



NEWSLETTER

May 2011

Welcome to our spring newsletter, which gives you a flavour of the work we're currently involved in at the Centre. It's been a very busy time for us...

Our Marine Science and Technology Department has developed a new RSPCA approved fish welfare course in response to requests from industry, which has now been delivered to over 200 delegates from 11 different aquaculture companies across Scotland.

We've also received Scottish Government funding under the Scottish Industry/Science Partnership (SISP) scheme to undertake three projects to gather specific data on whiting, ling and velvet crab fisheries.

Our new workboat, *Havra*, has been delivered and I'd like to thank the team at Malakoff Limited for designing such a flexible vessel, as well as Shetland Islands Council for the funding, which made this new build possible.

We have a fantastic and dedicated team here at the Centre and we're delighted to welcome some new highly experienced faces to complement our staff: Dr Ian Cleasby, Dr iLaria Marengo, Dr Lesley McEvoy, Dr Clive Talbot and Emma White. Read our interviews with them in this issue.

Our staff at the Shetland School of Nautical Studies have also been hard at work nurturing the next generation of seafarers. We caught up with two of the cadets to find out what they think about our Merchant Navy cadet training programme. We were also delighted to – at last – be able to hold our annual prize giving, which had been postponed from December due to the inclement weather at the time. Celebrations of achievement are one of my favourite times of year and I'm delighted that we can play such a key role in these young people's futures.

I hope that this issue will help to reinforce the prime reason that the NAFC Marine Centre exists – to support the future development and sustainability of our marine industries. If you have a request, proposal or project that you'd like us to get involved in, please don't hesitate to get in touch.

Professor David Gray, Director



NEW NAFC Marine Centre workboat is officially named

We've added a new workboat to our fleet, which has been specially designed to deliver a greater range of services to Shetland's maritime industries. The *Havra* was officially named by Councillor Josie Simpson at a ceremony held at the Malakoff Slip in Scalloway. Also present were the group of school pupils from Scalloway Junior High School who put forward suggestions for naming her, including Heather MacDonald who submitted the winning name.

While the new workboat will be used to support the Centre's aquaculture trials site, she will also be able to undertake other types of work thanks to her flexible design, which includes a large, clear deck area, long reach crane and capstan capacity.

Estates Manager, David Hopwood, said: "Having a catamaran hull design gives the *Havra* a high degree of inherent stability during lifting operations, which will enable us to undertake marine operations requiring greater lifting capacity that we could not previously consider.

"As with other vessels in our fleet, the new workboat will be available for hire to carry out a variety of marine operations, including survey work, benthic and ROV scientific sampling, and marine renewables project support."

Professor David Gray added: "The addition of this new vessel to our fleet means we are now in a position to offer a greater range of services to our customers. In turn, this means we can better support Shetland's maritime industries, which is exactly what we are here to do."

Chairman of Shetland Islands Council, Development Committee, Josie Simpson, added: "It is very important that the NAFC Marine Centre has access to boats and equipment that enables it to compete for training and research work, particularly as it earns a significant amount of its income from external sources. The involvement of the Centre this summer with the deployment of the wave energy monitoring buoys will hopefully be the start of a new era in marine energy for Shetland."

This vessel was wholly funded by a £380,000 grant from Shetland Islands Council Economic Development Unit.



The champagne bottle breaks on the bow.

REVIEW FROM HEAD OF MARINE SCIENCE AND TECHNOLOGY,

Dr Martin Robinson

It has been a busy few months in Marine Science and Technology (MST) due to a growing number of projects and staffing levels. This is a particularly encouraging sign in a time of recession and cutbacks as often this can bring a general refocusing to projects that are highly applied, have clear benefits to society and offer value for money.

The fact is that the hard work, expertise and dedication of the staff in MST has continued to attract funding for research, development and consultancy projects that remain embedded in the realities that face the sectors that we are here to support. By placing impact at the forefront of our approach, and not academic progression, we are moving back to a position where an increasing number of stakeholders see our input as both credible and of value.

