



Status Report Q2 2019

June 2019



Norwegian Centres of Expertise
NCE Seafood
Innovation Cluster

Highlights Q2

- Seafood Trainee – from 365 applicants, 30 candidates have been chosen for the Seafood Trainee group #4 program. The trainees will work in 13 participating companies from august.
- KABIS – support of industry professorship and 55 MNOK project funding by NFR to support new education and more industry innovation for sustainable and innovative seafood production (KABIS).
- 1,5 MNOK in founding development of new vocational education programs in Recirculating Aquaculture Systems/RAS (closed and semi-closed systems).
- 60 MNOK in funding to *NewTechAqua* – a project focusing on creation of new tools and fish farming concepts to innovate, support and improve for the whole value chain of European aquaculture.
- AquaCloud 2.0 – the 2.0 edition of the project focus on the three workflows; 1) Revision of the standard NS 9417, 2) Standard for digital registration and processing of health data, 3) Sensor standard for standardizing input and storing of sensorics data.
- SFI – expansion of situational awareness for better understanding of the interaction of fish environment, biology and behaviour. In June, over 40 stakeholders from industry, academia and tech met and discussed the way forward for this project. Delivery of application is 25th of September.

Knowledge - highlights Q2



Knowledge



Seafood Trainee - new group

- The Seafood Trainee program increases the reputation of the seafood industry and becomes more attractive for the best candidates. The program establishes itself as a career portal for companies.
- In total, 83 Seafood Trainee has graduated from the Cluster's Seafood Trainee program since the start in 2016.
- 365 young and ambitious candidates wanted to become a seafood trainee in group #4. 30 of the best candidates has been chosen by the 13 participating companies that will participate in the program starting in August 2019.



Seafood Trainee - last modul #3

- In June, the third group visited Tromsø.
- The group were introduced to new valuechains from Norrinova and their companies before we visited BioTep and Centre for Marine AquaCulture.
- On our way to Sommerøya, they stopped at Bottega Borealis and learned about the salted and dried cod-roe production at their way into 25 Michelin awarded restaurant.
- The last day was spent visited Karls Fisk og Skalldyr, Råfisklaget and Hermes.

The #3 are now finished with the Trainee program and a majority will continue their work in the company.



Education programs in RAS – founding in place

- 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.
- 29th May a workshop was organized to concretize and map the industry's need for expertise within RAS.
- Key personnel from the RAS industry have accepted to participate in working groups
- 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»](#)



Innovation - highlights Q2



Innovation



NewTechAqua - new project funding

- The NewTechAqua project will apply new tools and precision fish farming concepts to innovate, support and improve the whole value chain of European aquaculture.
- Novel feed formulations, application of microbiomes and strategies will be developed as well as work on genetics focused on health and welfare.
- AI and Big Data methods will be used to develop precision fish farming technologies, enhancing farm management practices and support information-based decisions.
- The project consortium is joined by companies and organizations from 8 countries, 7 of which are from Norway and 6 are members of the cluster. Further information of the project is in our news letter.



