

Status Report 2018



THE SEAFOOD INNOVATION CLUSTER

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Entering the future

3 years of operations, but the adventure has just begun

The Seafood Innovation Cluster started with a vision; that strengthening long-term industry collaboration would enable our partners to faster sustainable growth. Thanks to visionary leaders and support from our members, we have accomplished many of our aspirations and goals.

Main achievements

Our focus during this period has been to work systematically to establish trust between our partners and members, set forward an assertive strategy, create good meeting places for stimulating R&D projects, and strengthen collaboration for increased innovation.

Through our activities, we have facilitated more industry focused research, contributed to industry focused education, and built up new business programs for entrepreneurs and facilities for testing, simulation and visualization to support faster innovation and commercialization.

“Superclusters” for economic growth

Today, countries and regions worldwide are learning to actively build and grow future-oriented clusters on a massive scale. Innovation clusters are global economic “hot spots” where new technologies are shooting up at an astounding rate, and where pools of capital, expertise, and talent

foster the development of new industries and new ways of doing business.

Our new strategy will scale up our innovation ecosystem for new knowledge and solutions that will increase sustainability to our members. Our mission is to create a strong collaboration model across a large ecosystem that strongly contributes to attracting talent, R&D investments, risk capital and corporates.

Thank you!

I would like to thank all our partners and members for your support and commitment. Collaboration holds the key to unlock the untapped potential in Norway’s seafood industry. The Cluster has so much potential, I encourage you all to keep up the good work! However, time has come for a new leader to take the Cluster to the next level. Always keep in mind our origin vision; that strengthening long-term industry collaboration will enable our partners to faster sustainable growth.

All of the best,
Tanja Hoel



Norwegian Center of Expertise (NCE)

The Seafood Innovation Cluster AS obtained NCE status in 2015 and has developed into the most complete and mature cluster in the seafood industry with 57 partners and members representing 18.000 highly skilled employees. The cluster is located at Marineholmen in Bergen.

The NCE-programme is directed towards dynamic industry clusters that have established systematic collaboration and have potential for growth in national and international markets. Within their respective sectors and technology areas, the clusters are to have a national position and the participants normally have clear and strong international ambitions.

The NCE-programme is owned by Innovation Norway, the Industrial Development Corporation of Norway (Siva) and the Research Council of Norway. The programme has a ten-year perspective and is financed by the Norwegian government.

The NCE-programme has four focus areas:

1. Increase innovation
2. Internationalization
3. Strong host attractiveness
4. Tailor-made expertise

What is a cluster?

A cluster is a geographical concentration of enterprises and related knowledge communities linked by complementarity or a similarity of interests and needs. The enterprises can gain easier access to important production factors and ideas for and impulses to innovation through interaction and cooperation. A cluster emerges over time, on the basis of location advantages and natural development dynamics.

For more information about the programme:

innovationclusters.no



The Seafood Innovation Cluster's work with the Sustainability Development Goals (SDGs)

Acknowledging that all goals are interrelated and must be seen in context, The NCE Seafood Innovation Cluster has aligned with Norwegian Seafood Federation, and chosen to focus on eight SDGs to maximize our impact and create long term values. Although the goals are challenging and ambitious, we believe that sustainable aquaculture and salmon farming can contribute to sustainable development of the food sector and a solution to many of the goals.

Sustainable development is about taking care of the needs of people living today without destroying future generations' opportunities to cover their lives. Norway has committed to the SDG's, and the goals for the sea-food sector is rooted in these goals.

The Cluster wants to take a leading role in addressing ocean sustainability, and these eight SDG's are integrated in the clusters strategy, and the way of doing business.

Social and economic sustainability



SDG 2 End hunger, achieve food security and improved nutrition and promote sustainable agriculture



SDG 3 Ensure healthy lives and promote well-being for all at all ages



SDG 8 Promote inclusive and sustainable economic growth, employment and decent work for all



SDG 9 Build resilient infrastructure, promote sustainable industrialization and foster innovation

Environmental sustainability:



SDG 12 Ensure sustainable consumption and production patterns



SDG 13 Take urgent action to combat climate change and its impacts



SDG 14 Conserve and sustainably use the oceans, seas and marine resources



SDG 15 Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss

About The Seafood Innovation Cluster

The Seafood Innovation Cluster is a world leading cluster. Our members represent the whole value chain and supply healthy and sustainable seafood to the global community.

Enabling sustainable seafood is our overall vision. Through our activities we have facilitated industry focused research and contributed to industry focused education, and we have build up new business programs for entrepreneurs and facilities for testing, simulation and visualization

to support faster innovation and commercialization.

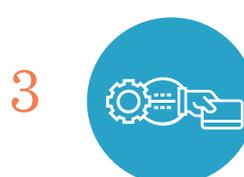
Through our defined business areas, we are pursuing value-creating business opportunities for our members and facilitating a global hot spot for attraction and economic growth.



Knowledge



Innovation



Entrepreneurship
& Commercialization

Who are we?



Tanja Hoel
Managing Director

Tanja Hoel has been employed in The Seafood Innovation Cluster since the start in 2015. Tanja has the overall responsibility for the clusters work and is reporting to the board of the The Seafood Innovation Cluster.



