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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 D7.9

Report on University-level certificate programme in Marine Management and Innovation

25/03/2021



Executive Summary

This report contains an evaluation of the university-level certificate programme in "Marine Management and Innovation" (SVF-6013) that was developed and ran as part of the FarFish project. The programme was organised by University of Tromsø (UiT – The Arctic University of Norway) and ran from 9-13th March 2020. A total of 22 students from all across the world attended the programme onsite in Tromsø, and many more watched live streaming from the lectures. The lectures were also recorded and have been available at the FarFish website since then. Throughout the week, participants were trained on topics such as international ocean governance, traceability, value and supply chains, food safety and economics. The training consisted of lectures, group work, field trips and final thesis. Among the 29 participants attending the programme, eight took the exam to be able to receive the certificate, and they all passed. The project therefore reached its goal of graduating at least five participants from the programme.

The exams, essays with self-chosen topics, contribute to the programme's academic outcome, and with the permission from the respective essay authors, FarFish has published a summary of six essays on the FarFish web page. The hope is that the essays will act as effective tools to make sure the programme has a learning impact beyond the course. Moreover, it is especially rewarding to know that one of the participants has already acknowledged major impact from taking the programme on his professional life. In a letter we received, the participant wrote about some exciting developments in his professional life, partly attributed to his participation in the FarFish programme.

The fact that the curriculum and the recorded lectures are now available enhances the impact of the programme, as these outputs will remain as tools for capacity building beyond the FarFish project.

Overall, the course evaluation revealed that most participants felt the programme taught interesting topics. Most were very satisfied with the course's overall content and quality, despite the sudden change of circumstances related to the COVID-19 restrictions. With this feedback in mind, FarFish is satisfied with how the programme turned out and the impacts it is making. The International Fisheries programme at UiT is now under revision and we wish to integrate some of the FarFish course and experience in the new programme in 2022.

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1 Introduction

From 9-13th March 2020, UiT – The Arctic University of Norway (UiT) hosted the university-level programme called "Marine Management and Innovation" (SVF-6013). Twenty-nine participants from 14 countries took part. Among the participants were students and researchers from UiT, nine invited stakeholders, and seven online participants who followed the programmes' live streaming.

The programme is the outcome of task 7.4 "development of a university-level Certificate programme in Marine Management and Innovation" in the FarFish project. SVF-6013 consisted of short courses in international ocean governance, traceability, value and supply chains, and economics, taught by different FarFish partners. The qualitative goal was to educate decision makers further, in particular fish business operators and EU fleet representatives, and allow for the participation of students from UiT at the Master or PhD level. The quantitative objective was to graduate at least five participants, which was reached as all eight participants who took the exam passed.

The programme, unfortunately, became affected by the COVID-19 pandemic. Lockdown restrictions were imposed mid-way through the week, and thus, the last 1.5 days of the programme had to be taught remotely. Despite the sudden turn of events, participants were satisfied with the programme's overall quality, with 61% reporting they were *very satisfied*, 31% *satisfied* and 84% found the level of difficulty *appropriate* (Figure 1). According to the evaluation, the participants significantly enjoyed both lectures and seminars and found the topics being of great (personal) interest. Following are some example extracts from the programme satisfaction evaluation: "Lectures were interesting and relevant for me. Clear and concise"; "The level of the speakers was very high, they have a great knowledge of the subjects, and their transmission was quite clear"; and "...satisfied with the lectures as I appreciated each course and acquired different types of information in my PhD topic..." (Annex I).

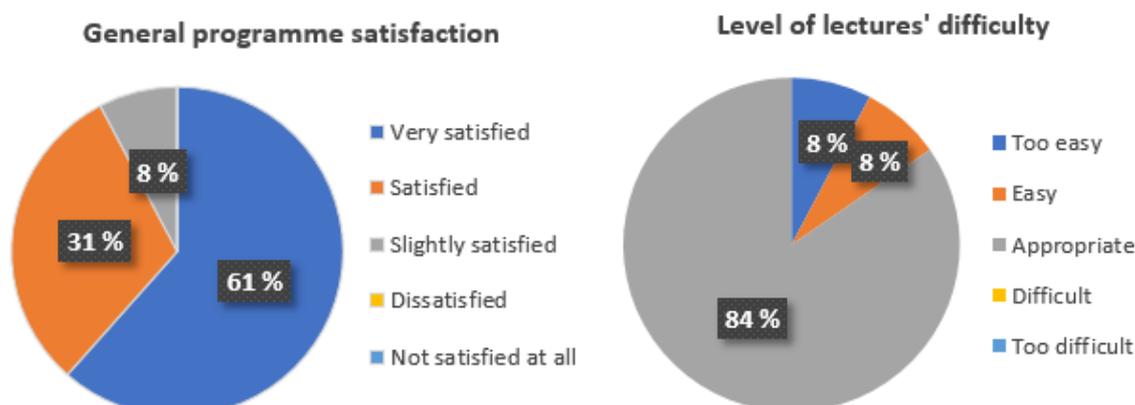


Figure 1: General course satisfaction among participants and level of difficulty

2 The University-level certificate programme in Marine Management and Innovation

The programme lasted five days, combining both lectures and seminars each day, as shown in the schedule below (Figure 2). The programme was made up of several short-term courses on topics within fisheries management, laws and regulations, stock assessment methodologies, bio-economics, value chain analysis, business administration, quality and processing, and food safety. The selected topics were based on stakeholders' interests brought up by operators and training needs communicated at a stakeholder meeting (the MR kick-off meeting). The programme's main focus revolved around laws and regulations and value chain analysis (including food safety).

The reasons for selecting these as main topics are related to the learning objectives of the programme:

- (1) to provide an overview of central concepts and actors within laws and regulations in fisheries management
- (2) 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
- (3) to achieve an understanding of the main concepts of food value chains, supply chains and traceability.

Moreover, the taught topics did also touch upon numerous of the UN Sustainable Development Goals (SDGs), such as nr.14 life below water, nr.2 zero hunger, nr.12 responsible consumption and production and nr.3 good health and well-being. The organisers want to highlight this, as one of the strengths of the programme is that it is relevant and timely.