In the next few months we will continue to foster this outward-facing approach to research and commercial services, but will also begin to concentrate on increasing our portfolio of flexible learning material. By investing in mechanisms that deliver material in a flexible, remotely accessible format, we are acknowledging that the sectors that we provide services to do not operate 9 to 5, Monday to Friday.

Our aim for 2011 is to reach increasingly wide and numerous audiences of learners with quality assured and professionally relevant life-long learning opportunities. Those engaged in industry need the flexibility to learn when and where the opportunity arises and that will rarely be conventional office hours.



LING PROJECT


Dr Chevonne Laurenson explains more:

"Although ling is a commercially important species for the Scottish whitefish fleet, there is no existing continuous data collection or dedicated research programme. In recent years the Total Allowable Catch (TAC) has decreased but fishermen have reported increased abundances. As such, there is a pressing need for the collection of information relating to ling biology, population dynamics and the fishery.

"The NAFC Marine Centre received Scottish Industry/Science Partnership (SISP) funding to undertake a project, which will:

- Compile and review current and historic information available for Scottish ling fisheries
- Implement a tally-book scheme for the main Scottish ling fisheries
- Compile and review research data on ling biology, abundance and distribution in Scottish waters
- Conduct an enhanced market sampling programme for ling, including otolith collection for age determination
- Undertake an observer programme aboard Shetland whitefish vessels to monitor ling catch and discards, and collect additional biological data
- Evaluate changes in fishing behaviour in relation to management regimes and markets

"As with the majority of work undertaken by the Marine Science and Technology Department, the success of this project relies on us working closely with industry and we appreciate their input and co-operation."

 The final report is due at the end of August 2011

VELVET CRAB PROJECT

We find out more from Dr Richard Shelmerdine...

Q: What did the project seek to investigate/achieve?

A: I sought to assess the feasibility and workability of installing escape gaps in creels fishing for velvet crabs (*Necora puber*). The study consisted of two stages: determining the height of the escape gap and sea trials comparing the catch with and without escape gaps. Each stage was designed to answer two key questions:

- What is the optimum height of an escape gap for the Shetland minimum landing size of 70mm?
- Does the catch from creels fitted with escape gaps differ from those without?

Q: How long will the project last?

A: The project concluded at the end of March 2011.

Q: What did you do during the project period?

A: A tank study was set up to investigate gap height and a sea trial using a commercial vessel was undertaken to assess the practicality of using escape gaps in creels. We also fitted gaps to creels and worked with local fishermen to assess their benefit in commercial use.

Q: What did you hope to achieve by the end of the project?

A: We were seeking to determine a suitable size of escape gap for the velvet fishery in Shetland and to determine how useful fitting escape gaps to creels would be to the fishers.

This project involved a lot of effort from various members of Marine Science and Technology to make it a success and, as project manager, I am very grateful to them all.

 A final report will be published during the summer

WHITING PROJECT

Marine Science and Technology's Dr Ian Napier tell us more about this project that will investigate differences between the scientific and industry perceptions of the whiting stock in the waters around Orkney and Shetland (the northern North Sea).

The project is funded by the Scottish Government under the Scottish Industry/Science Partnership (SISP) scheme and is set to last around ten months.

The fishing industry's concerns about the apparent differences between fishermen's and scientists' views of the state of the whiting stock prompted the project. Essentially, many fishermen suspect that scientists are underestimating the abundance of whiting and that quotas are consequently smaller than they could be.

In recent years scientific assessments, based on survey and fishermen's catch data, have indicated a general decline in the abundance of whiting across the whole North Sea. However, this decline has been uneven, with localised abundances of whiting remaining in some areas, especially off NE England and in the north-western North Sea.