Benedicte Skogen
Head of Projects and Marketing

Benedicte Skogen has been employed in The Seafood Innovation Cluster since January 2016. She is responsible for the work within talent-development, marketing and events.



Björgólfur Hávarðsson
Innovation Manager

Björgólfur Hávarðsson has been employed in The Seafood Innovation Cluster since December 2016. He is responsible for strengthening the clusters work within innovation.



Poppy Kalesi
EU Advisor

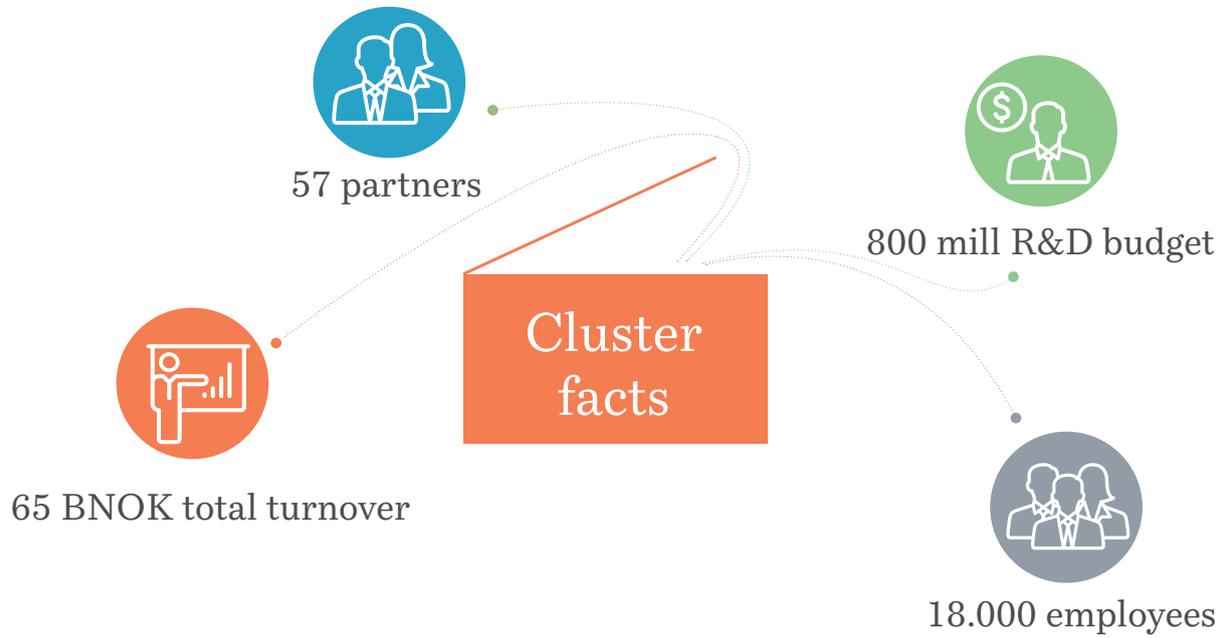
Poppy Kalesi was employed in the cluster since 1. January 2017 as EU-advisor. She ended her working relationship 1. December 2018.



Solveig Holm
Senior Advisor

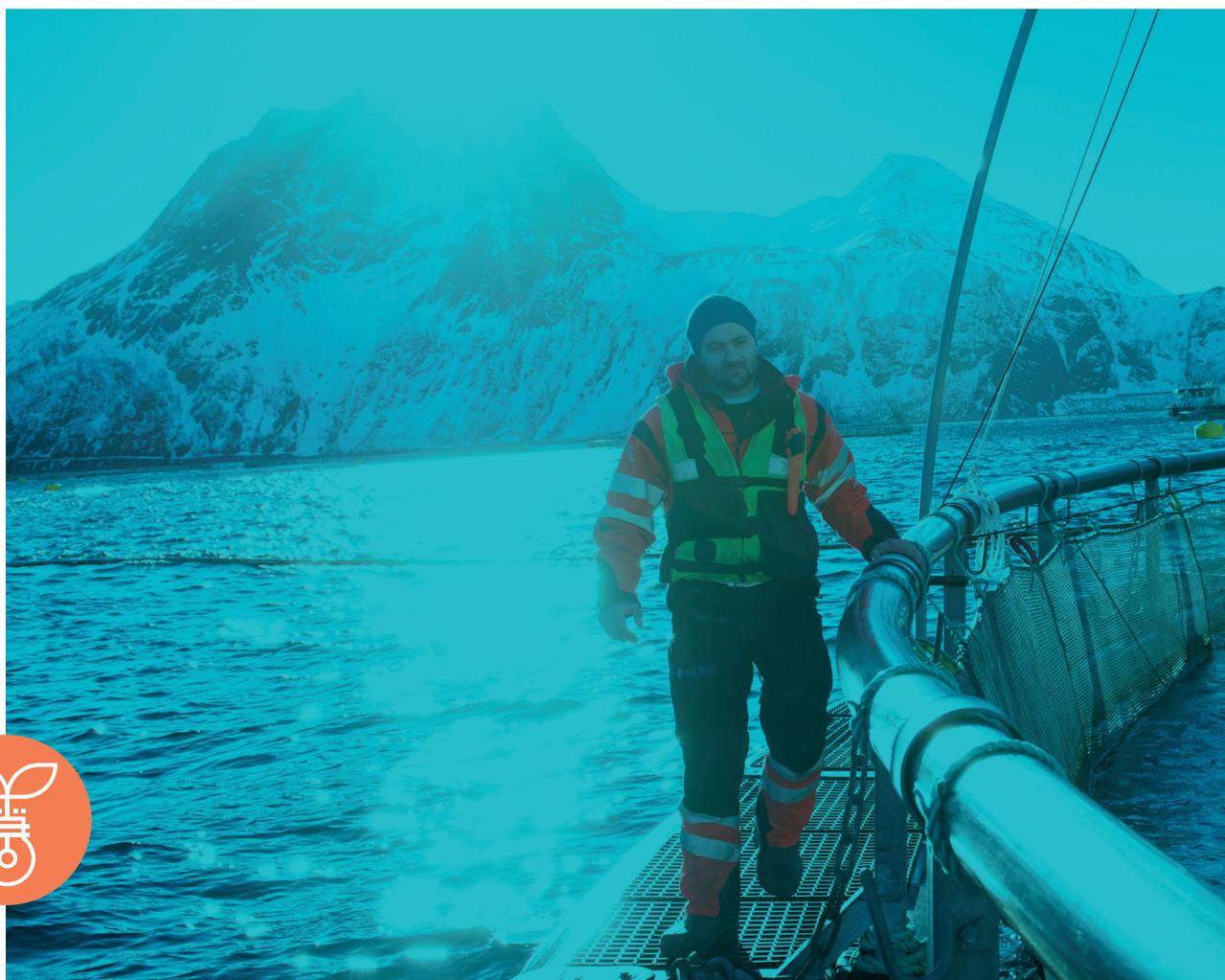
Solveig Holm has been engaged in The Seafood Innovation Cluster in 2018 working with strategic projects and events.

