



# Status Report Q1 2019

March 2019

# Key numbers Q1



**1,5 mNOK funding RAS**

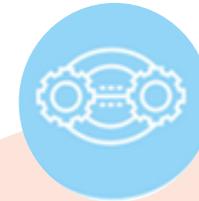
**365 applicants Seafood Trainee**

**20 women in  
Innovation network**



**73 mNOK in EU  
funding iFishIENCEi**

**20 m€ applied for in  
EU projects**



**12 start-ups pitching at  
Seafood Innovation Day  
NASF**

**11 start-ups in  
Katapult Ocean**

# Highlights Q1



## Knowledge

- 1,5 mNOK funding for development of new education and business programs on RAS/closed/semi-closed systems
- 29 Seafood trainees from 16 companies, 3rd program started
- 365 applicants to 15 participating companies in Seafood Trainee group #4



## Innovation

- 73 mNOK to the EU funded collaborative innovation project IFishIENCi
- 20 m€ applied for in 3 collaboration EU projects



## Entrepreneurship & Commercialization

- 12 international start-ups pitching at Seafood Innovation Day
- 11 international start-ups participated in Katapult Ocean accelerator program

# Successful launch of the Cluster's new strategy at our Partner Meeting

- Einar Wathne, Chairman of the Board, opened the Partner Meeting with almost 100 Cluster members present at the new venue Lanternen at Marineholmen.
- A new strategy for enabling the vision of sustainable seafood growth was presented in the meeting. The strategy process revealed a need for a collaboration model that contributes in building an ecosystem for growth and competitiveness in Norwegian seafood.
- In addition to the existing business areas Knowledge and Innovation, Entrepreneurship & Commercialization was introduced as a new area of priority. It was elaborated that the Cluster will pursue new value-creating business opportunities for partners and members to facilitate a global “hot spot” for attraction and economic growth.
- A new member service, [The Seafood Innovation Platform](#), was launched aiming to bring structure and clarity to the innovation landscape and to increase value-creation.
- Participants at the Partner Meeting were invited to give input to the strategy and the execution plan through a think tank strategy session. Christian Rangen, Partner at Engage // Innovate, gave an introduction to the session on how to become a global innovation “hot spot”.
- Einar Wathne informed about organizational approach to meet the strategy and highlighted The Executive Seafood Forum to be established as an advisory forum for the Board of Directors.



# Launch of The Executive Seafood Forum

- On March 21st, The Seafood Innovation Cluster launched The Executive Seafood Forum – a think tank for future innovation in the seafood industry and an advisory forum for the Board of Directors.
- The new forum is an organizational approach to meet our members feedback and the new strategy, and comprises of top leaders from the shareholders and strategic partners from industry and academic institutions.
- To ensure partners influence, ownership and financial contribution, a key governance change is an invitation for strategic partners of the Cluster to subscribe for new shares in The Seafood Innovation Cluster.
- The new forum will address and discuss strategic topics of relevance for further development of the Cluster.
- At the initial meeting, different players in the innovative ecosystem were invited to tell about their activities in accelerating start-ups and to participate in a discussion of how the Cluster can contribute in our new business area; entrepreneurship and commercialization.
- Read more about the launch [here](#)



The  
**Executive**  
Seafood Forum

Norwegian Centres of Expertise  
**NCE Seafood**  
Innovation Cluster

# 365 applicants for Seafood Trainee

- The Seafood Trainee program increases the reputation of the seafood industry and becomes more attractive for the best candidates. The industry is constantly becoming more knowledge-intensive, and will need new skills to increase innovation, growth and sustainability. The program establishes itself as a career portal for companies.
- In total, 54 Seafood Trainee has graduated from the Cluster's Seafood Trainee program since the start in 2016.
- 29 candidates from 16 different companies are participating in group #3
- In January, the third group visited Trondheim and Hitra. At Sintef Ocean and NTNU they learned about the importance of combining the knowledge of technology and biology. On day two, Lerøy showed their new impressive facilities at Hitra, and day three they got presentations from AquaGroup, Norway Royal Salmon, AquaLine and BioMar on technology and sustainability.
- The recruitment for group #4 has started. We have organized information meetings at NTNU and UiB in addition to other recruiting activities. Application deadline was March 25, and we received 365 applications. 15 companies will participate in the program starting in August 2019.