Fishermen believe that there is a relatively high, and increasing, abundance of whiting around Orkney and Shetland with high levels of discarding of marketable whiting as a result of the low level of quotas. In investigating the differences between the scientific and industry perceptions of the whiting stock, the 'catchability' (catch rate) of whiting by a commercial fishing boat and a fisheries research vessel, and

between different areas/types of seabed will be compared. The project will also evaluate how any differences in catchability might affect the assessment of the whiting stock.

Information from a variety of sources, including fishermen's diaries and questionnaires completed by fishermen, will be used to inform the findings.

A major part of the work has involved the use of a chartered fishing vessel (*Defiant* LK 371) to carry out fishing trials around Shetland in February. During this survey, the *Defiant* met up with the FRV *Scotia* and fished alongside her to allow direct comparisons of the catches taken by the two vessels.

This project is conducted in partnership with Shetland Fishermen's Association, Orkney Fisheries Association and the Scottish Fishermen's Federation, with assistance from the Marine Scotland Science Marine Laboratory in Aberdeen.

 The project will conclude in September 2011

PASSIONATE about the potential of VLE

Virtual Learning Environments (VLE) are platforms which allow educational delivery using multiple media types over the internet. These systems benefit learners who have more flexible access to learning material so that they can study when and where it suits them best. Although course development time is increased, the educational provider ultimately gains from the reduced need for face-to-face delivery, overreliance on the knowledge of individual trainers and, most importantly, the ability to reach a much broader range of students both in terms of their geographic spread and status.

At the moment, Marine Science and Technology, with the support and advice of the IT Section, are piloting the development of a VLE using the web-based application Moodle; the initial development work being conducted by Saro Saravanan on secondment from the marine hatchery. After constructing a standardised, branded and easily usable framework for courses he will be uploading content for a new course being developed, as well as the highly successful Fish Welfare course.

When asked about the project Saro commented: "There are many types of VLE with different benefits, but when the right match is made and professionally developed and marketed, the benefit to learner and provider can be enormous. Courses will be developed with a sound pedagogical design suitable for online learning; keeping learners at the centre of education at all times to achieve the intended knowledge and skills. There could become a time when the Centre uses several applications or platforms to deliver training to students from all walks of life."

Head of Marine Science and Technology, Dr Martin Robinson, added: "I am delighted that Saro has been able to engage in this project. He has gained extensive experience in this area through CPD training over the last few years, is passionate about its potential and therefore was

a natural choice for the development. It is important that we try to be as flexible and wide ranging with our educational offerings as possible, as the sectors that we work with are not Monday to Friday, 9 to 5 in nature. Marine Science will be developing a number of courses over the next few months that will lend very well to this form of delivery. It is our strategy to develop material that can be used for various levels of learning depending on the detail of content and assessment method."

Elaborating further, Senior Development Manager Alan Bourhill added: "If you take the Fish Welfare course as an example, we may continue to provide that face-to-face to industry groups by request, but also online for individuals who may not be able to attend in person. Altering the detail of the content and adding assessment elements may also allow us to offer the course in the further and higher education marketplaces. Ultimately, we would hope to have a number of bespoke, highly applied courses that can be combined to form a decidedly worthwhile and value for money qualification that is based on the practical reality of operating within a modern aquaculture industry."



REVIEW FROM HEAD OF SHETLAND SCHOOL OF NAUTICAL STUDIES Jan Rigden



It has been another busy and rewarding year for the staff of Shetland School of Nautical Studies (SSNS) with a number of new initiatives and programmes developed and launched, and staff kept busy with teaching and development work. It is pleasing to me that we are now fully staffed in both Deck and Engineering sections, and we are looking forward to a period of stability in SSNS.

There was a major change in the cadet programme for the 2009 intake; the planned demise of the Scottish Vocational Qualifications (SVQ) in both maritime and engineering operations in 2010 necessitated the development of a new cadet framework. It is still based around the SQA Higher National Certificate (HNC) and Diploma (HND), but with a new access course to ease the candidates into the higher level study. Feedback from the first group of 24 cadets and teaching staff has all been very positive, and we are now on to our second year of the programme, with the first year intake now back at college for their second phase of study. So far, the results are very encouraging and the National Certificate seems to have provided a good grounding for the HNC that they are now studying.