Cluster facts



Our partners representing the whole value chain





AquaCloud

– The age of digitization

In April 2017, The Seafood Innovation Cluster launched the AquaCloud platform, a cloud-based data system aiming to bring sea lice infestations to environmentally sustainable levels and reducing the use of chemical treatments in the industry. AquaCloud will assist fish health managers and researchers in the current challenges of sea lice.

Now in its third year, AquaCloud is an important project in our everyday work at The Seafood Innovation Cluster, as well as engaging many of our partners of the main project to spinoff other topics that AquaCloud generates. Some of the high points in 2018 include three new companies as data suppliers and new projects that are intended to further improvements

of the management practices on a regional scale.

Making difference with Big Data

Working on sea lice, the Cluster members have put down considerable effort with IBM in applying Watson program to prevent sea lice outbreaks.

Harvesting from the infrastructure the project has built, some of the data owners are cooperating with third party suppliers, using data management accessible in new ways, to generate further operational value.

The Seafood Innovation Cluster also have third party suppliers cooperating with their customers to access specific data to support their product development and performance.

Second tier gains

During the last two years the company members of the Cluster have laid the cornerstone for a wide cooperation across the aquaculture industry in Norway, not only on Big data projects, but also on other topics, connecting new possibilities and challenges.

Confirming fundamental understanding of the value of sharing data and the effect of deeper learning on important management issues – showcasing potential outside the initial scope of the project.

We have seen that AquaCloud has become a valuable tool demonstrating the importance of good data harvesting, pointing out the importance of suitable equipment, methods and processes, defined by robust standards, which are the next item on our list of projects to contribute to.

During our work on AquaCloud our cluster members have received increased interest from major industry- and service companies, and also from companies non-directed related to aquaculture, both national and international. The project has gain focus in several media spots – the

mindset shown by the data suppliers is considered ground-breaking by some industry analysts.

As well as being of value for the data owners, AquaCloud is a major NCE Seafood Innovation Cluster asset in the ongoing research and development efforts addressing the aquaculture industry needs. AquaCloud is also an important component in other projects such as the KABIS (Kapasitetsløft for bærekraftig og innovativ sjømatproduksjon) addressed to increase the knowledge in RAS systems. Further, AquaCloud participate in Ocean Innovation Catalyst (OINC), a SIVA financed national program. OINC is also connected to domestic R&D schemes as well as H2020 Aquaculture-projects.

Powered by AquaCloud.

One of the goals of AquaCloud is to make the industry more proactive in managements against salmon lice. The cluster is working on several approaches to enhance these possibilities, such as Integration of the Coastal Research Institute's coastal current model - NORKYST 800 - as data source for AquaCloud, which is currently under way. The aim is to achieve a better understanding to predict spread of sea lice infection between sites enabling the response to the dangers of outbreaks and not only focusing in treatments.

Adjusting infection models from coastal to farm sites

Marine research's infection model will be part of AquaCloud to better adapt the model for the use in prevention of sea lice. The goal is to use cutting edge knowledge about the infectious potential of lice, along with coastal

current models to develop dynamic models of contagion risk for individual sites. One will also use AquaCloud data as data feed in the model, thus increasing data and making it easier to continuously verify and correct the model.