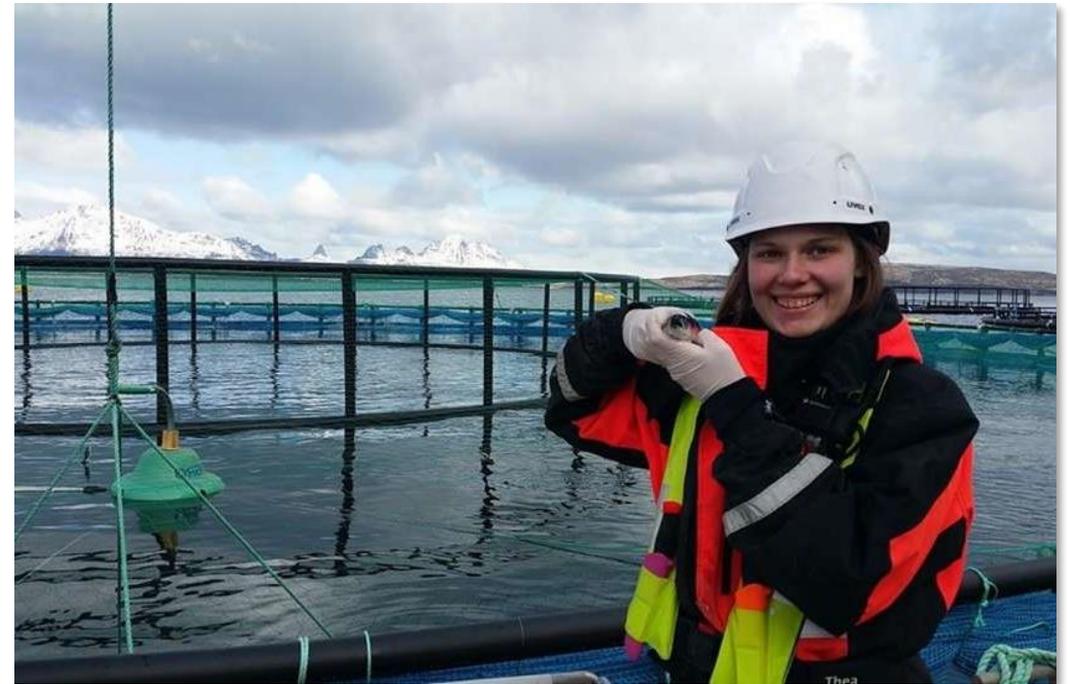


# 1,5 MNOK to new education programs in Recirculated Aquaculture Systems (RAS)



Knowledge

- Based on an interview with Cluster members, there was revealed a need to re-design the educational programs in vocational technical colleges.
- Together with the related Cluster projects KABIS (Kapasitetsløft for bærekraftig sjømatproduksjon) and OINC (Ocean Innovation Norwegian Catapult), the Western Counties and Vocational schools, we have set an ambition to develop new and more updated educational programs for the industry, including Continuing Education and Professional Development within new production methods.
- The project was kicked-off in January. In the first phase of the project, we are mapping numbers and needs for the competence required for the future.
- Funding of 1,5 MNOK achieved from Hordaland County, Sogn and Fjordane County, Rogaland County, Møre and Romsdal County.
- The Cluster has contributed to Hordaland County's policy plan [«Regional plan for kompetanse og arbeidskraft»](#)



# KABIS - Kapasitetsløftet for Bærekraftig Sjømatproduksjon

- The Cluster has sponsored an industry professorship on Recirculated Aquaculture Systems (RAS/CCS) that contributed to 55MNOK project funding from NFR to support new education and more industry innovation for sustainable and innovative seafood production (KABIS).
- KABIS aims to contribute to new education programs, new knowledge and more innovation in closed production technology for the aquaculture industry to achieve further sustainability and cost efficient production of salmonids.
- This enables the Cluster a long-term collaboration between education, research and business for sustainable development in Norway's leading seafood industries.
- KABIS Impact Forum has been established with increased cooperation between academia and industry.
- The project consider 2 PhD, 3 master and 2 bachelor programs at UiB strengthening of existing study programs, teaching and guidance capacity.
- Agreement of international student exchange from September 2019 between the University of Bergen, the University of Western Norway, Stirling University (UK), and Universitat Autònoma de Barcelona (Spain).
- The Student's Corner held during the Aqkva conference, is a platform for disseminating student work (bachelor and master projects) towards the industry. Read more [here](#).