The following sections will elaborate briefly on the details of each lecture.

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)	Supply chains and value chains (P. Olsen, Nofima)	Information logistics and traceability (P. Olsen, Nofima)	Fishing vessel economics (Ø. Hermansen, Nofima)
10.15-11.00	Fisheries management and international law (L. Kvalvik, Nofima)	Marine Protected Areas MPAs/ Vulnerable Marine Ecosystems VMEs: what, how and why? (A. Rodriguez, LDAC)			
11.15-12.00	Seminar 1	Seminar 3	Seminar 4	Seminar 5	Seminar 7
12.00-13.15	Lunch	Lunch	Lunch	Lunch	Lunch
13.15-14.00	International legal framework related to fisheries management (A. Rodriguez, LDAC)	Fisheries economy (A. Eide, UiT)	Excursion to visit local industry: Hermes Tracking, Traceability, Safety	Quality and processing (M. Esaisson, UiT)	Plenary session: Questions and Answers
14.15-15.00	Data flows between fleets and administrations (A. Rodriguez, LDAC)			Food safety (E. Elvevoll, UiT)	Plenary session: Course evaluation, description of exam assignment
15.15-16.00	Seminar 2		(+boat trip for travelling participants)	Seminar 6	

Figure 2: Programme schedule

2.1 Introduction to the programme

Professor Michaela Aschan (UiT) gave the first lecture. Professor Aschan had a short welcome lecture that introduced the different teachers and topics that will be taught. Furthermore, she talked about why a shift towards sustainable management is crucial in the years to come.

According to participants at Lofot-fishing, what is the greatest future challenge for the industry?

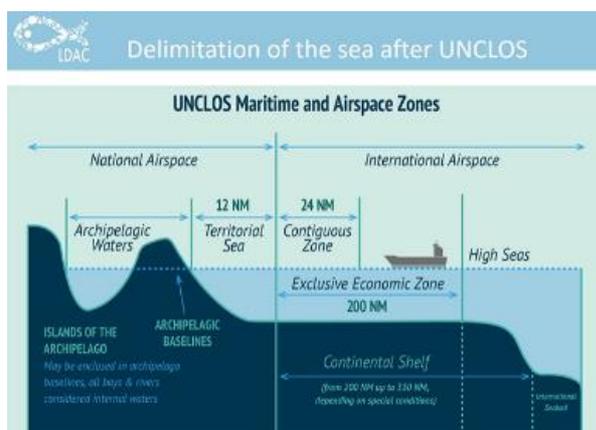


Figure 3: Screenshot from one of the topics touched upon in the introduction lecture

2.2 Fisheries management and international laws

The second lecture, given by senior researcher Ingrid Kvalvik (Nofima), provided an overview of what fisheries management is on an international level, why we need it and which international laws are in place to provide governance. Central topics here were the tragedy of the commons, UNCLOS and geopolitics within fisheries.

Alexandre Rodriguez (LDAC) gave the third lecture, which also was related to international law. He elaborated more on what it is and talked about international fisheries governance's key instruments: UNCLOS, FAO, RFMOs, etc.



International oceans and fisheries politics

- Both rules and institutions
- Both binding and non-binding agreements
- Many levels:
 - global (FN, FAO + CBD, CITES, WTO...)
 - regional (RFMOs, OSPAR)
 - bilateral
 - + national implementation and enforcement
- Multiple sectors: general ocean politics, fisheries, environment, trade...

Figure 4: Screenshots from topics touched upon in the second and third lecture

2.3 Monitoring, Control and Surveillance: The use of VMS and AIS

Alexandre Rodriguez (LDAC) was also responsible for the fourth and fifth lecture. He talked about the use of Vessel Monitoring Systems (VMS) and Automatic Identification Systems (AIS), what those systems are and how they contribute to the controlling and monitoring of fisheries. He also discussed how data from these systems are collected, transferred and distributed within the management ecosystem, using the case of ORPAGU in Cabo Verde.

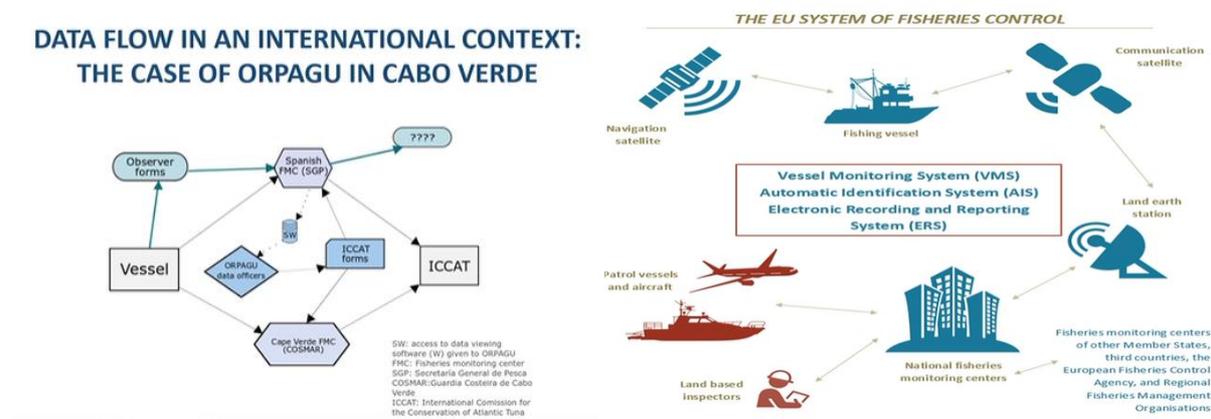


Figure 5: Screenshots from topics touched upon in the fourth and fifth lecture

2.4 MPAs and VMEs: what, how and why

Alexandre Rodriguez (LDAC) did also teach the sixth lecture, which revolved around Marine Protected Areas (MPAs) and Vulnerable Marine Ecosystems (VMEs). He talked about the positives and negatives of MPAs, how many international legal frameworks support them, and showed some case study examples of where MPAs have been implemented and how it can help protect VMEs.