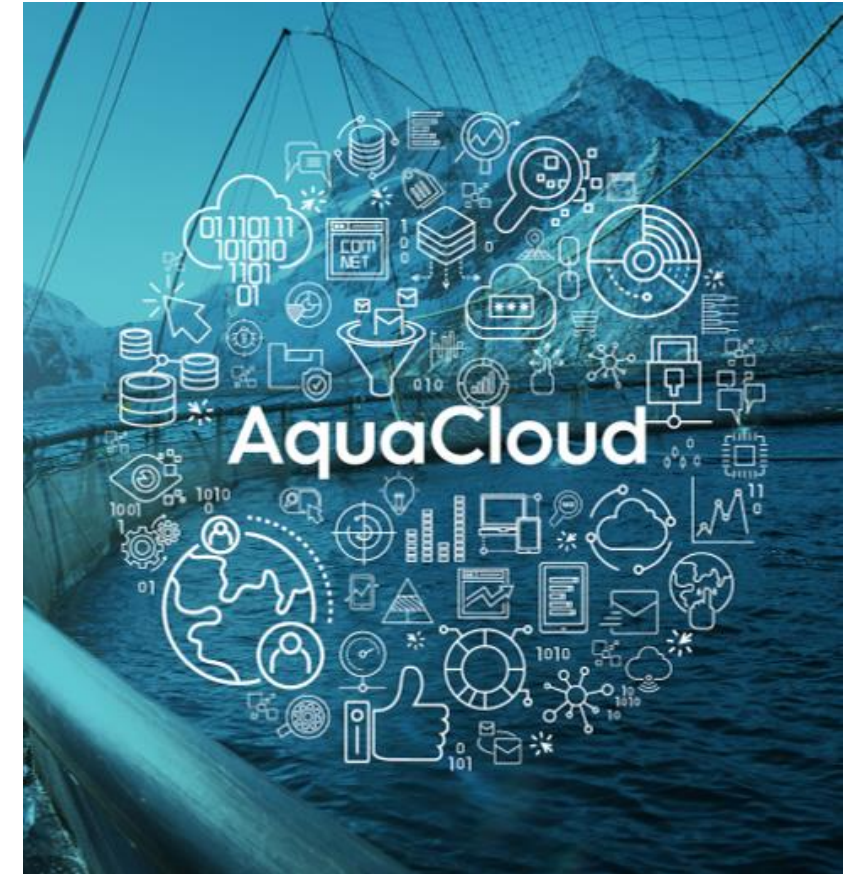
IBM Watson Discovery - new project



- An investigative project initiated by IBM aims at using advanced text analysis and AI to overcome the difficulty keeping up to date in the ever increasing volume of quality research in aquaculture.
- This new project, called “Mind the Gap”, is investigating how to make the large corpus of scientific literature on sea lice searchable, thus making important findings readily available for researcher and industry alike, thus closing the gap between the cutting edge of research and the operative industry.
- 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.

AquaCloud 2.0 - ongoing project

- AquaCloud 2.0 is a project that will develop the aquaculture industry's digital infrastructure
- The main task of the project is to ensure the quality of digital information from aquaculture and strengthen the owner and utilization of the information
- We will focus on data sets that will benefit the entire industry and support the decision-making and development of knowledge
- The vision is to help remove basic barriers for further sustainable growth in aquaculture



AquaCloud 2.0 - ongoing project

Based on the experiences harvested from AquaCloud 1.0, AquaCloud 2.0 is focused on standardization. The project is now focused on three workflows:

1) Revision of the standard NS 9417. The standard defines unified terminology and methods for documentation of production in salmonid production.

The standard came online in 2012 and some aspects of it are overdue for revision, especially environmental measurements – what, where and how.

2) Establish standard for digital registration and processing of health data to strengthen decision-making, simplify reporting and competence development related to fish health and fish welfare

3) AquaCloud sensor standard aims at standardizing input and storing of sensorics data thus improving data quality, ensuring easy access, sharing and analysis independent of input or supplier.

iFishIENT - SFI application in process

- The SFI application is developing according to plan. The project outline was accepted by the Norwegian Research Counsel with comments and advise on how to progress.
- On June 12th, 40+ stakeholders from industry, academia and tech met and discussed the way forward. Lively discussion and great enthusiasm is promising for the future of the project.
- The next step is individual discussions with the stakeholders ensuring that industry needs are addressed, expectations to continues innovation are met and all the stakeholders find their place in the project going forward.
- The next deadline is on September 25th with the delivery of final application.



iFishENCi - ongoing EU project



- 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



KABIS - ongoing project

- 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 has, in its first year in full operation, generated 5 PhD and MSc projects currently underway. Further projects will come online in Q3 this year. Projects are mostly recruited from the idea pool from the Impact Forum meetings strengthening the cooperation between academia and industry.
- KABIS contributes 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.
- 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](#).