Kick-off, 29. May 2018 in Bergen. (Photo: Andreas R. Graven)



# «Vest ut og Fram» Young Female Innovation Network



Knowledge

- «Vest ut og Fram» is a collaboration project for strengthening female R&D managers in the seafood industry. The project has received funding of NOK 800.000 from NFR to establish the Young Female Innovation Network.
- Vest ut og Fram will assemble 20 young and aspiring women in the seafood, energy, maritime and marine industry that are interested in a career within research, development and innovation. The program will focus on collaboration between academia and industry.
- An important impact of the program will be increased innovation projects led by women in our region and the share of women in leading positions. This will contribute to increase the competitiveness and sustainable growth to our partners.
- February 21<sup>st</sup>, the project was kicked-off with 20 young and ambitious participants from industry, academia and research together with mentors from the industry
- The program will have monthly meetings and last for one year, with the next meeting March 28<sup>th</sup>. The program will consist of academic presentations, company presentations, study trip and networking. A study trip to Iceland has been planned in June 2019.



Photo: Kick-off, 21.02.2019

NORCE



Western Norway  
University of  
Applied Sciences

Norwegian Centres of Expertise  
NCE Seafood  
Innovation Cluster

**KVINNENETVERK VEST UT OG FRAM  
KICK OFF-MØTE**

DATO: 21.02.19  
TID: 14-19.00  
STED: VIS, DaVinci

Thormøhlensgt 51,  
2. etg.

Tema: Innovasjon på Vestlandet  
Informasjon om nettverket, introduksjon til  
tema og vi jobber med konkret case.

VELKOMMEN

# RIGHT skills for the RIGHT future

## - supporting Blue Innovation and Education in Europe



Knowledge

- The aim of the project is to maintain the competitiveness of business by developing skills for the future labor market in the blue industries and the energy industry.
- The project has received 17 MNOK to enhance regional innovation support capacity to increase long-term innovation levels and support smart specialization strategies in the ocean industries.
- The project is a part of EU's INTERREG Nordsjøprogram.
- Hordaland County is project manager and 14 partner organizations from 7 countries are participating.
- The Seafood Innovation Cluster's role is to define and develop skills and education programs.
- November 21, the project was kicked-off in Bergen and will last for 3 years.
- During spring 2019 there will be a mapping of the regional innovative ecosystem gap to understand the innovation capacity and needs of SMEs.