The expected outcomes of these two new datasets are to provide a better understanding and prognosis of how individual sites may be affected by the infectious pressure in the surrounding area. Such knowledge will be able to benefit the farmers to take preventive measures against lice infections instead of having to continuously combat lice on valuable and sometimes vulnerable fish. One also sees impact on high level area management practice in both production areas (Traffic Lighting System), and also to improve municipal coastal zone planning focused on improved site structure.

FACTS

Startup January 2017

7 aquaculture companies participate

Data from all over the country

Daily data from 2808 cages

Daily data points, 1.200.000

Alerts 14 days before outbreak

Enabling innovation

Combined datasets give value



Knowledge for sustainable growth

Future growth opportunities to our partners require an adequately skilled and educated workforce to meet the strategic goals and operational plans of the organization – Seafood Trainee program, The Executive MBA and a new Female Innovation Network aim to support our members to get the right people with the right skills at the right time.

Seafood Trainee

A total of 54 Seafood Trainees have been graduated in the Cluster's Seafood Trainee program since the start

in 2016. The program increases the reputation of the seafood industry and makes it 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.

Group #3

In September 2018 started the third group of Seafood Trainee. 29 candidates from 16 different companies met for the first time in Bergen. The

awareness of the programme is increasing and the interest from both companies and graduates to participate is huge.

Increasing employer branding for our members

In August, Seafood Trainee was hosting a workshop with Visindi focusing on HR's importance in creating employer branding and high employer value proposition.

HR must facilitate more team development, discussions and dialogue that stimulate motivation and innovation in the companies. HR

managers must ensure that people feel psychologically safe in a work environment where people can say what they mean and thus contribute and develop their skills.

New web-page

Seafood Trainee has launched a new web-page, and a road-trip to universities has been planned to attract the best students to the program. This year a record numbers of candidates have applied to the program. 406 recent graduates with master's degree within economics, technology, marketing, science, law, fish health and more, are seeking for an exciting career in the seafood sector.

Executive MBA

The Executive MBA in Seafood Management program graduated in June 2018 with the first group of 24 participants. A new group of 20 students are attending now the 1st year of the program initiated and established by the Cluster. This second group was kicked-off in Bergen in November with participants from USA, Panama, Chile, Island, UK, Belgium and Italy.

The module had the seafood industry in a global context as subject. The

participants had case assignments and worked theses on their MBA. Among others, Professor Frank Asche and Rector at NHH, Professor Øystein Thøgersen were lecturers in the program

In the second part of the module they had an excursion to Austevoll where they visited a salmon farm. Finally, the group had a nice dinner at Bekkjarvik Gjestgiveri with award-winning chefs Ørjan and Arnt Johannessen.

The next module will be at business school at HEC in Montreal in May 2019 covering strategic analysis and sustainable business models.

“What I really have liked about this MBA is that we all come from the same industry”

Jonas Lundberg, Chief Operating Officer in Lerøy Stockholm, Sweden



New Female Innovation Network

Together with our partners NORCE, BTO and the Western Norway University we have received funding of NOK 800.000 from NFR to create a women network to strengthen more female R&D managers in the seafood industry. In the project the target is to assemble at least 20 young and aspiring women in the seafood industry, that would like a career within research, development and innovation. The program will focus on the cooperation between academia and industry.

The impact of the women network will be increased innovation projects led by women in our region. This will increase the competitiveness and sustainable growth to our partners and increase the number of women in leading positions.

The program will last for one year and will contain professional presentations, company presentations, a study trip abroad and networking. The program will be free of charge for the participants.





Use of microalgae for a sustainable seafood production

The cluster is engaged in a 3 year innovation project “CO2FOOD” at the National Algae Park. The aim of the project is to build knowledge and support innovation for the use of microalgae that is best suited for a sustainable omega 3-fatty acid production for use in salmon feed.

Background

CO2Food focusses on the production of microalgae as omega-3 fatty acid rich (EPA/DHA) ingredient for aqua-

culture feed. With a governmental ambition to increase the aquaculture production 5-fold by 2050, given that current barriers to the projected growth are solved, feed restraints become particularly pressing. Thus, there is a need for alternative omega-3 rich sources, and photoautotrophic microalgae have the potential to become the future’s sustainable feedstock for both omega-3 fatty acids and proteins. In the CO2Food project, we focus on improving the

whole microalgae production process, from cells to aquaculture feed product.

Project partners, timeframe and funding

The CO2Food project is owned by CO2Bio AS, with partners University of Bergen, NORCE and Nofima. The international partners are Wageningen University (NL) and Algades (ES). CO2Bio AS is also owned by aquaculture companies Mowi, Lerøy Seafood,

