SEA CHA NGE

2019/20
LOOKING BACK AT A
YEAR OF ACHIEVEMENTS

2020/21
LOOKING FORWARD
WITH A FRESH FOCUS

SAIC

Sustainable Aquaculture
Innovation Centre

Introduction

If ever a year would occasion annual results different from the norm, 2019/20 was it. The year came to an end in the midst of a global pandemic, and now in 2021, most aspects of life are still in a state of flux. Nevertheless, SAIC can reflect on a remarkably strong performance. Within the last year, we have already met or exceeded a swathe of the targets set for the entire five-year funding period.

Appetite for our funding calls, and the innovation and scientific rigour of the project applications, has been persuasive and continued. We have also helped generate significant external funding for Scottish aquaculture projects.

The sharp rise in SAIC Consortium members over the last year is testament to the sector's keenness for collaborating in new ways. SAIC's skills programmes, internship delivery and events have also adapted seamlessly to the virtual environment.

Many of our funded projects have now reached completion and are resulting in commercial benefits, secure employment, spin-out businesses, and increased knowledge-sharing.

The new year brings a fresh focus on sharing these positive outcomes. You will get a flavour of this within the next few pages, with links to further information. We are also excited about our rebrand – the full name for SAIC is now the Sustainable Aquaculture Innovation Centre – read on to find out why!

Heather Jones
CEO, SAIC

CONTENTS

Sustainable Aquaculture

Most people know us simply as SAIC. But from now on, SAIC stands for the Sustainable Aquaculture Innovation Centre. This is a reflection of the current climate crisis, and of our strategic alignment with the green recovery priorities that are shared by Scottish and UK governments as well as the wider community.

We know that the farming of fish and shellfish is already a low-carbon and highly efficient way of producing healthy protein. However, we also know that sustainability is not a static condition, but an ongoing process.

SAIC-funded areas of research include improving fish farming's impact on the benthic environment, reducing the need for pharmaceutical treatments, developing new raw materials for feed production, finding innovative ways to eliminate or treat waste, and transforming the use of data to maximise efficiency and minimise diesel-fuelled travel. And our activities are guided by some of the most important UN Sustainable Development Goals.

Through this work, and much more, we will continue driving innovation that makes our part of the blue economy as climate-friendly as it can possibly be.

OUR NEW LOGO

SAIC

Sustainable Aquaculture Innovation Centre

The work we do is guided by some of the most important UN Sustainable Development Goals

SUSTAINABLE DEVELOPMENT GOALS

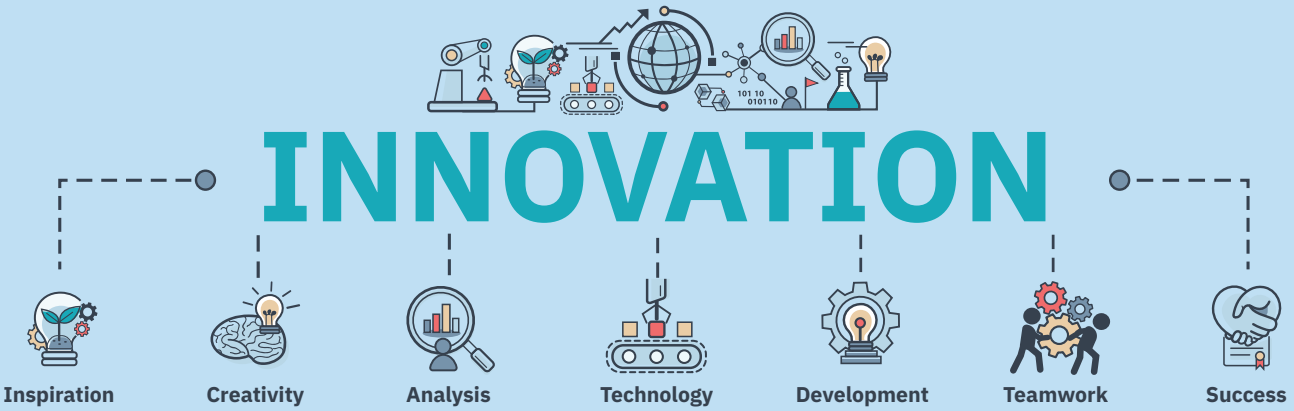
What is Innovation?

The word innovation can mean different things to different people. The type of innovation that SAIC drives, nurtures and shares can be defined as

> *...something that meets a genuine need in our sector and wider society*

> *...something that delivers tangible value to businesses, communities and the economy*

This type of innovation is what we see when we bring together people with complementary skills, expertise and ambitions, in the vibrant intersection between industry and academia.