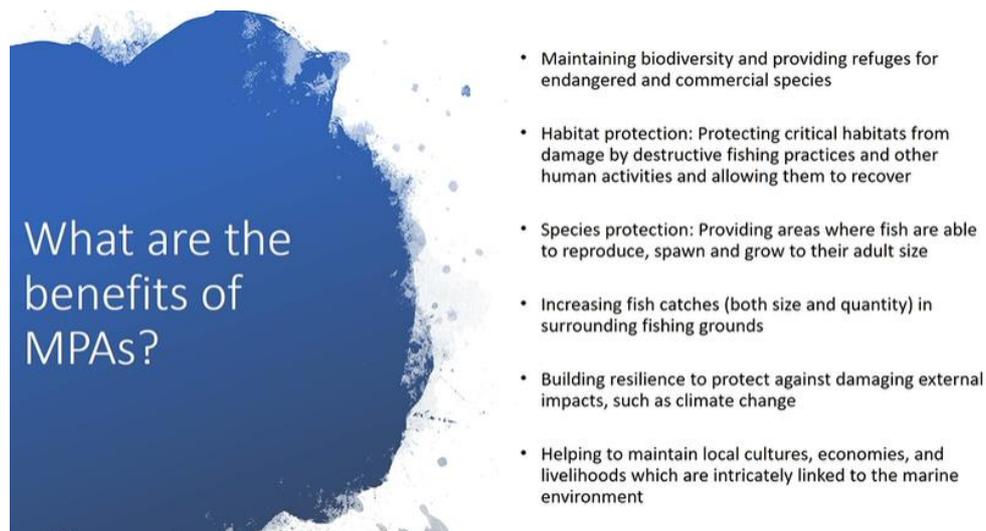


Figure 6: Screenshot from one of the topics touched upon in the sixth lecture

2.5 Fisheries economy

The seventh lecture was an introduction to fisheries economies given by Professor Arne Eide (UiT). In this lecture, central concepts and essential models related to fisheries economies were explained and showed the mathematics behind the models. In the end, management matters related to fisheries economics were discussed.

The Gordon-Schaefer Model

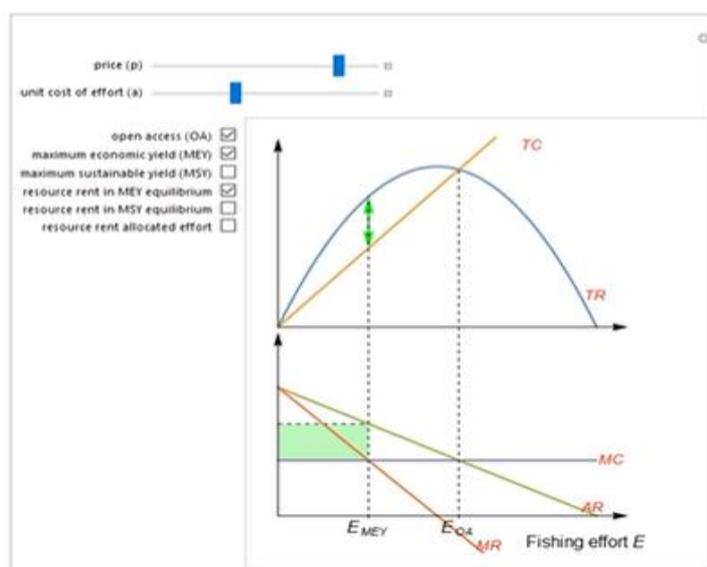


Figure 7: Screenshot from one of the topics touched upon in the seventh lecture

2.6 Value/supply chains and traceability

Senior researcher Petter Olsen (Nofima) held three lectures on value/supply chains, traceability and information logistics. He gave an overview of the different topics, discussing what value/supply chains are, value chain analysis, why seafood is a particular case concerning value/supply chains and the importance of traceability as a means of keeping accurate information flow.

Value chain

Established by Michael Porter (1985) as a business management term. «*The set of interrelated activities a company uses to create a competitive advantage*». Includes activities that add value to the product even if these activities do not directly handle the product, e.g. marketing, cleaning, or other services.

Supply chain

Established in 1981/1982 as an operations management term. «*The process of all parties involved in fulfilling a customer request*». Activities that (directly) assist in the production process, normally activities dealing with raw materials, ingredients, or products, including processing, storing, and transport.

Traceability definition – ISO 8402

Traceability:

The ability to trace the history, application or location of an entity by means of recorded identifications.

For products this includes

- origin of - and properties of all raw materials and ingredients
- complete process history
- location at any time

Figure 8: Screenshot from topics touched upon in the eighth, ninth and tenth lecture

2.7 Quality and processing (of seafood)

Professor Margrethe Esaiassen (UiT) held a lecture on the quality and processing of seafood, primarily focusing on the quality part, talking about, e.g. how different fishing gear affects different species' meat quality.

Quality of cod caught by longline

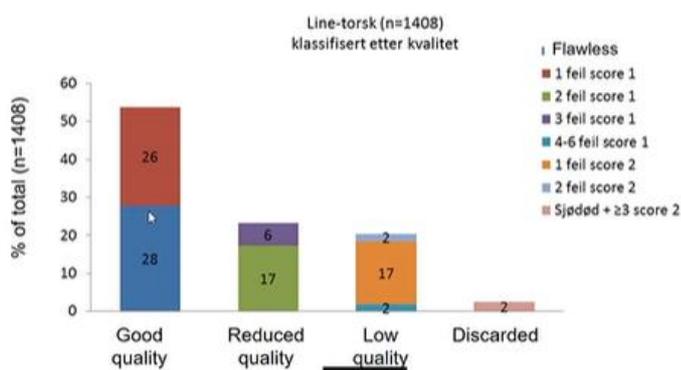


Figure 9: Screenshot from one of the topics touched upon in the eleventh lecture

2.8 Food safety

Professor Edel Elvevoll (UiT) gave a lecture on food safety, where she talked about human health hazards in aquatic food, presenting biological, chemical, and mechanical hazards. She also talked a bit about the evaluation of food safety concerning aquatic food.

«Is the (fatty) fish you eat safe?»