Photo: HFK, Kick-off

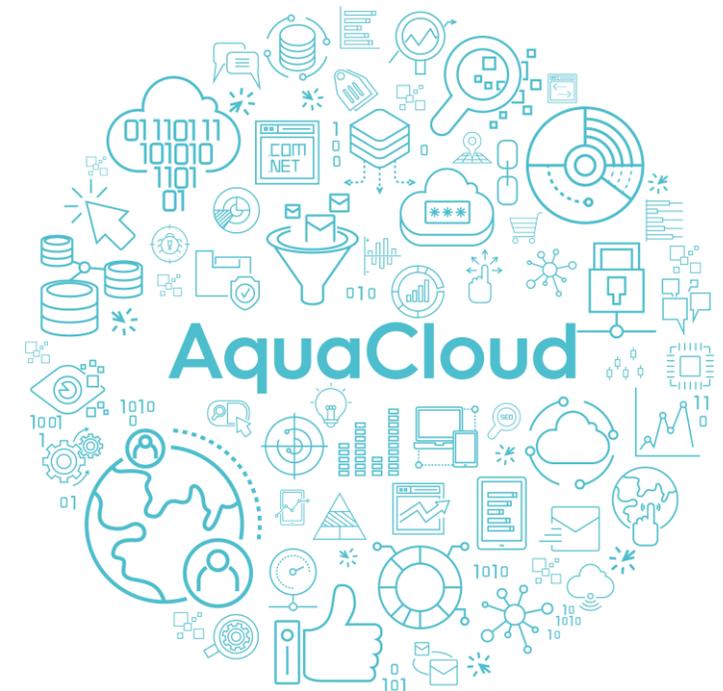


# AquaCloud

- Since 2017 the cluster has been exploring how the use of big data and AI can benefit the industry through increased learning, better decision support and more R&D. Receiving 60 datapoints daily from 2200 cages the project is aggregating valuable data at a constant rate.
- Several important insights have led to changes in project organisation and focus. Among the most important, the project has undergone some organisational changes with the three biggest players engaging more heavily in taking the project further. This changes nothing in terms of ownership or access to data. Each data supplier (farmer) still own their own data and have exclusive access and say in sharing non sensitive data. While working towards open input systems (data harvesting) the data in the database is not shared with other companies, neither partners in the project nor any third part.
- Further, having focused on specific business cases such as sea lice forecasting, AquaCloud-is now changing focus, harvesting from the experiences so far. Meeting industry needs, the project now takes a leading position in standardisation of how, when and where we mine data contributing to a revision of the NS 9417:2012 standard. The project also cooperates closely with major industry stakeholders in paving the way for open source input from sensors and other equipment used by the farmers.
- In another effort, a project financed by the “Havpilot” scheme by Innovation Norway, Grieg and the Cluster looks into the systematic use of big data analysis and AI generated decision support.
- Using AquaCloud as a driver to standardize and address challenges in data mining and sharing is also the cluster contribution to the SIVA backed Ocean Innovation Norwegian Catapult.



Innovation



# Ocean Innovation Norwegian Catapult



Innovation

- Ocean Innovation Norwegian Catapult (OINC) is part of a national SIVA financed initiative where accelerated prototyping is in focus. The company, now established as an AS, focuses on accelerating prototyping and testing new concepts and products for the marine environment.
- The company is based out of Marineholmen, Bergen, but works nationally, and internationally, in close cooperation with other companies and acts as a one stop shop for companies with different needs for prototyping and testing. Through comprehensive cooperation unused infrastructure and capacity adds value and cooperation with all involved users and actors.
- Prototyping can be quite expensive and a complicated process and the centre is tooled and designed to assist companies in simplifying the process and shorten time to market, saving money and accelerating the implementation of new concepts.
- Focusing on digitalisation, additive manufacturing (3D printing) and RAS systems the catapult addresses some of the more important aspects for the development of the aquaculture industry.
- The Cluster, a 15% owner in the catapult, uses the AquaCloud project as a tool to facilitate the more fundamental aspects of digitalisation, such as standardisation efforts, coordination of technological efforts towards open systems (do not confuse with open access to data) removing barriers for new suppliers and new concepts.



# New Seafood Innovation portal

- The Seafood Innovation Platform is a member service aimed at bringing structure and clarity to the innovation landscape. The platform will display innovation in different categories, developing an innovation pool where the aquaculture companies can actively seek innovation partners to solve specific challenges.
- It is very demanding for aquaculture companies to orient themselves in the ecosystem of accelerators, start-ups and the innovation processes in existing suppliers. At the same time the innovators struggle to find the right company to cooperate with. As an added challenge, investors that are interested in supporting innovation in this field find it challenging to find a match to their investment portfolio and strategies.
- During the January Partner Meeting, the cluster presented a new concept, the Seafood Innovation Portal. By developing the innovation portal the cluster is meeting an industry need aiding the aquaculture companies in better shaping the innovation to their needs through a more systemised approach.
- A network of services and companies accelerating innovation based on expressed industry needs and focus.
- The Innovation portal will become a hub in an ecosystem where a huge pool of innovators and investors work on clearly defined needs, supporting the industry in increasing the speed and shorting the time to implementation of innovation on their own terms.