Discover more +

SAIC's Reach and Ambition

In terms of geography, although 'Scottish' is no longer part of our name, SAIC still exists for the benefit of the Scottish aquaculture sector. But our reach and ambition are wider than that. We help draw down external funding from the rest of the UK, Europe and further afield.

Our consortium members are based in locations across the UK, as are the education establishments we work with. Our team, Board and SISP have collective experience from dozens of countries. And the knowledge gained from SAIC-funded research is shared around the world.

Discover more +

Case study

SCALING UP THE USE OF CLEANER FISH

Multiple improvements to Ballan wrasse farming were made through this industry–academic collaboration. This development supports salmon farmers worldwide to utilise a sustainable intervention against sea lice.

"This collaboration has proven to be a landmark in the development of farmed Ballan wrasse, not just in Scotland but globally. The discoveries made and new knowledge gained have significantly advanced our understanding of many of the fundamental areas of fish welfare and biological control of sea lice, and in doing so will help pave the way for successfully scaling up wrasse production."

Ralph Bickerdike, Head of Fish Health & Welfare, Scottish Sea Farms

"The project has brought a plethora of results that can ultimately be used within the production hatcheries to improve fish health and welfare. Techniques developed by the various researchers in association with farm staff will improve fish husbandry and allow further innovation under production conditions."

Dougie Hunter, Technical Director, Mowi Scotland

Discover more +

The SAIC Consortium

The SAIC Consortium brings people together to connect, collaborate, and communicate, fostering dialogue and knowledge-sharing that ultimately translates into tangible commercial results for our members.

During 2020, membership increased by around 25% to over 180 organisations, as we and our sector sought to increase connections, deliver greater adoption of technology, and encourage new ways of working.

More than half of SAIC's membership (57%) is made up of SMEs, while another 31% is large organisations. Around two-thirds (65%) of the consortium is based in Scotland, while 26% are located in other parts of the UK and 9% overseas, reflecting the growing diversity of organisations with an interest in Scottish aquaculture and its R&D projects.

> *Joining the consortium during our start-up phase has enabled us to build relationships within a range of fields from research to industry, and the positivity of the SAIC staff has been fantastic during a difficult time to start a new business.*
>
> ***Dr Judith Brown, Director, Isle of Skye Mussel Company***

> *SAIC plays a very important role in the cross-fertilisation of the knowledge and expertise across aquaculture. The innovation centre is integral in bringing different groups together and applying the latest science to the sector's practices. Aquaculture is still relatively young, and innovation will be vital to helping it sustainably grow in the years ahead."*
>
> ***Patrick Blow, Aquaculture Specialist, Marks & Spencer***

Case study

INTERNATIONAL PROJECT OPENS UP DATA OPPORTUNITY FOR AQUACULTURE

SAIC is part of a global consortium that aims to bring aquaculture technologies together through development of new software. A pioneering pilot project has begun on Shetland that will accelerate the sector's digital transformation and support its drive towards enhanced sustainability and efficiency.

Japan's Uhuru United; Amsterdam-listed Signify; Norway's Optoscale AS; SAIC; and SB Telecom Europe, part of SoftBank, are creating an 'open data' software platform that will provide a single point for fish farmers to interact with and understand the data produced by the variety of technologies on their sites.

Over the last 20 years, there has been significant growth in the amount and diversity of technology used in aquaculture – ranging from fish health diagnostic tools to remotely operated underwater vehicles (ROVs). However, the vast majority tend to work in isolation, limiting the value of data that can be taken and increasing the amount of time required to monitor operations.

Known as Aquaculture Insights, the pilot project will tackle this challenge by creating a single software package that combines multiple data sources, offering insights that cannot be provided by existing systems. Aquaculture Insights is receiving funding from the European Institute of Innovation and Technology (EIT), which is part of the European Union's Horizon 2020 research and innovation programme.

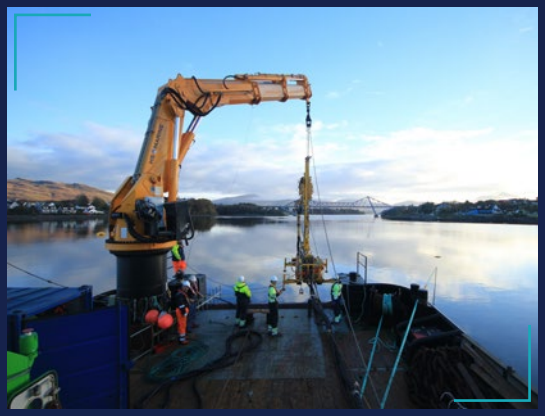
Aquaculture Insights could have significant potential for aquaculture, supporting its sustainable growth ambitions, which need to be underpinned by technological innovation and excellence.