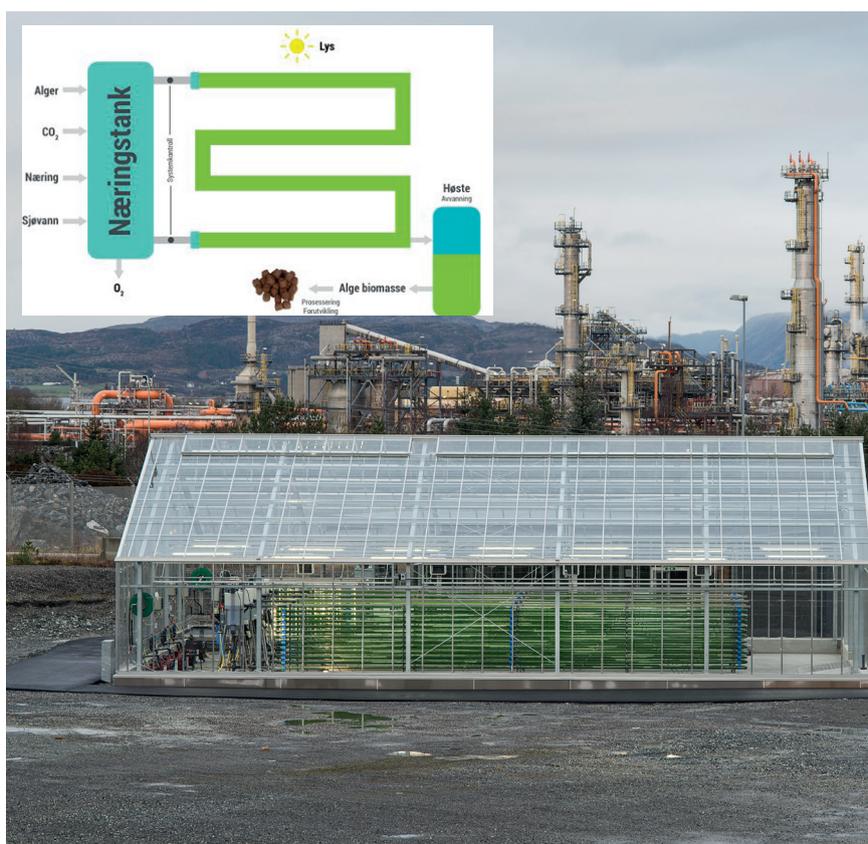
Grieg Seafood, Salmon Group, and EWOS-Cargill, with a timeframe of up to three years, to be completed in 2019. The total budget is NOK 11.9 million, and was fully funded by Innovation Norway and The Seafood Innovation Cluster, together with the owners behind CO2Bio AS.

Status and progress

The project has seven work packages, the first two focusing in to find the most suitable microalgae strain for industrial production and to develop the best production process. It was chosen the Store Puddefjorden strain *Phaeodactylum tricornutum* B58, based on its robustness (according UiB and NORCE studies) and digestibility by salmon (EU-project MIRACLES results). The carbon dioxide captured by Technology Centre Mongstad (TCM) was used for algae production. The work package 3 included the production of algae on semi-industrial scale, at the National Algaepilot Mongstad (NAM). Further, the algae biomass produced at NAM, was used by Nofima to study the process of turning these algae into a real feed-ingredient (in work package 4). Moreover, we have used the biomass for feed production at EWOS in Rogaland and tested at Mowi in Ballan wrasse production (work packages 5 – 6). Economical aspects of the algae production process were analysed in work-package 7.

Future CO2Food activities

The project will continue to run in 2019, aiming on improvement of microalgae production. Moreover, a new project has been granted by the Regional Forskningsfond Vestlandet: AlgeFisk2, in order to continue the work started on microalgae for Ballan



wrasse. In addition to investigate the use of microalgae for green water, it will explore the use of microalgae as feed for rotifers. These rotifers on their turn are then used as feed for larvae of Ballan wrasse, before they are big enough to feed on pellets. In the meanwhile, CO2Bio is looking into the next steps of commercialization.

Education

The project has also focused on education. A Professor from UiB and a senior researcher at NORCE have been employed as part of the CO2Food project. They have been teaching about microalgae at various courses at UiB, supervising student theses, and giving support to high schools in the region.





Innovation & Entrepreneurship

The entrepreneurs represent much of the innovative force of the industry, and our goal is to increase competence in entrepreneurship.

Accelerating entrepreneurship with business incubator programs as well as Hackatons is essential to boost innovation in the entire seafood value chain.

HATCH

Since late 2017, the cluster has cooperated with a start up in its own right, HATCH Blue, an accelerator

focused on international aquaculture innovation within all major fields of that industry.

HATCH can best be described like an MBA for entrepreneurs, and each cohort is an action-packed period of 3 months. In that period the companies are exposed to mentors, industry leaders and thought leaders from all over the world, as well as working intensively improving, growing and developing their companies and solutions.

8 start-ups in the first cohort in Bergen

For the first cohort, in spring 2018, eight high potential aquaculture start-ups from Thailand, India, Indonesia, Portugal, UK, USA and Norway, were selected by HATCH to be accelerated in Bergen.

Each start-up team received a cash investment of €25,000 in addition to participation in the program, and after intensive 3 months the first HATCH cohort was wrapped up with an

International Demo Day in June and the eight start-ups shared their ideas with an audience of international investors, industry, and supporters

Out of the eight companies, Manolin (USA) was voted as the company with the highest potential by an enthusiastic crowd.

2nd cohort in Ireland

Six of the world's highest-potential aquaculture start-ups were selected by HATCH to join the 2nd Accelerator program in Ireland autumn 2018. The tech-start-ups attending HATCH had a wide focus on feed, health, production and biology for new solutions for the global aquaculture industry and were representing India, USA, Indonesia, Canada, UK and Chile.

For two weeks HATCH was back in Bergen to meet and learn from our innovative business and R&D partners. The group got great presentations and 1:1 meetings with Thommesen, Grieg, Lerøy, Cargill, Pharmaq, Salmobreed, IBM, IMR and Nofima.