The engineer cadets from last year, CP6, are studying a brand new HNC in Marine Engineering that was developed by SSNS in association with two other marine colleges in the UK, and this has proved very popular with the students as it is much more focused on marine engineering than the previous general HNC.

The new cadets, CP7, (the seventh year of cadets at SSNS) are now at sea studying their practical work tasks, with the engineers due to return in September for their next phase and the deck cadets in October. We are looking forward to the new intake, CP8, starting in September 2011. Places are still available if you haven't applied yet, but you need to be quick as we expect them to be filled in the very near future.

A consultation exercise is currently being conducted into the future direction of work-based learning programmes in Scotland. The HNC Fishing course, which we were developing last year, is one of the possible

directions that this may take, although it looks more likely to be based around the Maritime Skills Qualifications at the moment so watch this space. The existing examination route to a fishing vessel deck CoC will remain and candidates will be free to choose either route. Conversion from the new route to MN certification should be easy to identify as candidates will just have to complete the units that they haven't already gained on one pathway to join another.

During the summer the bridge and engine room simulators received a major hardware and software update, with the latest versions being installed, as well as greater functionality and some new ship types being added to the engine simulator. Work is ongoing on a new mezzanine deck in the engineering workshop to add additional space and specialised training areas to our facilities, including a state-of-the-art engine dynamometer with PC-based data capture facilities.

On the engineering front, we started delivery of four new National Certificates for shore-based engineers: mechanical maintenance, fabrication and welding, electrical engineering and manufacturing engineering in September as part of the Modern Apprenticeship programmes and as stand alone full-time National Certificate courses, and these are progressing well.

SQA recently launched a new 'Skills for Work' Maritime Skills programme, aimed at Secondary 3 and 4 pupils. We expect to be offering this to Shetland school pupils from September 2011 and anticipate a healthy demand.

For further information on any of our courses please don't hesitate to call and we will do our best to help.

STUDENTS SCOOP PRIZES

Nine students proudly accepted awards for their academic achievements at our 20th annual prize giving in February from Captain George Sutherland, former Chairman of the Commissioners of Northern Lighthouses. The ceremony had been postponed from its usual date in December due to the inclement weather at the time.

Captain George Sutherland addressed the audience before presenting the prizes: "It is a privilege to be involved in launching the latest group of talented young people on their first voyage. The NAFC Marine Centre has an enviable record in attracting and training young people for a life at sea, which still provides many opportunities for energetic and ambitious youth. I wish them well and look forward to watching their progress in years to come."

The Northern Lighthouse Board (Deck Cadet) prize was awarded to Liam Cumming of Burra, an experienced and mature student, who has an excellent influence in the class and always performs to the highest standard in any task he is set. Liam is sponsored by K-Line Shipping through Clyde Marine Training.

The Northern Lighthouse Board (Engineer Cadet) prize was awarded to Derek Spence of Unst, who has consistently performed to the highest level, studying with diligence both in class and outside. Derek is also sponsored by K-Line Shipping through Clyde Marine Training.

Scooping the third award was Liam Gray of Buckie, who won the Class 1 Fishing (Deck Officer) Prize, an excellent student, applying himself with diligence and always performing to the best of his ability. The next winner was Robert Williamson of Whalsay, who won the Jeanette Williamson prize

for Class 2 Fishing (Deck Officer). Bobby first studied at the Centre in 1997 as a new entrant fish catching skillseeker, and has sailed on the *Research* throughout his career.

The Forbes Watt prize for Navigation, Merchant Navy, was presented to Gilbert Hutchison from Whalsay, whose application, hard work and attention to detail ensured that he was able to obtain excellent results in his examinations.