Discover more +

Case study

ROCK ANCHOR TECHNOLOGY TAKES A LEAP FORWARD

A SAIC-funded consortium of researchers and industry has taken a significant step forward in the development of anchoring technology that could support the aquaculture sector's ambitions to deliver long-term sustainable growth and reduce its environmental impact. The team has explored the feasibility of adapting a rock anchor approach from techniques used in marine energy sites to aquaculture.



"To date, the project has been a tremendous success, allowing us to create a more cost-effective anchoring technology that will benefit the aquaculture sector ... allowing the expansion of aquaculture to previously inaccessible sites with scope for large farms in energetic areas. This will bring benefits in terms of fish fitness and waste dispersal. The next stage is to trial the technology at a fish farm alongside continued lab testing, to take another step forward in bringing the product to market."

Adam Caton, Geotechnical Engineer, Sustainable Marine Energy

Discover more +

Driving Innovation

The appetite for SAIC-funded, industry-led R&D projects – and the quality of the project proposals we receive – remain impressive. Industry demand for our support and services continues to exceed our available resources: a sign that our offer is market-relevant and makes a positive difference to commercial opportunities in Scotland.

Enabling research & development and collaborative projects

2020 FUNDING ACHIEVEMENTS

2 timed calls for proposals held

Ongoing Rapid Response funding call launched

17 SAIC-funded projects completed

38 project applications reviewed

14 new, innovative projects approved for funding

£1.1m allocated to collaborative projects

£1 : £2.40 average leverage rate

Case study

SEA CUCUMBERS COULD HELP SOLVE ENVIRONMENTAL PICKLE

A team of aquaculture researchers is exploring how the use of sea cucumbers could help minimise the environmental impact of fish farming. Blue Remediation was set up by a team of four PhD students who took part in a mentoring programme led by Women in Scottish Aquaculture (WiSA). The team has now secured a funding package from the UK Seafood Innovation Fund, with additional support from SAIC, to conduct a feasibility study that will assess the efficiency of sea cucumbers in absorbing aquaculture biomass.

"Managing and minimising the environmental impact of aquaculture is crucial for supporting the sector's growth. Alongside the extensive regulatory frameworks that are in place, we have identified a possible natural solution that could absorb some of the waste that is inevitably produced by fish and the process of feeding them ... Sea cucumbers are considered a delicacy in Asia and can fetch up to $3,000 per kilo, so there may also be added value in mainstream sea cucumber cultivation, hand in hand with the environmental benefits."

Soizic Garnier, Co-founder, Blue Remediation

Discover more +

Nurturing Innovation

Supporting the next generation of innovative leaders

SAIC's skills and talent colleagues work with universities, colleges, aquaculture businesses, the HR Directors Group, Women in Scottish Aquaculture, Skills Development Scotland, Developing the Young Workforce, Lantra Scotland, the College Development Network, fellow Innovation Centres and other stakeholders to nurture future and existing talent for the benefit of our sector.

2020 ACHIEVEMENTS

46	students and interns supported
16	SAIC-funded MSc students completed, two are continuing their studies, and 24 new students taken on
66	delegates trained on our face-to-face and online Aquaculture Innovation Programme
10	delegates are continuing with their studies on our Aquaculture Leadership Programme
4	students completed their SAIC-funded PhDs
4	students employed from across Scotland as summer interns
6	mental health & wellbeing webinars provided for industry professionals in collaboration with HeadStrong
8	WiSA events held
20	people completed the WiSA Mentoring Programme, which led to £50k SIF funding for mentees' research project
7	WiSA networking events with over 100 delegates
15	WiSA interviews published with inspirational people in the sector

Case study

SCOTTISH START-UP WINS CONTRACT TO SUPPORT SILICON VALLEY PROTEIN TRIALS

SalmoSim, a salmon simulator start-up business that started life as a SAIC-funded innovation project, has secured its first commercial contract with California-based Calysta, supporting trials for a sustainable alternative protein source that could be rolled out across the global aquaculture industry.

SalmoSim

"The gut simulator could be hugely beneficial for addressing some of the sector's biggest challenges around fish health and sustainability, particularly for companies developing alternative feeds or new digestible medicines. SalmoSim is a great example of the ground-breaking research taking place in Scotland that has the potential to make a significant difference to the worldwide aquaculture sector, as well as shape the sustainability of global food production."

Heather Jones, CEO, SAIC

Discover more +

Sharing Innovation

Through collaborative marketing, communications, media and events, we demonstrate the value and impact of SAIC's activities, and build platforms for our consortium members to share the knowledge gained through their research.