Cluster support

The support of our cluster community and friends has been invaluable and without the wholehearted support from Cargill, as the main sponsor, DNB and BTO this incredibly exciting effort had never gotten off the ground.

The Hatch team are now searching for new participants for the third cohort, with the next cohort in Bergen planned for the fall of 2019.

AQUAHACK

A hackathon is a design sprint-like

event where innovative minds team up and compete in developing new concepts and solutions.

AquaHack, the world's first aquaculture-themed hackathon took place in Bergen, in April with 40 attendees competing for both cash prizes and actual opportunities to create new solutions for the aquaculture industry.

AquaHack gathered a diverse group for an intense and exciting 40-hour case-competition focused on solving problems in aquaculture with the help of data and novel concepts.

Amidst industry specialists, food, drinks and snacks the creative minds laboured incessantly to deliver their concepts in time. On the final day, presentations took place in front of a crowd consisting of members from the whole ecosystem such as academics, industry experts, journalists, investors, students and farmers.

Winners

The winners of the concept category and runners up of the programming category, Erica McConell and Natalie Brennan won with their concept

“Digital Gut Interface”. The breeders today take many decisions based on the stomach feeling. This inspired them to create the Digital Gut interface, which is a modeling system that will collect data from breeders, which in turn can help them make better and more accurate decisions, as well as a better production. The solution can be integrated with AquaCloud.

Young talents

Engaging young talents has been an important focus from the Cluster to secure a competent workforce and competitive edge to our partners.

Support

The effort was handsomely supported by Grieg Seafood ASA, NCE Media, Bergen Kommune, Hatch, IBM, Deloitte and Innovasjonsgruppen for Havbruk & Sjømat (Student organisation).





Sustainable Seafood

at the top of the European Innovation Agenda

Our goal is to take a lead in Aquaculture Innovation in the EU. The Seafood Innovation Cluster is recognised as a trusted leader for sustainable aquaculture in Europe and together with our partners we have brought together Europe's top ocean innovation and science leaders to discuss how we can work together to deliver on the potential of the emerging ocean industries better using science.

JPI Ocean

The Cluster is a part of the National Reference Group, appointed by the Norwegian Government. The Joint Programming Initiative Healthy and

Productive Seas and Oceans (JPI Oceans) is an intergovernmental platform for marine and maritime research and technology development in Europe.

JPI Ocean role, as a coordination platform, focuses on making better and more efficient use of national research budgets, which represent 88% of the research funding within Europe. The goals and objectives of JPI Oceans address the intersections between the marine environment, climate change and the maritime economy enabled by observations, infrastructure, technologies and human capacities. JPI Oceans will allow

to develop joint research programs in which countries can be involved making decisions on what contribution to make: this may include institutional, project-related or new funding.

Aquamare

Aquamare, the strategic positioning project of The Seafood Innovation Cluster has triggered funds from the Research Council of Norway to set aquaculture as a major strategic focus area in future EU programs. This could give the cluster's partners greater influence on relevant programs and calls, but also make Norwegian interests more relevant to the EU.

Our goal with AquaMare is to help aquaculture be recognized and prioritized as an important measure that can create sustainable global food production. Led by NCE Seafood Innovation Cluster, AquaMare brought together NCE Aquatech, Blue Legasea, NCE Aquaculture and Biotech North together with our research partners, Nofima and SINTEF to discuss how we can collaborate to strategically position aquaculture and blue biotech in the European agenda while acknowledging that we will still compete for project funding and partners.

The EU's ninth framework program for research and innovation (FP9) starts in 2020. Preparatory work is already underway across the EU. In March, Norway's Ocean Clusters sent their recommendations to the EU on a "Mission Oceans" program to create European industrial leaders and markets through sustainable exploitation of the oceans.

iFishency

Positioning for world's biggest innovation programme in aquaculture, The Seafood Innovation Cluster is recognized as a trusted leader for sustainable aquaculture in Europe. iFishENCi - Intelligent Fish feeding through Integration of ENabling technologies and Circular principles – is a project conceived by researchers in Norway setting Sustainable Seafood at the top of the European Innovation Agenda, targeting circular principles and zero waste by qualifying new and sustainable organic value chains for feeds, and valorisation of by-products. It has the innovation topics to perform the Biology Online Steering System (iBOSS), smart feeding, improve fish welfare and quicker response time. iFishENCi in Norway will contribute to the strategic positioning aquaculture among European feed producers, supplier's technology and start-up companies to revolutionize globally feed production and control in the fish farming industry.

In June 2018 the iFishENCi consortium was awarded € 6 million (60 million NOK) from EUs Horizon 2020 program, to provide the global aquaculture industry with smart solutions for sustainable growth. NORCE and AquaBiotech, Malta led the project and the NCE Seafood Innovation Cluster and Cargill are partners.





Sustainable Seafood Production

To achieve the Clusters goal for a sustainable and innovative seafood production, we together with our partners within academia, research and industry established facilities, have increased research capacity creating a new education program to secure the need for increased expertise within new production technologies.