Innovation



# SFI concept to be delivered April 4th



Innovation

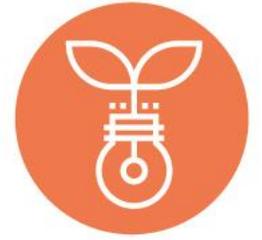
- The cluster administration has contributed to the organisation and writing of a new SFI application. The contribution is anchored in a cluster board decision aimed at streamlining the process.
- The concept is focused on expanded situational awareness where understanding the interaction between environment, biology and behaviour is the core, delivering knowledge and tools enabling the farmer to take actions based on real time information.
- Developed from several proposals and concepts, the concept addresses a clearly stated industry need and represents a powerful consortium led by NORCE, UiB and HI. NOFIMA and the Veterinary Institute represent an important aspect of the project with major contributions. The project is supported by a range of aquaculture companies such as Mowi, Lerøy Seafood, Grieg Seafood, Bremnes Seashore, Bolaks and Eide Fjordbruk. The effort is further supported by leading international companies such as TechnipFMC, Telenor and Dell.
- The first phase is delivery of a project concept on April 4th. The final proposal is to be delivered on September 25th. In the meantime the project group will work extensively with the project partners through workshops and sprints to secure industry relevance, cutting edge technology and international participation.



Norges forskningsråd



# Ongoing EU project - iFishENCi



Innovation

- iFishENCi is an ongoing project funded with 73mNOK by the EU program Horizon2020, starting in November 2018 until October 2022.
- The project has the aim to deliver on innovation strategy and cluster members needs for better environmental monitoring and enhanced situational awareness. The project also addresses the industry wide need for new feed raw materials and targets circular principles and zero waste by qualifying new and sustainable organic value chains for flows and by-product valuation.
- The iFishENCi Biology Online Steering System (iBOSS) program will be used aiming to improve the production control and management of all fish aquaculture systems. iBOSS will maximise feed utilisation, monitor fish behaviour, health and welfare reducing response time to deviations.
- iFishENCi's innovations will provide important new assets to the consortia SMEs, fish farmers, feed producers and technology suppliers in the aquaculture sector, leading to market growth and job search. Assets will be maximized through a comprehensive sustainability assessment and commitment with the sector, regulators and consumers.
- Our role in the project is Innovation Champion, controlling achievements and ensuring scientific findings to be implemented for industry innovation.



**CORDIS** Bringing you the results of EU research and innovation framework programmes since 1990: Horizon 2020, FP7 and earlier



**Intelligent Fish feeding through Integration of ENabling technologies and Circular principle**



# 3 EU-applications (20M€) delivered January 2019



Innovation

- **PROwide** project has the objective to assess, develop and validate sustainable, high quality and safe food & feed products based on new and alternative protein sources from duck, fungi, cactus and insects. The project application of the EU was delivered in January 2019.
- **NewTechAqua** project will address the development of standard and organic feed formulations according to the circular economy principles. Health and welfare of farmed aquatic animals will be improved by new feed strategies, farming systems and genetic selection. Precision fish farming technologies and Big data analyses will enhance farm management practices and support information-based decisions. The project application of the EU was delivered in January 2019.
- **Fish Facts** has the aim to build an Innovative Training Network (ITN) program for Early Stage Researchers (ESRs/PhD students) funded by the EU. The candidates will be trained to work in specific issues in the aquaculture sector across the EU. Research in salmon, sea bass and zebrafish is considered in the training program. The partners are UiB, University of Leiden and University of Crete. The project application was delivered in January 2019.



# AquaMare - a national expertise group



Innovation

- In July 2016, NCE Seafood received a grant from the Norwegian Research Council for the AquaMare project.
- The main goal of the project is to consolidate Norwegian interests, build European networks in areas where Norwegian and European cooperation give added value, more weight and better international competitiveness for our partners.
- The consolidation of national interests by establishing a national expertise group is included into the achievements of AquaMare.
- The national expertise group includes participants from the NCE Aquaculture, Nofima, NCE Aquatech Cluster, University of Tromsø, NCE Blue Legasea, Biotech North, SINTEF, University of Bergen and NCE Seafood Innovation Cluster.
- AquaMare held meetings on January 25<sup>th</sup> and March 15<sup>th</sup> in Oslo.