Facilitating knowledge exchange, networks and events

2020 ACHIEVEMENTS

1,500+ delegates attended Scotland's Countdown to COP26, which included SAIC's 'Sustainable Food from Land and Sea' session

329 pieces of press and media coverage

40 press releases issued

21 SAIC Newsbites sent to an opt-in audience of 850+ people

13 videos produced, including Scottish Aquaculture 101, internship videos, aquaculture career films, and a CEO video interview

5 workshops delivered, including Innovation Centre collaborations on IoT, data and biotechnology

1 new website created for Women in Scottish Aquaculture (WiSA)

SAIC Consortium support, including membership branding and the 'SAIC introduces' series of guest blog posts

A New Wave of Talent: multi-channel careers campaign launched in collaboration with Lantra and WiSA #BeTheNewWave

Delivering fruitful internships during lockdown

Interns clockwise from top left: Lisa, Marnie, Lori and Jim.

In the summer of 2020, SAIC's skills and marketing functions collaborated in supporting four interns who spent ten weeks learning about aquaculture, visiting companies, making those links to develop their careers, and working on projects. In response to the Covid-19 pandemic, for the first time these internships were delivered entirely online.

Based in Shetland, the Trossachs, Paisley and Edinburgh, our interns completed a number of set tasks, learning about digital marketing, PR, graphic design, careers and training, as well as finding out about shellfish production, fish farming, and opportunities for seaweed farming in Scotland.

They learnt to work together as a group, producing high-quality education materials that have been adopted by Education Scotland for use in classrooms around the country. They developed their own projects and even worked with a documentary producer to create films about the aquaculture industry, interviewing people from across the sector.

The outputs from these internships will last for years, and hopefully the friendships and connections made during the ten weeks will last just as long.

Discover more +

SAIC SUMMER INTERNS 2020

Meet the Team

Heather Jones
Chief Executive Officer

Susan Ward
PA and Office Manager

Susan Irvine
Director of Finance & Operations

Mary Fraser
Head of Skills & Talent

Sarah Riddle
Director of Business Engagement

Caroline Griffin
Aquaculture Innovation Manager

Daniel Carcajona
Aquaculture Innovation Officer

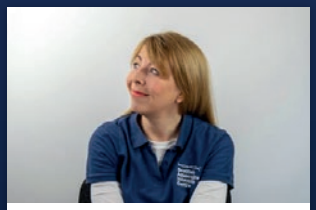
Rebecca Weeks
Aquaculture Innovation Officer

Sam Houston
Knowledge Exchange Officer

Andrew Orlik
Finance Administrator

Lynsey Muir
Project Support Officer

Lorna Valentine
PA, Operations



Benedikte Ranum
Head of Marketing & Comms

Hazel Peat
Events & Marketing Manager

David Macfarlane
Graphic Designer

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Meet the Board

David Gregory
Chairman

Heather Jones
CEO, SAIC

Ben Hadfield
Managing Director, Mowi Scotland

Dr John Rogers
Executive Director, University of Stirling

Jim Gallagher
Managing Director, Scottish Sea Farms

Prof. Pieter van West
Director (ICARD), University of Aberdeen

Prof. Julie Fitzpatrick
Scientific Director, Moredun Research Inst.

Alison Hutchins
Farming Director, Dawnfresh

Michael Tait
Managing Director, Shetland Mussels

Alan Sutherland
Marine Director, Scottish Salmon Co.

Dr Alan Tinch
Technical Sales Director, Benchmark

Dr Paddy Campbell
Vice President, BioMar Group

Meet the SISP

SAIC Independent Scientific Panel

CHAIRPERSON

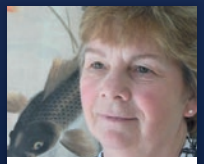
Prof. Julie Fitzpatrick
Scientific Director, Moredun Research Inst.

DEPUTY CHAIR

Prof. Pieter van West
Director (ICARD), University of Aberdeen

Dr Hans Bjelland
Research Director, SINTEF

Prof. Anton Edwards
Rector, UHI



Dr Lydia Brown MBE
Aquaculture Specialist

Dr Aleksei Krasnov
Senior Scientist, NOFIMA

Dr Heather Moore
Research Officer, AFBI

Dr Gordon Ritchie
Group Manager, Mowi

Dr Hamish Rodger
Consultant, VAI Consulting

Dr Clive Talbot
Consultant Research Scientist

SAIC

TALK TO US

Whether you're looking for a connection, need funding support, want to find out about our training programmes, or would like to make use of our extensive network, we're here to help.

01786 278318

info@sustainableaquaculture.com

Sustainable Aquaculture Innovation Centre,
Unit 19, Scion House,
University of Stirling Innovation Park,
Stirling FK9 4NF

Engage with us on our social media channels +