KABIS

Increased capacity for sustainable and innovative seafood production – Kapasitetsløftet for bærekraftig sjømatproduksjon “KABIS”
KABIS aims to contribute to new education programs, new knowledge and more innovation in closed production technology for the aquaculture industry. The aim is to achieve further sustainability and cost efficient production of salmonids. The project

is managed by NORCE.

Funding of 55 MNOK

KABIS is built on the Cluster’s sponsorship of an Industry-professor (3mNOK). The Cluster’s contribution has been fundamental for the success of receiving 55mNOK from the Research Council. This funding enables our Cluster to increase our capacity in developing new educational programs and foster more joint- innovation projects between industry-R & D.

This enables the Cluster a long-term collaboration between education, research and business for sustainable development in Norway’s leading seafood industries

«KABIS delivers on two of the cluster’s strategic focus areas, knowlegde and innovation. We have great expecta-

tions that the project will contribute to a faster green transition of the seafood industry and look forward to having a central role in the further development of the project”, says Tanja Hoel, CEO of The Seafood Innovation Cluster

New test center - OINC

The Minister of Trade and Industry Torbjørn Røe Isaksen announced three new catapult centres at the Siva Conference in June. One of them was the Ocean Innovation Catapult (OINC) in Bergen. NCE Seafood Innovation Cluster, Bergen Technology Transfer Office and GCE Subsea has been instrumental in establishing the innovation center and is in a strong consortium together with Prototech, Stiftelsen Industrilaboratoriet (ILAB), Universitetet of Bergen (UiB), DNV GL og Marineholmen Forskningspark

OINC will be an important infrastructure to strengthen the Cluster's work on sustainable salmon farming. The RAS facility in ILAB will support the Cluster's 55mNOK project "Kapasitetsløftet for Bærekraftig Sjømatproduksjon" providing "state of the art" test-facilities for students, industry partners and researchers. The total OINC budget is about 84 million NOK. This funding will be used for new joint infrastructure and competence development related to:

- Additive manufacturing (3D printing) for both metals and composites
- Recirculation Aquaculture Systems (RAS)
- Digitalisation

OINC makes easy the test of innovative solutions by involving interdisciplinary cooperation and uses expertise across professional environments and industry. It will help companies to move faster from the idea stage to the market. The target group is especially small and medium-sized businesses across the country, but also larger companies and research and development environments. In connection with KABIS, OINC catapult offers the physical infra-

structure, including tools, facilities and competence in design, build and test physical and digital prototypes for aquaculture. The services include, among others, design and concept development that may be used in recirculation aquaculture systems (RAS), digitalisation, in situ and laboratory testing. Instruments and sensors to measure the amount of gases dissolved in water, control of light and water quality are also included.

OINC centre provides practical testing of solutions that may reinforce the RAS based aquaculture already in use in Norway by improving its technology, reducing the amount of water needed to produce a kilo of fish and the risk related to biological and welfare challenges.

"OINC will be an important infrastructure to strengthen the Cluster's work on sustainable salmon farming. The RAS facility in ILAB will support the Cluster's 55mNOK project "Kapasitetsløftet for Bærekraftig Sjømatproduksjon" providing test-facilities for students, industry partners and researchers."

Tanja Hoel, Managing Director,
The Seafood Innovation Cluster

New education programs

Based on an interview with Cluster members back in 2017, there was a need to re-design the educational programs in vocational technical colleges in RAS/closed/semi-closed systems.

Together with project «KABIS», OINC (Ocean Innovation Catapult), Western Counties and Vocational school, 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.

1,5 BNOK in new knowledge programs

In December we received funding of 1,5 MNOK for establishment of new education programs in RAS/closed/semi-closed systems. The achieved funding comes from Hordaland County, Sogn og Fjordane County, Rogaland County and Møre & Romsdal County.