Robert Anderson from Bixter won the Bells Nautical Trust prize for outstanding effort by a deck cadet. He was also the winner of the Clyde Marine Training Deck Cadet Prize as the best Deck Cadet sponsored by Clyde Marine. Robert is sponsored by Norbulk Shipping.

The next award winner was Grant Masson of Fraserburgh who won the North Star Shipping award for outstanding effort by an engineer cadet. Grant is sponsored by North Star Shipping through the Ship Safe Training Group.

David Leisk of Orkney won the Clyde Marine Training – Engineering prize as the company's best sponsored engineering cadet. He developed an excellent sense of responsibility and work ethic, and put in a tremendous effort in his last phase leading to success in all areas of his programme. David is sponsored by Norbulk Shipping.

The final prize to be awarded was the NAFC MC Engineering Modern Apprentice of the Year and the winner was Fraser Leisk of Scalloway, who served his apprenticeship with Sodexo Pollution Response at Sellaness. All through his training, Fraser showed he was a conscientious and willing apprentice, producing both academic and practical work to a high standard.

NEW ENGINE ROOM SIMULATOR aids cadet training

A new PC-based engine room simulator has been installed at the NAFC Marine Centre and is already proving to be a great training tool for cadets.

It can simulate the control room of three different kinds of ships; an LPG carrier (steam turbine powered); a container ship (slow speed diesel); and a medium speed ro-ro ship.

The equipment can also simulate the three main engine types, all the electrical equipment (including generators, electric motors and air conditioning systems), as well as all the auxiliary equipment you would find in an engine room, such as boilers, fridge plant and fresh water generators.

Cadets now study towards a marine engineering qualification as part of their training programme and one of the compulsory units requires them to run engines and shut them down correctly. The simulator is an ideal way to practice before they are tested.

Lecturer Roger Pascal added: "The simulator is a valuable training aid for our cadets. As well as enabling them to undertake virtual tours of an engine room, the Maritime Coastguard Agency now requires cadets to know how to control an engine room by hand and our new piece of kit gives them the opportunity to practice their techniques before being assessed."

NEW NATIONAL CERTIFICATE COURSE gets thumbs up

Shetland School of Nautical Studies is now delivering four new shore-based National Certificates (NCs). These qualifications are aimed at giving modern apprentices the underpinning knowledge they need to pass the Level 3 vocational qualification.

The four courses are: mechanical maintenance; fabrication and welding; electrical engineering; and manufacturing engineering.

Lecturer Roger Pascal believes the courses are going well. He said: "One of the nicest things about these new qualifications is the fact that students do much more welding. We are now able to introduce them to all welding types (including MIG and TIG), which hopefully makes them more employable once they've qualified."

WE CATCH UP WITH...



ENGINEER CADET
Jerry Gibson

Jerry is from Rousay in Orkney. She is about half way through her training and hopes to complete her HNC before going back to sea in July.

Q: What have you covered so far in your training?

A: I've built up three and a half months of sea time with NorthLink Ferries assisting with various planned maintenance activities. I joined *MV Hjaltland* when she was in dry dock, which is when all the planned maintenance that you can't do at sea is carried out. So it was an amazing time to be working there.

Q: What happens next?

A: I'm going back to sea in July with Northern Marine on a tanker. This will also involve me doing some tanker training in Glasgow, as well as working on a chemical or oil tanker for four months at a time.

Q: What do you think of the cadet training programme?

A: I absolutely love it! This is the best thing I think I've ever done. I wondered at first if the format of the training and lifestyle would suit me but it's brilliant.

I get the best of both worlds; I pursue my hobbies in my time off and I get to work in something I really enjoy.

Q: Is the NAFC Marine Centre a good place to study?

A: This is a great place to study. The classroom sizes are small and the lecturers are all very supportive. It's great to have such enthusiastic teachers who all really want you to succeed.



DECK CADET
Adam Thomson

Adam Thomson is from Lerwick. He is a deck cadet who joined the training programme in 2009. His sponsor company is Gulf Offshore North Sea, the biggest supply boat company in the North Sea.