OINC - ongoing project

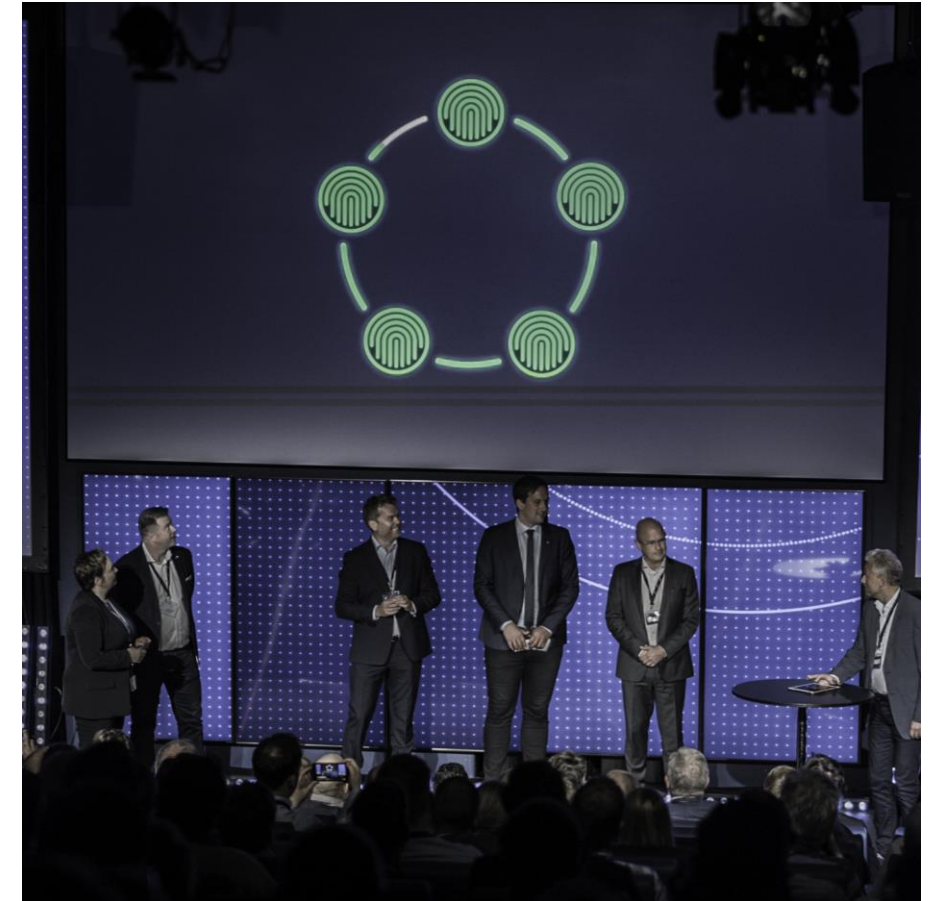


- Ocean Innovation Norwegian Catapult (OINC) is a SIVA financed initiative where accelerated prototyping is in focus. The company, now established as an AS, focuses on accelerating prototyping and testing new concepts and products for the marine environment.
- The company is based out of Marineholmen, Bergen, but works nationally/internationally, in cooperation with companies and acts as a “one-stop-shop” for companies with different needs for prototyping and testing
- Prototyping is expensive and complicated process, and ONIC is tooled and designed to assist companies in simplifying prototyping and testing in order to shorten time to market, saving money and accelerate the implementation of new concepts.
- OINC consist of three business areas; 1)digitalisation, 2) additive manufacturing (3D printing), and 3) RAS systems
- The Cluster is a 15% owner in the catapult. This based on the use of AquaCloud project as a tool to facilitate 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.



Norwegian Cognitive Senter - new project

- In cooperation with several large business clusters, Bergen Municipality, VIS Innovation, Bergen Chamber of Commerce and Industry, Helse Vest and several of the region's academic institutions, the Seafood Innovation Cluster has added its powers to establish a national center for cognitive technology, with IBM as technology partner.
- The goal is to create a national center of gravity for expertise in artificial intelligence based in Bergen. This is in response to both national and regional needs as well as in response to several extensive surveys tagging the lack of IT competence as Nr 1 bottleneck in the seafood sector, with Big Data and AI as the most urgent issues.



Cluster Management, projects and events



Enabling sustainable
seafood growth

Corporate changes: New shareholders

- At the General Assembly 6th of June, the increase of capital in the ownership of The Seafood Innovation Cluster was approved. This as part of the overall strategy changes in the company, to give partners the opportunity to become shareholders in the company. By 25th of June the company has four new owners

Shareholders in the company by 25th of June 2019:

- Lerøy (original shareholder)
- Cargill (original shareholder)
- Grieg Seafood (original shareholder)
- Mowi (original shareholder)
- SalmoBreed (new shareholder)
- PatoGen (new shareholder)
- DNB Bank (new shareholder)
- Universitetet i Bergen (new shareholder)

Corporate changes: Board of Directors

- At the General Assembly 6th of June, changes in the board were made as part of the overall strategy changes in the company.