Aquamare meeting Gardemoen, Oslo - 15 March 2019:

From left: Patricia Apablaza, NCE Seafood Innovation Cluster, Kari Thyholt, NCE AquaTech, Synnove Helland, Nofima, Malin Johansen, NCE Aquaculture, Ann Cecilie Ursin Hilling, NCE Aquaculture, Solveig Holm, NCE Seafood Innovation Cluster



# IBM Watson Discovery

## - Sea Lice scientific literature analysis



Innovation

- In connection with AquaCloud platform, the AI project IBM Watson Discovery Sea Lice, realized in Q1 meetings with leaders and scientist from research institutions to discuss the steps forward of the project.
- Representants from IBM, the Norwegian Veterinary Institute, the Sea Lice Research Centre and NCE Seafood Innovation Cluster agreed in the potential of the program to give new insights in the research of sea lice in Norway.
- IBM started the phase of annotation of abstracts of sea lice literature available in the corpus of 1200 articles prepared in 2018. From a cognitive perspective, annotation is important in learning and instruction involving highlighting, naming or labelling, and commenting aspects of visual representation helping to put focus on specific visual aspects.
- In the case of sea lice literature, annotators are specialized types of computer codes to read and extract terms from the scientific articles. Watson reads the sentence, recognizes specific nouns as protein or larvae, verbs like develop or survive, the object of those verbs and the location of the event. Further, the program establishes a relationship among these elements using deep natural language-processing and machine-learning techniques.



# Ocean Technology & Knowledge

## - Tech-collaboration with GCE Ocean Technology



Innovation

- Subsea meets Aquaculture recently received 1,2 MNOK in funding for Phase 3 Project from Hordaland County.
- The project will strengthen the knowledge transfer and cross-industry opportunities between companies in these industries.
- Phase 3 of Subsea Meets Aquaculture will host innovation challenges as a main feature to realize the ambition, which will unlock collaborative potential. Innovation challenges bring together groups of companies from both industries and subject matter experts, whom would otherwise not interact with the aim to transfer knowledge and technologies to create the next-generation seafood solutions.
- Selected challenges from the seafood industry will be presented to cluster members, and we are really looking forward to take part in the energy, state of the art knowledge, and fun that lie in solving real-world challenges and creating new business opportunities.
- The project is a joint effort between NCE Seafood Innovation Cluster and GCE Ocean Technology. Deloitte will continue to facilitate the project.
- [Read more](#)



Photo: GCE Ocean Technology



**Deloitte.**



# Seafood Innovation Day NASF 2019



Entrepreneurship  
& Commercialization

- At [Seafood Innovation Day](#) we were showcasing cutting-edge innovations to reach the ambitions of sustainable seafood growth.
- **12 start-ups were pitching:** Entrepreneurs represent much of the innovative force of the seafood industry and contribute to increased innovative opportunities in existing businesses as well as new seafood companies. 12 start-ups were pitching their innovative seafood solutions to shape one of the most important industries for the future.
- **Seafood Innovation Award:** The seafood industry itself has taken initiative for the prize, Seafood Innovation Award, aimed at stimulating and recognizing knowledge-based innovation and entrepreneurship. The winners were selected by the audience through a live poll. The award was shared between RemoraXYZ from Costa Rica and GentiRate from USA. RemoraXYZ has developed traceability solutions for fishing boats and their catch, and GentiRate was presenting technology for genetic selection improving sustainability and production.
- **Matchmaking:** For the first time at Seafood Innovation Day at NASF, all 12 [start-up](#) companies competing for the Seafood Innovation Award participated in a match-making event with businesses and investors.
- Number of participants: 190



# THE OCEAN 2019

DISCOVER - CONNECT - COLLABORATE



Entrepreneurship  
& Commercialization

- THE OCEAN is a new arena for knowledge sharing, new collaboration and technology development across the ocean industries. The event will be a combination of international lectures, match-making between entrepreneurs, investors and businesses, and showcasing of technologies in the blue industries. First meeting point will be in Bergen, September 17<sup>th</sup>, 2019.
- Much of the modern high-tech in Norway is based on the ocean industries. THE OCEAN will provide closer links across the blue industries and stimulate new collaboration for sustainable utilization of the ocean resources, as well as contributing in development of new global market opportunities.
- THE OCEAN will work for increased activities, visibility and attracting young talents to the ocean industries, and the link between academia and business is crucial.
- THE OCEAN is initiated by numbers of engaged partners for powerful action in the ocean industries: NCE Seafood Innovation Cluster, GCE Ocean Technology, NCE Maritime Cleantech, Maritime Bergen, The University of Bergen, The Marine Research Institute, NORCE, VIS, The Municipality of Bergen, Connect West, Invest in Bergen and Bergen Chamber of Commerce. Bergen Live is engaged as project manager and technical organizer.



# Partnership with Katapult Ocean



Entrepreneurship  
& Commercialization

- Katapult Ocean find, invest in and scale start-ups with positive impact on our ocean through the Katapult Ocean Accelerator, and will strengthen our efforts in supporting young professionals and drive innovation to increase a sustainable seafood production and gain access to capital for further investments.
- In January the first batch of ocean tech start-ups met in Oslo. During 12 weeks, the start-ups from around the world has been pushed to develop their business models, work with pilot customers and focus on how their company can make a lasting impact. Read more about the companies [here](#).
- NCE Seafood Innovation Cluster has contributed to the accelerator program by facilitating a week in Bergen for the startups, focusing on aquaculture. In addition, we will contribute to Katapult Ocean's mentor network with our aquaculture expert, R&D manager Björgólfur Hávardsson.
- Katapult Ocean visited Bergen in February. The start-ups got a great introduction to the innovative environment in Bergen, and it was of great importance for the start-ups to draw on the expertise and business network from the members and partners in the Cluster. In Bergen they met Grieg Seafood, with Trond Kathenes and Christian Birkeland, Lerøy Seafood, with Krister Hoaas and Sigurd Tonheim in Cargill.
- Read more: <https://katapultocean.com/>



Katapult Ocean participants visiting Cargill.



Katapult  
Ocean



# New partners and members of the Cluster, Q1

## PARTNERS:

- [NORCE](#)
- [SINTEF Ocean](#)
- [Høgskulen på Vestlandet](#)



## MEMBERS:

- [InnovaSea](#)
- [Sekkingstad AS](#)
- Marine Technology Innovation AS



# Upcoming event

3  
APR

## **SJØMAT NORGES ÅRSARRANGEMENT 2019**

📍 3-5 April 2019  
Generalforsamling og Årskonferanse 2019 avholdes i Trondheim

7  
MAY

## **SEAFOOD EXPO GLOBAL 2019**

📍 7-9 May 2019  
The global seafood marketplace

7  
MAY

## **SEAFOOD TRAINEE MODUL 3**

📍 7-9 May 2019  
Den tredje samlingen for Seafood Trainee kull #3 finner sted i Brussel og Paris. Tema for samlingen er markedsføring og salg.

22  
MAY

## **MarinMagnet - Hva skal til?**

📍 22-23 May 2019  
Storby Marin Årskonferanse i Bodø

23  
MAY

## **HAVlunsj**

📍 23 May 2019  
HAVlunsj er en uformell møteplass for deg som er interessert i havnæringene

5  
JUN

## **SEAFOOD TRAINEE MODUL 4**

📍 5-7 June 2019  
Den fjerde samlingen for Seafood Trainee kull #3 finner sted i Tromsø. Tema for samlingen er nye verdikjeder

20  
JUN

## **HAVlunsj**

📍 20 June 2019  
HAVlunsj er en uformell møteplass for deg som er interessert i havnæringene

22  
AUG

## **HAVlunsj**

📍 22 August 2019  
HAVlunsj er en uformell møteplass for deg som er interessert i havnæringene

17  
SEP

## **The Ocean – Not Another Standard Conference**

📍 17 September 2019  
We are aiming to provide the most important and relevant event within the OCEAN industry.

17  
SEP

## **HAVlunsj**

📍 17 September 2019  
HAVlunsj er en uformell møteplass for deg som er interessert i havnæringene

**Industry partners:**



**R&D Partners:**



**Members:**



**Start-ups:**



**Collaborators:**



**Financial partners:**