Q: What have you covered so far in your training?

A: Initially, I spent five months in the classroom before going to sea for nine months. I worked on supply boats in the North Sea, supplying oil rigs with fuel and other resources. I really enjoyed my time at sea, particularly as I could put what I'd learned in the classroom into practice.

Q: What happens next?

A: We're in class until the end of July and then I go to sea for another 11 months. This time I'm going to Ghana and will work on an anchor handler; towing rigs and taking up anchors. It'll be a great chance to see the world and work in a completely different environment; I'm really looking forward to it.

Q: What happens when you qualify?

A: I would like to stay with my sponsor company. I plan to work towards my dynamic positioning (DP) ticket once I've qualified in 2012.



Liam Cumming (Clyde Marine), Bobby Williamson (Research), Gilbert Hutchison (SIC Ferries), Capt. George Sutherland, Robbie Anderson (Norbulk Shipping/Clyde Marine), Grant Masson (North Star Shipping/SSTG), Derek Spence (Clyde Marine).

NEW STAFF

in Marine Science and Technology



Dr Clive Talbot
Aquaculture Research Scientist

Q: What attracted you to the post?

A: Having worked for about 30 years in academic and commercial research and development (R&D) in the fields of fish biology and aquaculture, I saw this position as a good opportunity to apply my experience and knowledge, while giving something back to the fish farming industry.

The post offered opportunities for research and consultancy, as well as the chance to develop and deliver accredited training and bespoke courses, which was exactly what I was looking for.

The NAFC Marine Centre has great facilities and massive potential for both training and research. Shetland is a nice place to live and work and, in many ways, life here reminds me of Norway where I lived for 17 years.

Q: What have you been doing since you were appointed?

A: My commercial experience has led me to focus specifically on business process improvement programmes and identify opportunities for enhancing efficiency and profitability. I've already assisted several local aquaculture companies to do exactly that, as well as developing a training course specifically looking at reducing the amount of feed required to grow salmon.

I have also secured research funding for a project related to wrasse brood stock management. Wrasse have been proposed as a means of reducing sea lice on farmed salmon.

A vast body of knowledge exists on all aspects of fish biology and fish farming in published scientific literature. Knowledge transfer is very important for industry and can often be a far more efficient way of answering questions than running a number of trials and experiments. I've dealt with several requests for literature reviews and find it rewarding to be able to satisfy this need for information.

Q: How will the work you're doing benefit both the NAFC Marine Centre and Shetland as a whole?

A: Building R&D and teaching capacity is an important strategic objective for both institutions and specific industries. As the saying goes, "Fishermen don't fish for fish, they fish for money". At the end of the day, our focus should be on wealth creation in a sustainable and environmentally responsible way. I hope my work will contribute to these objectives.



Emma White
Shellfish Research Assistant

Q: What attracted you to the post?

A: I have a keen interest in fisheries biology and fisheries management and I was also looking to build on my field experience. This job provided a good balance between field work and computer-based activities. The opportunity to work directly alongside the fishing industry also had a large influence on me applying for this position.

Q: What have you been doing since you were appointed?

A: I have been trained on relevant laboratory and field techniques and have participated in several training courses required for working at sea. I've been collecting data from commercial vessels and processing factories, as well as collating fishing data provided by the fishermen in a database. This data will be analysed by other members of staff for the stock assessment of the different species of commercially-important shellfish.

Q: How will the work you're doing benefit both the NAFC Marine Centre and Shetland as a whole?

A: The work I'm undertaking feeds into projects that the NAFC Marine Centre has with Shetland Shellfish Management Organisation (SSMO) and Marine Scotland. The data collected by the shellfish team is used to produce a resources assessment for the SSMO, which manages the shellfish stocks around Shetland and works to maintain healthy and sustainable shellfish stocks to support Shetland's fishing industry.