The new board consists of:

- Independent Chairman of the Board: Einar Wathne
- Lerøy: Henning Beltestad (existing boardmember)
- Cargill: Fredrik Witte (existing boardmember)
- Grieg Seafood: Andreas Kvame (existing boardmember)
- Mowi: Alf-Helge Aarskog (existing boardmember)
- SalmoBreed: Jan- Emil Johannessen (new boardmember)
- PatoGen: Jørn Ulheim (new boardmember)

Executive Seafood Forum



- Our Second Executive Seafood Forum was held the 6th of June with 20 partners attending, in addition to invited speakers from our members and collaborators of the Cluster.
- Topics of discussion:
 - the Clusters role in NASF
 - digitalisation perspective of the seafood industry



Innovation Platform – ongoing project



- The Cluster has initiated a new project for connecting industry challenges and needs with innovative solutions.
- There are numerous entrepreneurs with cutting-edge innovations and solutions, but many companies find it demanding to orient themselves in the innovative ecosystem of “problem-solvers”.
- The Innovation Platform is our new digital tool for connecting needs and challenges in the industry with solutions in the innovation ecosystem.
- Beta version is now developed and we are in the process of registration of starts-ups with innovative solutions.
- In close collaboration with the industry, we have started mapping long-term and urgent industry-wide challenges. The mapping will continue during Q3.
- The Innovation Platform is operated by the administration in The Seafood Innovation Cluster in the first phase of the project.

Ocean Innovation Showroom - ongoing project

- Feasibility study for a national showroom for sustainable solutions in the ocean industries.
- Digital platform for visualization at various local, national and global arenas.
- Physical location is under consideration.
- Target groups
 - Businesses and industry related R&D
 - Visitors with commercial or political interest for Norwegian sustainable solutions
- Showroom for sustainable products, technologies and services to increase
 - Business opportunities in the ocean industries
 - Export of products, technologies and services
 - Visibility of Norway importance as an ocean nation



The Ocean - upcoming event

**THE
OCEAN
2019**

- THE OCEAN is a new arena for sustainable, value-added and competitive solutions and partnerships across the ocean industries and academic institutions. The aim is to discover, connect and collaborate. Programme and registration at www.theocean.no
- September 17th, 2019, 09:00-14:00 at Radisson Blu Bergen, Norway
- THE OCEAN will focus on: sustainability, innovation and crossover in the ocean industries, blue sustainable finance, governmental regulations and priorities and research for sustainable utilization of ocean resources.
- Keynote speakers
 - Erna Solberg, Prime Minister
 - Elisabeth Grieg, CEO, Grieg International
 - Ole Eirik Lerøy, Chairman of the Board, MOWI
 - Beate Myking, Senior Vice President, Equinor

Organizing partners



New partners and members of the Cluster, Q2

PARTNERS:

- Nord Universitetet



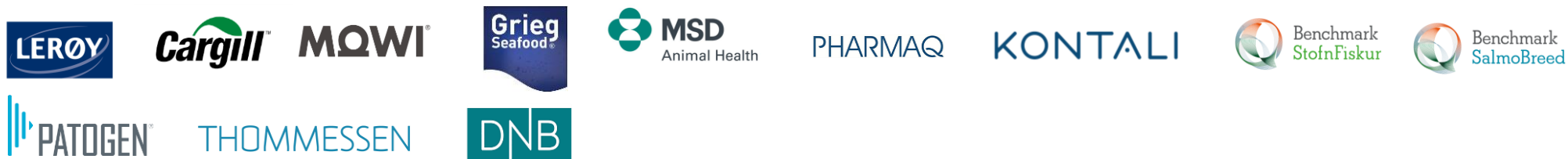
MEMBERS, Start-ups:

- AlgaePro



Members of the Cluster 30.06.2019

Industry partners:



R&D Partners:



Members:



Start-ups:



Collaborators:



Financial partners:

