics
- IX. Plenary, Questions and Answers through Game: Gofish - students are asked to make questions to each other every day for the final game in the end of the course.

The games that will be used in the programme have been developed and tested in several learning arenas and target groups. Alternative games for seminars include: Simfish, Ecofishman, Fishpoll.

The roleplays will consist of small round tables of 5-10 people with mixed composition, giving the students different roles from the ones they have in real life.

They all would be introduced by a speaker setting the scene and context, identifying what we want to achieve and providing the main elements for the debate through open-ended questions. Several situations will be presented, both in EEZ waters and international/ Areas Beyond National Jurisdiction (ABNJ) waters, and both with EU fleet and non-EU fleets. Examples of questions: Has SDG 14.4 affected your business plan or fleet behaviour? Do you think direct subsidies to shipbuilding in China are unfair competition vis a vis EU fleets?.

4.8 Suggested syllabus

I. Kvalvik:

Hoel, A.H. and VanderZwaag, D. 2014: The global legal dimension – Navigating the legal currents of rights and responsibilities. In: Garcia, S., Charles, A. and Rice, J. (eds.) *Governance in Fisheries and Marine Biodiversity Conservation*, Wiley – Blackwell.

FAO State of Fisheries and Aquaculture 2018: <http://www.fao.org/3/I9540EN/i9540en.pdf>
(page 86-193).

En español: <http://www.fao.org/3/I9540ES/i9540es.pdf>

Jorge Santos:

Journal: *Industrias Pesqueras* – we will ask Vigo to find a selection of articles from the journal

Edel Elvevoll:

2004 Assessment and management of seafood safety and quality, FAO Fisheries Technical Paper no. 444. <http://www.fao.org/docrep/006/y4743e/y4743e00.htm>

Izumi Sone, Torstein Skåra, Stein Harris Olsen 2019

Factors influencing post-mortem quality, safety and storage stability of mackerel species: a review

Hollander et al 2017 Exploring solutions for healthy, safe, and sustainable fatty acids (EPA and DHA) consumption in The Netherlands

P. Olsen:

Food traceability in theory and practice. PhD- thesis

4.9 Detailed description of lectures

Data flows between fleets and administrations

This module will aim to discuss and understand specific data needs, where does it go and what scientists do with them. The goal is to make the students understand protocol requirements and giving them the ability to identify good or bad practices.

Main themes:

- Data information flows between EU operators / Flag and Coastal States / RFMOs (e.g. International Commission for the Conservation of Atlantic Tunas (ICCAT) for Cabo Verde). Role of the EU.
- Feedback on type of data and way of presenting the information from scientific and control authorities to operators in areas such as statistics (e.g. EU database) or stock assessments (e.g. The Spanish Institute of Oceanography (IEO) reports, Regional Fishery Advisory Body for the Eastern Central Atlantic Fisheries (CECAF) or ICCAT Scientific Committees)
- Different requirements from different RFMOs.

Practical implementation /aspects related to Control: use of VMS/AIS

The purpose of the module is to explain the difference between VMS and AIS, and the importance of it. An introduction on international VMS regulation will be given, but most of the time will be spent giving examples on good/bad practices with AIS/VMS, examples on sanctions and examples on the treatment of AIS data by databases such as Global Fishing Watch (GFW).

Main themes:

- Definition of MCS and highlight strengths and weaknesses of each of the MCS tools.
- Understand practical technicalities related to specific use of each of these systems and requirements for different areas / fisheries.
- Explain the Control Fisheries Integration tools (FLUX, FOCUS...)
- Applicable rules and norms and sanctioning procedures / regime.
- Regional initiatives and projects (Oceanminds, PESCAO, Trygg Mat Tracking; TMT)
- Definition of consequences of misreporting and control gaps related to operators: e.g. justifications to switch off AIS; signal gaps with VMS.
- Examples on specific cases of sanctions.

Marine Protected Areas (MPAs)/ Vulnerable Marine Ecosystems (VMEs): what are they, how are they designed and why, international law

Main themes:

-Brief definition of an MPA and difference with VMEs.

https://mote.org/media/uploads/files/P3_Ch_2.pdf

-Examples of working and non/working MPAs.

-Link the module with the Seychelles Marine Spatial Planning (MSP) initiative and the IEO seabed mapping projects on VMEs.

The module will discuss what MPAs are, the purpose, how they are included in international agendas and why they work and why they don't. This last subject will be explained through examples, and students will be asked to see possible problematics with them. To link it with the Seychelles CS, the exceptional situation of the Seychelles MSP will be covered