Dr Ian Cleasby
Fisheries Data Analyst

Q: What attracted you to the post?

A: I enjoy using statistics and analysing data and these two factors attracted me to this post. As well as being able to put my existing skills and techniques to good use, my role will also involve me learning new skills. In particular, I'm keen to learn more about time-series and spatial analysis.

Q: What have you been doing since you were appointed?

A: I've been working mainly on the NAFC Marine Centre's shellfish datasets. Part of my work has involved investigating new ways of estimating the average landings per unit effort (LPUE) and average landings per year for the different shellfish species. I've also developed time-series models for these species, which can be used to detect underlying trends and make forecasts.

Q: How will the work you're doing benefit both the NAFC Marine Centre and Shetland as a whole?

A: I hope that my work will provide useful additional information about the different shellfish fisheries in Shetland and contribute to future stock assessments. Some of the analyses I'm conducting should help when planning experiments and sampling strategies. I'd also be more than happy to help colleagues with any statistical questions they might have.



Dr iLaria Marengo
Marine Spatial Planning Officer

Q: What attracted you to the post?

A: The post required someone with GIS experience and that is where my background lies. I also saw it as a challenge. This is a brand new field to be explored and, while I am confident in my abilities, there is still so much that can be learned to build on my existing skills and knowledge.

I was also excited because the post is based in Shetland. I did some work here for another organisation a few years ago and welcomed the opportunity to return; I have so many fond memories of the islands.

Q: What have you been doing since you were appointed?

A: I've been involved in two innovative projects; quantifying social dependency on Shetland's seafood industry and mapping the interaction between all the activities at sea. In this second project, I'm focusing on how the renewable energy sector would impact on all other sea users. I hope to objectively map the areas that are most suitable for renewable energy devices.

Q: How will the work you're doing benefit both the NAFC Marine Centre and Shetland as a whole?

A: Both projects are highly innovative and industry focused. The project seeking to quantify social dependency on Shetland's seafood industry is the first time such a link has been explored in Scotland.

It will add a special component to existing data by carrying out GIS analysis and will form a solid basis for future management.

Hopefully, these initiatives will open up other doors for further research – this is just the beginning.



Dr Lesley McEvoy
Aquaculture Scientist and Instructor

Q: What attracted you to the post?

A: I thought it was a great opportunity to return to my aquaculture roots and work alongside Shetland's aquaculture industry.

Q: What have you been doing since you were appointed?

A: I've primarily been involved in developing new industry training courses but I've also been contracted to write some project reports for a local aquaculture company.

Q: How will the work you're doing benefit both the NAFC Marine Centre and Shetland as a whole?

A: In order for Shetland's aquaculture companies to comply with new national legislation and a variety of quality and welfare standards, their personnel require specific and ongoing training. The cost of sending staff to the mainland for training can be prohibitive so, to help keep local companies competitive, it is important that the NAFC Marine Centre supports our local aquaculture industry by meeting their training needs here in Shetland.

Since I've worked in several commercial aquaculture companies over the years, I have a good understanding of training requirements and how quickly these can change. I aim to help the NAFC Marine Centre meet these demands and remain flexible. In addition, my experience of undertaking industry-relevant research projects will be useful to both the Centre and Shetland as a whole.



ONE OF A KIND proactive voluntary initiative to conserve important habitats

The Shetland Shellfish Management Organisation (SSMO) has developed, and is in the process of implementing, a marine spatial management plan that will voluntarily close sea areas to scallop dredge fishing that are believed to contain certain habitats defined as important in the EU Habitats Directive. Through consultation and the use of the Shetland Marine Spatial Plan, stakeholders have worked together to close approximately 25 km² spread over 19 locations around Shetland where maerl, horse mussel or eel grass beds have been classified previously. As these habitats could be disturbed by dredge fishing activity, a minimum distance 'buffer zone' of 50 metres has been installed around beds, although for large beds and some shallow voes this has been extended to hundreds of metres.