- European Food Safety Authority, EFSA, has reduced the «tolerable weekly intake» of the contaminants dioxins and dl-PCB
- Health effect seen at the lowest levels (LOAEL) related to semen quality (sperm volume, mobility, number)
- Now 2 pikogram TEQ/kg body weight

Norway: 70 % from seafood
 → 1.4 pg dioxin/dl-PCB/kg body weight
 → 70 kg: 0,098 ng dioxin/dl-PCB every week from seafood
 Salmon (2018): 0.62 ng dioxin/dl-PCB/kg filet
Not to exceed TWI:
0.6 ng dioxin/dl-PCB: 0.158 kg salmon filet/week
 If salmon is the only source



Figure 10: Screenshot from one of the topics touched upon in the twelfth lecture

2.9 Fishing vessel economics

Researcher Øystein Hermansen (Nofima) gave the final lecture, which was about fishing vessel economics. He discussed topics such as cost structure and behaviour, break-even analysis and investment analysis, and talked about relevant and useful tools.

Cost-volume-profit analysis I

- Some basic formulas can also come in handy
 - Op income = Revenues – Costs
- Op income = Sales price x Quantity – Variable unit cost x Quantity – Fixed costs
 - = Quantity x (Sales price – Variable unit cost) – Fixed costs
 - = Quantity x Contribution Margin – Fixed costs
- Contribution margin useful tool
 - Our vessel example
 - CM = Sales price – variable unit cost
= 1,12 – 0,61 = 0,51 EUR/kg
 - Quantity 1152 tonnes, fixed costs 444
 - Op income = 1152 x (1,12 – 0,61) – 444
 - Op income = 1152 x 0,51 – 444 = 145
- Can also be expressed in percentage
 - Ratio = CM / Sales price = 0,51 / 1,12 = 0,46
 - Contribution of 46% of the sales value



Figure 11: Screenshot from one of the topics touched upon in the thirteenth lecture

3 Detailed results from participant evaluation

3.1 Satisfaction

As explained in the previous section, most participants thoroughly enjoyed the experience of taking part in the certificate programme (SVF-6013). This section will present the main results from the evaluation, hence showing exactly which parts of the programme were successful and which could be improved. The entire report is found in Annex I. The below pie charts (Figure 12) shows that while no one was not satisfied at all or dissatisfied with the seminars, one person (8%) was dissatisfied with the lectures. This was apparently due to lectures not being interactive with participants partaking remotely; "Most of the courses were held online due to covid-19; thus, it was not interactive" (participant answer). For future reference, it could be wise to use a Q&A platform like Slido (www.sli.do) to enable interactivity when live-streaming lectures. Concerning the seminars, the evaluation's answers show that most found them interesting and practical, but also a bit chaotic and that they could have lasted longer (to increase learning outcome).

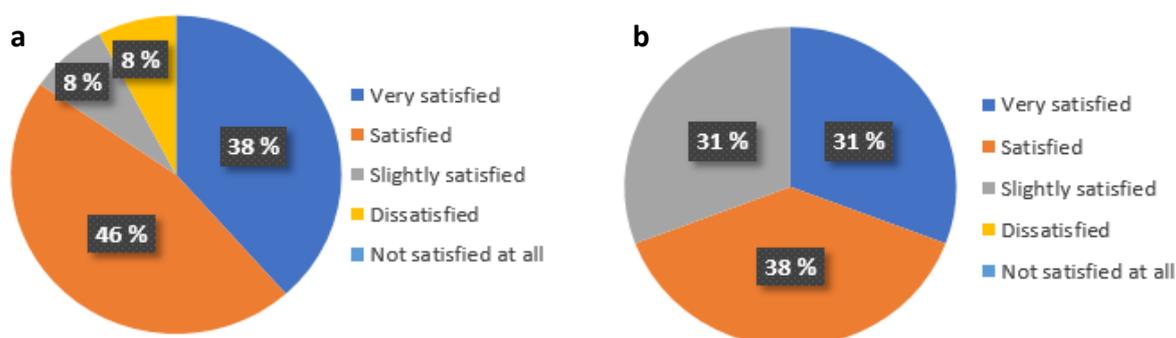


Figure 12: (a) General lecture satisfaction among participants and (b) General seminar satisfaction among participants