OCEAN INNOVATION | **NORWEGIAN CATAPULT CENTRE**



Activities 2018

Q1

Presentation: Norwegian Food Safety Authority
 Meeting: "Opportunities for the seafood industry in South-America", DNB
 Program: ACCEL Seafood DemoDay
 Program: Seafood Trainee, Module 2, Trondheim/Frøya
 Presentation: AqKva, Stord
 Presentation: Arctic Frontier, Tromsø
 Program: Executive MBA, Module 1, Bergen/Austevoll
 Workshop: Oil and Gas meets Aquaculture; Sensors and monitoring
 Presentation: Bergen Chamber
 Presentation: BI, Oslo
 Presentation: "Morgendagens havbruk", X2 Labs
 Event: Opening of Ocean Industries Accelerator; OIA, Bergen
 Presentation: X2 Labs - "Stakeholder Management"
 Seminar: Horizon 2020
 Meeting: Kick-off AquaCloud
 Event: MarTERA matchmaking in Brussels – EU ocean innovation projects
 Workshop: H2020 Blue Growth
 Conference: NASF, Innovation Day
 Conference: NASF Young Leadership Summit
 Conference: Sats Marint
 Event: "En marin klynge i verdensklasse", with Bergen Chamber
 Presentation: Internationalization, SiU
 Delegation: President visit from Iceland
 Delegation: Visit from Korea
 Event: "Storm i et vannglass"
 Presentation: Storbyråd, DNB
 Event: Big Data i Horisont 2020
 Event: Kompetent vekstkraft og vekstkompetanse
 Event: Why is membership of Bio-Based Industries Consortium (BIC) important?
 Event: "Havrommets unike muligheter", with NHH/Bergen Chamber
 Meeting: Minister of Fisheries
 Event: AquaHack, with UiB
 Delegation trip: Seafood Expo, Brussels
 Program: Seafood Trainee, module 3, Brussels and Paris
 Workshop: presentation of EU project financing for Bergen's clusters
 Event: EUs neste rammeprogram for forskning og innovasjon FP9
 Program: Accel Crossover
 Presentation: Havbruksseminar, EY
 Presentation: General meeting, Salmon Group
 Delegation: Visit from Nederland
 Meeting: Telenor/Sigve Brekke regarding digitalization
 Meeting: "Innovasjon i Havrommet", Hordaland County Council
 Meeting: DNV GL regarding partnership and digitalization
 Seminar: HAVlunsj, "Teknologiløp med DNV GL"
 Event: UN Ocean Conference, "Food from the Oceans", New York
 Event: "Digitalisering av sjømatnæringen", with First Tuesday
 Meeting: Science Councilors from EU and North-America
 Meeting: Launch of Lice-App, with Norwegian Veterinary Institute
 Seminar: Horisont 2020, "Fremtidens energiprojekter"
 Program: Seafood Trainee, modul 4, Bergen
 Conference: Stockholm Food Forum, EAT "Fish Futures"
 Seminar: Horisont 2020, "Klima"
 Seminar: HAVlunsj, "Elektronikkproduksjon for gründere"
 Partnermeeting: "Preparing the cluster for a digital age"
 Delegation: Visit from Portugal

Q2

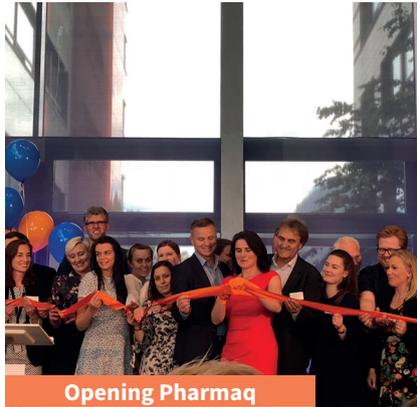
Q3

Summer School: Entrepreneurship, Ålesund
 Exhibition: Aqua Nor, Trondheim
 Seminar: Aqua Nor
 Presentation: MSD Seminar, Aqua Nor
 Seminar: HAVlunsj Grønn energi i havnæringene
 Meeting: Nordhordaland - Interkommunal plan for sjøområder
 Delegation: Delegation Chile
 Workshop: Smart og Grønn - Klyngeverksted med NCE Maritime CleanTech
 TV: Chilean TV-team
 Dialogue meeting: Trafikklys
 Workshop: FOU innan havbruk
 Meeting: Resource Group, Knowledge
 Meeting: Miljøpartiet de grønne
 Seminar: Havforsuring - seminar hos Miljødirektoratet
 Program: Seafood Trainee, modul 1
 Seminar: "HAVlunsj", Development Licence
 Seminar: Business opportunities in the circular economy, Oslo
 Presentation: Master Havbruk UIB - Students
 EU Conference: Cluster Matchmaking Conference
 Presentation: "Et hav av muligheter"
 Seminar: Innovasjon i Havrommet, OPplev Marineholmen
 Event: EU Clusters brokerage event, Stuttgart
 Seminar: Produktivitetskonferansen
 Seminar: Horizont 2020 Societal Challenge 2, Brussels
 Seminar: HAVlunsj, Integreert miljøovervåking, Bergen
 Panel: Blue Growth Brussel
 Presentation: Watson Summit
 Seminar: Et hav av internasjonale muligheter. Olje og gass møter havbruk.
 Workshop: Blue Growth Workshop om EU-finansiering
 Program: Module 3, Executive MBA, Tokyo
 Seminar: Go Global: Hvordan lykkes med internasjonalisering?
 Seminar: Funding and partners for EU digitalisation projects
 Presentation: Sysla live - Ocean 2017
 Workshop: Raudt lys - kva gjer me?
 Workshop: Havromsprosjekt/Gode Sirklar
 Workshop: EU stakeholders meeting, Food from the Oceans, Brussels
 Event: EU Blue Growth brokerage event, Brussels
 Presentation: EU Blue Growth policy day
 Presentation: EU Advisors' meeting, Oslo
 Workshop: Borregaard best practice on how to win EU projects
 Meeting: Resource Group – Innovation
 Meeting: Paris, Sjømatrådet
 HAVlunsj: Fra globale trender til lokale muligheter!
 Meeting: Programstyre NFR, Forny
 Seminar: Horisont 2020, "Klima"
 Seminar: HAVlunsj, "Elektronikkproduksjon for gründere"
 Partnermeeting: "Preparing the cluster for a digital age"
 Delegation: Visit from Portugal

Q4



Innovasjon i Havrommet



Opening Pharmaq



NASF



Meeting with Canadian supercluster



Meeting with the Minister of Fisheries



Reuters media



Meeting with EU ambassadeur



Seafood Innovation Award



Bergensbølgen



Sysla Live



Land møter Hav



Seafood Trainee



Storm i Vannglass



Visit of Chinese ambassadeur



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5006 Bergen



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