This innovative and proactive voluntary initiative to conserve important habitats is certainly the only one of its kind within Scotland presently, and more likely within the UK and Europe. In addition to closing areas known to contain important habitats, fishers have also agreed to avoid locations where there are unconfirmed reports of others, and from their own knowledge of Shetland waters to report beds that have not been officially defined so that they can be incorporated into the Shetland Marine Spatial Plan in the future.

The development, industry consultation and refinement of the Plan were conducted with close support and advice from the Fisheries Science and Marine Planning, Policy and Advice Sections of NAFC Marine Centre, the latter of which administers the Shetland Marine Spatial Plan.

Jennifer Mouat, Fisheries Manager with the SSMO commented: "This is a policy which will not only protect important marine habitats but will demonstrate the ongoing proactive approach to fisheries management

in Shetland. This bold decision will add to the suite of measures which we already have in place to ensure the long term sustainability of the shellfish fishery and the marine environment. The shellfish sector has an annual value of over £5million to the Shetland economy and is key in terms of supporting some of the remoter areas and communities within the Shetland Islands. It is therefore important that we continue to work with the fishermen themselves, as well as other key stakeholders, to ensure the fisheries continued success. The SSMO is very grateful to the staff from Marine Science and Technology for their continued support."

On being asked about the importance of the development, Head of Marine Science and Technology at the NAFC Marine Centre, Dr Martin Robinson said: "I am proud and delighted that the Centre has been able to support the SSMO and its members in taking these steps toward preserving some of the important habitats around Shetland.

It is truly an innovative step in the context of European inshore fisheries management, and will hopefully point the way forward for others to follow. Shetland is acknowledged as being ahead of the curve both in the quality of its inshore fishing data and marine spatial planning, the former being due to the continued support of the Centre and the SSMO by Shetland Islands Council, the latter with additional assistance from the Scottish Sustainable Marine Environment Initiative (SSMEI). This is an example where these strengths have been combined and utilised by the innovative SSMO stakeholders to instigate spatial management that has unquestionable benefits."



Full details of the plan can be found on the SSMO web site at: www.ssmo.co.uk

QUANTIFYING SOCIAL DEPENDENCY on Shetland's seafood industry

It is clear that the various fishing and aquaculture elements of the seafood industry in Shetland contribute to a large number of household incomes across the islands. Although statistics relating to the overall economic value of the industry are produced on a periodic basis, it has generally been much more difficult to assess its actual contribution to social dependency.

The Marine Science and Technology Department is undertaking an innovative project that will attempt to quantify this as a whole for the islands, but will also look in more detail at how this is spread across relevant sea areas. It is hoped that by working with each of the fishing and aquaculture sectors involved, data can be collected that allows mapping of the importance of each sea area in relation to the employment, proportion of family income and number of dependants that rely on it.

When asked about the rationale behind the project, Head of Marine Science and Technology, Dr Martin Robinson said: "We are now in an era where there are ever increasing demands for resources in the marine environment by multiple stakeholder groups. This brings the necessity to properly quantify the biological, environmental, economic and social value of areas so that they can be managed effectively. This project is trying to put something on the map that has to date been invisible to those planning new developments; the dependency of Shetland workers and their families.

"The data will be incorporated with the many other data layers already present in the Shetland Marine Spatial Plan, but will be a first in defining direct societal reliance. In this way, someone thinking about a development will be able to look at the Marine Spatial Plan and get an idea of how many people are dependent on income derived from the area. It is vitally important that people's interests are considered as soon as possible in the planning process."

The project team is currently conducting consultations with each sector through the use of customised questionnaires that seek information on dependency. The idea is not to find out what people earn, so the questions asked will be posed in relative terms, for example, what percentage of your household income is derived from fishing? How many dependants are in your household? Respondents will be asked to reference their responses relative to sea areas, these being different for each sector type. It is hoped that the outputs will provide a means for the various sectors to detail how important their activities are to the social cohesion of Shetland.