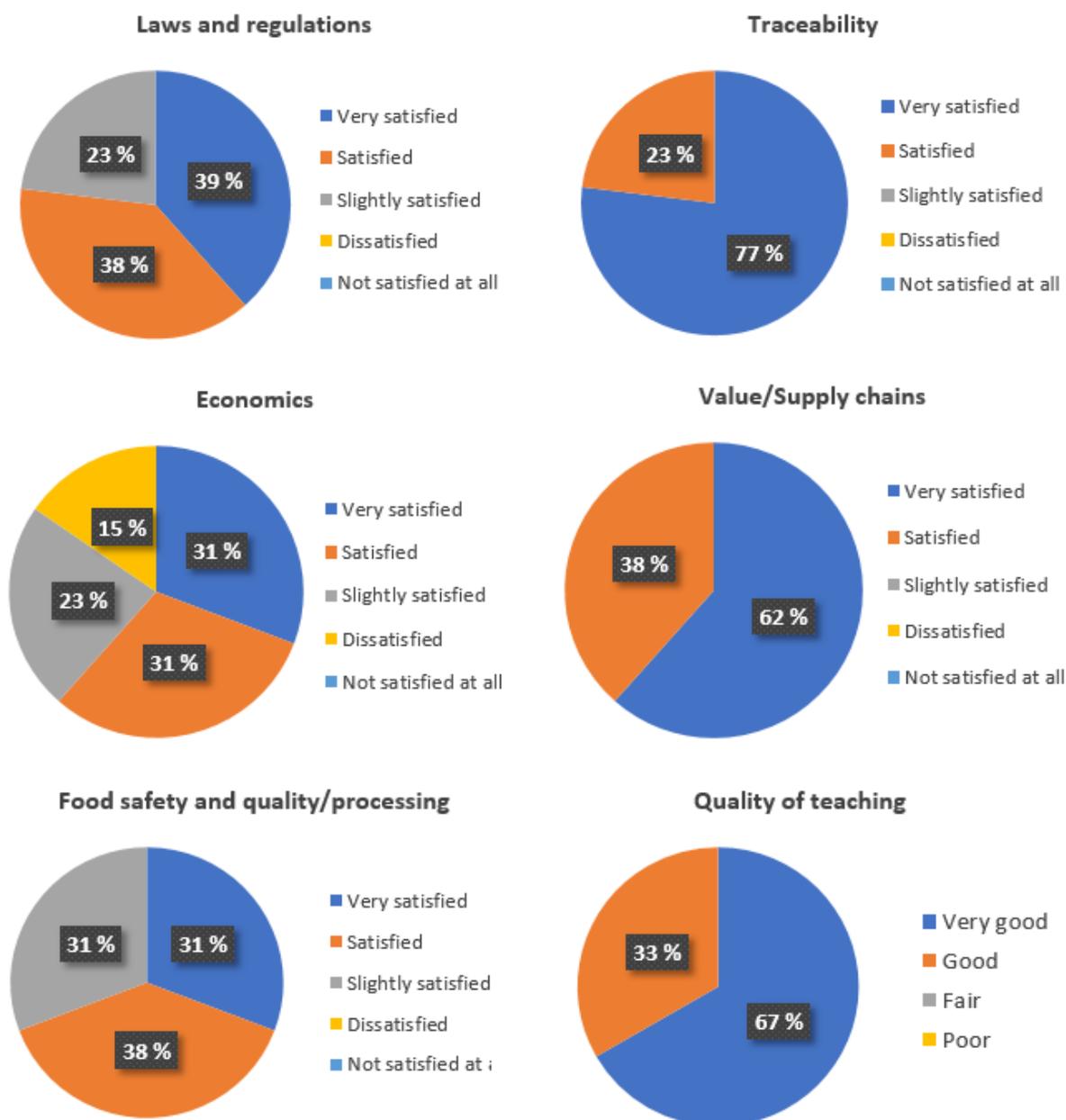


Figure 13: Level of satisfaction with the different lectured topics and quality of teaching

Looking at the feedback for each specific lectured topic (Figure 13), it is clear that all topics were taught in a manner that yielded great satisfaction. Only economics received feedback where some participants (15%) were *dissatisfied*. One participant said, "...lectures on economics could benefit from being a bit more interactive to increase participant engagement, e.g. have a Kahoot". As for the rest of the lectures, participants mainly were *very satisfied*, with lectures in traceability getting the highest level of satisfaction (77% replied *very satisfied*, and the remaining 23% replied *satisfied*).

Traceability also seemed to be the topic that people learned the most from. When answering the question "Please specify the lectures that you learned the most of, and state why", these were some of the answers; "The Traceability lecture was very interesting, I know how it is done back home. Seeing how it is done elsewhere is important" and "The lecture on data flows [author edit: traceability] is the one I learned the most of. This addressed issues I was interested in and did not have sufficient knowledge on". As Figure 13 shows, this high level of satisfaction coincides with the reported high quality of teaching; 67% said the quality was *very good*, while the remaining said the quality was *good*.

3.2 Streaming numbers and programme content

Thirteen separate lectures were streamed (Table 1). Right after the programme ended, data about the number of views for each lecture was retrieved. Lecture nr.7, "fisheries economy", had the most views (28), and lecture nr.3, "international legal framework related to fisheries management" had the least views (14). On average, the programme had 20 views per lecture.

Table 1: Views per lecture after programme end (16/03/20) by 1st of June 2020

Lecture nr.	1	2	3	4	5	6	7	8	9	10	11	12	13
Views	22	19	14	22	22	17	28	21	19	19	15	15	27

All streamed lectures are available for at least five years (until 09/03/25) and can be accessed through these links:

- <https://www.farfish.eu/courses/>
- <https://mediasite.uit.no/Mediasite/Catalog/Full/fca9efb9443d4ba7be05624fd7640f0321>

Those who want access to the programme content can send a request by email to Professor Michaela Aschan at UiT michaela.aschan@uit.no or to Jónas R. Viðarsson, the coordinator of FarFish jonas@matis.is.

4 Discussion and concluding remarks

When developing the programme, it was decided that the learning objectives should aid, first and foremost, fish business operators and EU fleet representatives in becoming more knowledgeable in international fisheries regulations, sustainable management of common marine resources, traceability and both value and supply chains. By looking at the results from the participants' evaluation, it is possible to say that the programme successfully achieved the decided learning objectives. Most participants found the lectures to be meaningful and of good quality, hence feeling that they gained knowledge from taking the programme. As one participant answered, "...the knowledge you gave during the courses will not be in vain, but it is very useful in my studies and future projects...".

Despite the mainly positive feedback, the evaluation also shows that there is room for improvement. A couple of the participants commented on the length of the programme, saying it could have been longer, e.g. two weeks, to cover the chosen topics more broadly. One participant also found the seminars' length too short, saying that seminars are an excellent tool for discussion and reflection. Thus, more time should have been allocated as they were even shorter than the lectures. However, it is also worth mentioning that the programme was designed only to offer short-term courses, i.e. lectures. The structure of the course could maybe have been better communicated to the participants.

The programme aimed to enrol at least 10 students and graduate five participants. Both goals were reached as 29 students enrolled and eight participants both took and passed the exam, therefore receiving the university level certificate. The exam was to write an essay relating to the topics of the course. The essays can also be considered as an academic outcome of the programme. With the respective essay authors' permission, FarFish has published a summary of six essays (links below) on the FarFish web page⁴. The hope is that the essay summaries will act as effective and easily available tools to make sure the programme has a learning impact beyond the course.

- [Pan-Arctic Marine Protected Area Network](#)
- [Patching the gaps of ABNJ governance](#)
- [Tasks and limits of Marine Protected Area Management](#)
- [Considerations on art.25 of the proposal for amendment of European Parliament Regulation N.1224/2009 CCTV control system in fishing](#)
- [Analysis of the conflict over the use of marine space In Madagascar](#)
- [FarFish – Inspiration for Changes](#)

In terms of impact, it is pleasant to know that the programme has already made one. Participant Cadu Villaca sent a letter to let the organisers know of some exciting developments in his professional life

⁴ <https://www.farfish.eu/news/>

(now on the Board of Directors in the Department of Registration and Monitoring in Brazil), part of which he attributes to his participation in the FarFish course. This highlights how the FarFish project impacts the partner countries and the lives of those connected to the project. With his permission, an abridged version of the letter is attached in Annex 3.

As the above shows, the FarFish programme can be considered a success, with participants reporting a high overall programme satisfaction and quality. There is always room for improvements, as some of the participants also pointed out. Nevertheless, the organisers are very satisfied with how the programme turned out and the impacts it is making.

The International Fisheries Management Master programme at the Norwegian College of Fishery Science at UiT the Arctic University of Norway is now under revision and has expressed interests to integrate some of the FarFish course and experience into the new programme that starts autumn 2022.

Annexes

Full participant programme report

Rapport fra «SVF-6013 V-2020 Marine Management and Innovation»

Innhentede svar pr. 27. august 2020 11:09

Leverte svar: **13**

Påbegynte svar: **0**

Antall invitasjoner sendt: **0**

[Med fritekstsvar](#)

[Uten fritekstsvar](#)

The purpose of this survey is to obtain information necessary to evaluate the quality of the course. Your contribution is important in order to obtain best possible quality.

What is your scientific background? *

Svar	Antall	Prosent
Biosciences	5	38,5 %
Economy	1	7,7 %
Social sciences	4	30,8 %
Physics/technology/mathematics	0	0 %
Chemistry or molecular sciences	0	0 %
Geosciences	0	0 %
Computer science	0	0 %
Other, please specify	3	23,1 %

How much of the required readings had you read before the course started? *

Svar	Antall	Prosent
None	1	7,7 %
Less than 25 %	6	46,2 %
25 - 50 %	5	38,5 %
More than 50 %	1	7,7 %
All/almost all	0	0 %

How much of the required readings had you read by the time the course ended? *

Svar	Antall	Prosent
None	1	7,7 %
Less than 25 %	1	7,7 %

25 - 50 %	5	38,5 %	
More than 50 %	5	38,5 %	
All/almost all	1	7,7 %	

In case your answer was not "All/almost all", please explain shortly why this was the case

- Fisheries Science
- after the course I had a lot of work to do in my Ph.D. subject and I was limited by time, so I didn't have enough time to read all the required readings.
- I couldn't read all the documents because I'm not used to reading scientific documents in English, and that's the problem I had to face. So it takes me longer to read a document.
- Time balance between academic and professional life.
- Some of the readings I had already read in the past, didn't re-read them. Some of the topics I had already examined, for work or other courses, so then no need to read more. I also was not fully sure what to expect of the course beforehand.
- The reason was the lack of time to dedicate to the readings.
- Lack of time
- There were so many papers within a limited time.

How will you evaluate your own contribution (i.e. course attendance, reading literature, preparing for lectures, active participation during seminars) in order to gain new knowledge during the course? (1: low, 5: very high) *

Svar	Antall	Prosent	
1 (low)	0	0 %	
2	1	7,7 %	
3	4	30,8 %	
4	7	53,8 %	
5 (very high)	1	7,7 %	

To which extent were your expectations of the course met? *

Svar	Antall	Prosent	
Not at all	0	0 %	
Slightly	1	7,7 %	
Mostly	5	38,5 %	
Fully	7	53,8 %	

How satisfied are you with the course in general? (1: not satisfied, 5: very satisfied) *

Svar	Antall	Prosent	
1 (not satisfied)	0	0 %	
2	0	0 %	
3	1	7,7 %	
4	4	30,8 %	
5 (very satisfied)	8	61,5 %	

Please list the three most important learning outcomes for you: *

- fisheries management, knowledge, understanding on the value chain
- The characteristics of marine protected areas et vulnerable marine ecosystems. The tools for controlling the fishing practice. The value chain approach
- Traceability, supply chain/value chain and food safety
- 1) I have a better understanding of traceability 2) I have a better understanding of the issues surrounding the establishment of Marine Protected Areas. 3) I have a better understanding of the laws of the sea.
- 1- Notion of food chain & traceability: information & material flow. 2- Data/Information exchange between long distance fleet and fisheries administration.
- - Some new expertise, I had not worked with traceability before - Social skills in cooperating with people from different backgrounds - Writing experience
- Fishing vessel economics. Value chain analysis. Traceability.
- Learning of: scientific notions on fishing notions of fishing economics notions of fishing law
- Understanding of data gathering and data handling in EU and SFPAs fisheries. Understanding of the importance of socio-economics of fisheries. Understanding on the importance of traceability in fisheries
- Food traceability, Value Chain, and Marine Protected Areas
- Traceability, diversity and adaptation to difficult situations in a globalized market.
- Legal Management And fisheries industry
- Value chain analysis

How satisfied are you with the lectures in general? (1 :not satisfied at all, 5: very satisfied) *

Svar	Antall	Prosent
1 (not satisfied at all)	0	0 %
2	1	7,7 % 
3	1	7,7 % 
4	6	46,2 % 
5 (very satisfied)	5	38,5 % 

Please explain why you were satisfied/not satisfied. *

- Interesting lectures
- I am satisfied with the lectures as I appreciated each course and acquired different types of information in my PhD topic on fisheries assessment and marine protected areas.
- I thought the lectures were great and informative, with some lectures being extra challenging and rewarding.
- The teachers explain it well and there's never a dull moment in every class.
- Most of the courses were held online due to covid-19 thus it was not interactive.
- In general good quality of the lectures.
- The level of the speakers was very high, they have a great knowledge of the subjects and their transmission was quite clear.
- Extraordinary experience from a human and professional point of view. Different cultures, different languages have come together and collaborated in the realization of this course in an excellent way. Daniel and Michaela are two extraordinary and friendly people and the success of the course is thanks to them
- Lectures were interesting and relevant for me. clear and concise.
- It was very informative for me. Small workshops were very useful.
- All topics and points of view (laws, market, consumer vision, etc) have been discussed.
- Because they were prepared and knowledgeable.
- It helps my current work

How satisfied are you with the lectures in laws and regulations? (1 :not satisfied at all, 5: very satisfied) *

Svar	Antall	Prosent
1 (not satisfied at all)	0	0 %
2	0	0 %
3	3	23,1 % 
4	5	38,5 % 
5 (very satisfied)	5	38,5 % 

How satisfied are you with the lectures in traceability? (1: not satisfied at all, 5: very satisfied) *

Svar	Antall	Prosent
1 (not satisfied at all)	0	0 %
2	0	0 %
3	0	0 %
4	3	23,1 % 
5 (very satisfied)	10	76,9 % 

How satisfied are you with the lectures in value chain analysis? (1: not satisfied at all, 5: very satisfied) *

Svar	Antall	Prosent
1 (not satisfied at all)	0	0 %
2	0	0 %
3	0	0 %
4	5	38,5 % 
5 (very satisfied)	8	61,5 % 

How satisfied are you with the lectures in economics? (1: not satisfied at all, 5: very satisfied) *

Svar	Antall	Prosent
1 (not satisfied at all)	0	0 %
2	2	15,4 % 
3	3	23,1 % 
4	4	30,8 % 
5 (very satisfied)	4	30,8 % 

How satisfied are you with the lectures in food safety, and quality and processing? (1: not satisfied at all, 5: very satisfied) *

Svar	Antall	Prosent
1 (not satisfied at all)	0	0 %
2	0	0 %
3	4	30,8 % 
4	5	38,5 % 
5 (very satisfied)	4	30,8 % 

Was the level of the lectures appropriate? (1 : too difficult 5: too easy) *

Svar	Antall	Prosent
1 (too difficult)	0	0 %
2	0	0 %
3	11	84,6 % 
4	1	7,7 % 
5 (too easy)	1	7,7 % 

Please specify the lectures that missed the appropriate level, in your opinion, and state why.

- Found the adequate
- from the lecture of which I met difficulties and I repeated it two times but it is still the same problem it is the fisheries economy but it's not a problem that it missed the appropriate level, but I did not understand well the various equations and it was too fast and complicated
- Lectures on international law and MPAs were very basic imo, but then again, those are not that difficult topics.
- All readings, in my humble opinion, were at the appropriate levels.
- Economics - Required high level of understanding/background
- I think all lectures were at appropriate level
- Fisheries economics lecture was very theoretical and all graphical

Please specify the lectures that you learned the most of, and state why. *

- the Traceability lecture was very interesting, I know how it is done back home. Seeing how it is done elsewhere is important.
- the lecture on marine protected areas and vulnerable marine ecosystems was very useful for me I really appreciated the points covered in this lecture on the state of marine protected areas in the world and the difference between MPAs and VMEs and the management tools applied in these critical areas.
- Traceability and value chain lectures. Very interesting topics taught in a confident manner.
- 1) Alex's course on Marine Protected Areas. It was easier for me to understand because I already have some knowledge on the subject. 2) Peter's course on traceability too.
- Traceability - It was well explained, structured with example and easy to follow.
- Traceability was new to me.
- Fishing vessel economics, because I was very interested in it and had little knowledge about it.
- Rodriguez's system of controls on fishing. A lesson on the law of the sea that represents my profession and my best competence, explained in an extraordinary way by Professor Roriguez.
- The lecture on data flows is the one I learned the most of. This addressed issues I was interested in and did not have sufficient knowledge on.
- Food traceability and Value Chain. because it was closer to my specialty.
- Maybe in the value chain analysis'lectures because it offers an overview of all the links in the chain and how they affect each other
- Food safety because I didn't know much about it before.
- Value chain analysis

How satisfied are you with the seminars in general? (1: not satisfied, 5: very satisfied) *

Svar	Antall	Prosent
1 (not satisfied)	0	0 %
2	0	0 %
3	4	30,8 % 
4	5	38,5 % 
5 (very satisfied)	4	30,8 % 

Please explain why you were satisfied/not satisfied with the seminars. *

- found them interesting
- the discussion during the seminars was very important with the intervention of all the participants and the trainers as well as the topics discussed represent important issues in the marine environment.
- I was satisfied with the seminars we got to have before the course was cut short due to lockdown. Especially seminar 3 (Seychelles) about zonal management as it engaged interesting discussions. Unfortunately the seminars were very short and I think more time should have been allocated to seminars. They are a great tool for discussion and reflection.
- I liked all the seminars. Especially the role-playing. I can understand the difficulty of decision making that the state, or NGOs etc. have to make. And the seminars allow us to discuss cases existing in the field.
- More interactives thus allows information exchange between the team that belongs to different background.
- Sometimes a bit chaotic, but interesting. (Also sometimes hard to concentrate after already two lectures)
- I could hardly participate in the seminars
- the seminars were excellent and educational. They allowed us to make practical what we learned with the lesson.
- Relevant seminar for me that was easy to understand
- I think seminars with various role plays are fun and useful.
- It's a practical way to learn and interact with other different opinions
- Because it was great to work w different people from different backgrounds
- It did provided practical view

What could have been done differently regarding the course content and lectures/seminars?

- Longer seminars, e.g. the two seminars related to international law/mpas could have been merged to one long where you focused on one larger exercise in stead of two shorter ones. Lectures on economics could benefit from being a bit more interactive to increase participant engagement, e.g. have a kahoot.
- No, I don't have an opinion on that. It was well done.
- The course was very intensive. I really needed the breaks inbetween, and therefore it was important to not extend the lectures into the breaks.
- Cannot think of anything

Please rate the quality of teaching in the lectures and seminars. *

Svar	Antall	Prosent
Poor	0	0 %
Fair	0	0 %
Good	5	38,5 % 
Very Good	8	61,5 % 

Do you consider this course useful for you as a student?

You do not need to answer this one if you participated as a representative from the industry.

Svar	Antall	Prosent
Yes	9	100 % 
No	0	0 %

Do you consider this course useful for you as a stakeholder?

You do not need to answer this one if you participated as a student.

Svar	Antall	Prosent
Yes	9	100 % 
No	0	0 %

How satisfied are you with the information provided before and during the course? (1: not satisfied, 5: very satisfied) *

Svar	Antall	Prosent
1 (not satisfied)	0	0 %
2	0	0 %
3	1	7,7 % 
4	5	38,5 % 
5 (very satisfied)	7	53,8 % 

Did you find information accessible enough? *

Svar	Antall	Prosent
Yes	13	100 % 
No	0	0 %

What could have been done differently regarding information on and organisation of the course? *

- nothing I can think of
- it's just organizing workshops and working on topics in groups that can produce in the future collaborations between the participants.
- I think instructions were a bit confusing at times, and came a bit late. Like the reading list.
- It would be wonderful if the course is over two weeks. There will be more topics covered and also opportunities to discuss them a lot. But in general about organization and information. I have nothing to say.
- Not sufficient time for such course.
- -
- Nothing.
- we had the misfortune to start the course in a phase of the world pandemic that has just begun, with many sacrifices from the organization we managed to return to our countries and our families and this thanks to the work of the course team.
- Cannot think of anything
- Course organizers were very helpful and friendly. they always helped us. Everything was perfect.
- Maybe more paper documents
- It was great
- More dissemination

Did you attend the course mainly physically or online? *

Svar	Antall	Prosent
Mainly physically present	9	69,2 % 
Mainly attended online	4	30,8 % 

If you attended online only, please write briefly how you feel that went.

- it went well and organized but we just don't have an option if we can ask questions online.
- This went extremely well. Did not have any problems. Except with the Kahood, which does not work over streaming due to delay in the system.

Please rate the usefulness of the knowledge gained for your studies/your work *

Svar	Antall	Prosent
Not at all useful	0	0 %
Somewhat useful	1	7,7 % 
Useful	7	53,8 % 
Very Useful	5	38,5 % 

Did you write an essay? *

Svar	Antall	Prosent
Yes	5	38,5 % 
No	8	61,5 % 

If you wrote an essay, are you satisfied with the supervision you got?

Svar	Antall	Prosent
Yes	4	80 % 
No	1	20 % 

If you are not satisfied, please specify why briefly.

- I haven't been able to contact my supervisor because of the situation I'm in. But I am sure that my supervisor would have given me full satisfaction. From what the other supervised students had said, the supervisor had given them full satisfaction.
- Due to Covid, supervisors have limited time therefore too busy to allocate enough time to participants.

Do you have any other comments you would like to share with us?

- I would just like to say that the knowledge you gave during the courses will not be in vain but it is very useful in my studies and future projects. I would like to thank all the teachers, the Farfish project, the University of Tromsø, and all the organizers. You gave me the opportunity and I am grateful and my stay in Tromsø was wonderful. Hate to see you again one day.
- Thanks for the course! And much thanks for the fantastic dinners and the cruise!
- Mine was an experience of sight and not only professional, I had the desire to relate to the Norwegian culture and I was happy to have shared it with kids from all over the world. Special thanks also to Ingrid, an available and excellent teacher who supervised my essay. I am sure I will return to Uit.
- Thank you

Pictures from the courses

Participants and teachers



Visit to Hermes



Various participants onboard the Hermes II



Programme impact on participant – Inspiration for change



My participation in the course in Marine Management and Innovation promoted by the FarFish Project at the University of Tromsø, and the opportunity it provided to spend a few days with excellent teachers and young talents in the incredible environment of the University and the beautiful Tromsø, and experiencing the boat ride with Hermes II after such a high conversation with the entrepreneur and owner, among so many other experiences and conversations, recently helped me make professional and personal decision of great importance.

For a long time, I have dedicated part of my time to representing the Brazilian Fishing Sector. This started with the intention of including the lobster fishery of the state of Ceará in a Fishery Improvement Project (FIP). After some time, I was appointed to assume the Technical Direction of Conepe, the National Collective of Fishing and Aquaculture.

There, with a national perspective, I was exposed to a much more complex system involving many environments, fisheries and cultures. I experienced and became aware of the difficulties and shortcomings of National Fishing Management.

Some ICCAT meetings we have been able to attend have served as a good example of what can be achieved through international cooperation for sustainable fisheries. It is clear that when protocols of data collection and consolidation are established, and when properly analyzed and when reflected in standards and deliberations discussed in a respectful environment, even geographic and cultural barriers can be overcome to develop management systems on the basis of the best available information, prevailing coherence.

The course in Tromsø addressed many legal aspects of international management. The FarFish project also deals with this, namely the participation of European fleets in fisheries in international areas, whether by bilateral treaties or by activity in international waters, and the commitment of these fleets and their actors to promote in these regions action aimed at sustainability and efficient management of natural resources.

These experiences and the background I have gained over the years, have moved me decide to accept an invitation from the National Secretary of Aquaculture and Fisheries to join the Board of Directors in the Department of Registration and Monitoring.

Within the structure of the Ministry of Agriculture, which attends to agricultural and broodstock activities. The Ministry now comprises our comparatively small Secretary of Fisheries, which returned to this structure after experiences in many other institutions within the federal administration. It basically has three Departments, including Fisheries Development and Management, Aquaculture Development and Management, and of Registration and Monitoring, where I now work.

In accepting this function, I acknowledge that it will not be possible to develop either fishing or aquaculture if we do not get the control of data and information. Our country is lacking in records and consequently cannot monitor activities properly. What is produced, how much and where, with what seasonality, and a lot of other basic information is lacking, which causes problems for development of consistent instruments for management.

Our innovative idea is to promote, through support of technology and automation, a major campaign of systematization and data collection. This will allow us to offer the development departments of Aquaculture and Fisheries, new platforms of data collection and monitoring. It is clear that the Fisheries Department needs a thorough reviews, fleets, value chains, training, and production limits to truly be able to develop a solid and sustainable future scenario. We aim to develop strong cooperation with research centers, civil society representation, legislative powers, to finally bring regulation and legal security that promote medium and long-term investments and enable development and balance in the fisheries sector.

Finally, I must thank the FarFish project and the whole FarFish team for making my participation possible, as well as the UiT staff and the beautiful Tromsø. I hope that the inspiration of this course will reflect a great change in the Brazilian approach to fisheries and aquaculture management, and that we will enter a cycle of development of the Sea Economy in harmony with the various activities, countries and cultures that divide the Oceans.

Cadu Villaça