At the opening plenary session of the Aquaculture Europe 2017 event, organised by the European Aquaculture Society in Dubrovnik, Croatia, Sadisivam (Sachi) Kaushik, founder and director of the Fish Nutrition Joint research units of the Hydrobiology Station at St Pee sur Nivelle, was presented with an Honorary Life Membership of EAS.

Honorary Life Membership of EAS is an award given to those persons that have had a marked impact on the development of European aquaculture. Since 1981, EAS has bestowed this award on only 12 persons, including such names as Eric Edwards, Peter Hjul, Colin Nash, Courtney Hough, Pascal Divanach, Patrick Sorgeloos and Michael New.

The award was presented by the EAS 2016-2018 President Bjorn Myrseth, who introduced the awardee as a very well-known name in aquaculture – not only in Europe but throughout the world. His name is synonymous with the word ‘nutrition’ and it was therefore fitting that the award was made just after a very thought-provoking plenary presentation on the evolution of the human brain and the pivotal role of marine DHA and trace elements, entitled “Is substitution compromising our omega 3 (DHA) position?” by Professor Michael A Crawford of Imperial College, London.

Bjorn Myrseth described how, over a period of 30 years, Sachi Kaushik founded and directed the Fish Nutrition Joint research units of the Hydrobiology Station at St Pee sur Nivelle, France and many of his PhD and other students have gone on to become respected scientists in this field.

He has continuously supported the development of the EAS and has tirelessly supported aquaculture expansion through the FAO, UNDP, World Bank and other organisations. In 2015, he was made an Officer of the ‘Ordre du Mérite Agricole’ by the French government for his services to nutrition and to aquaculture.

He has published more than 300 papers and given countless presentations, expert consultations, articles and interviews on the issues of replacement of fish meal and fish oil, fish in/fish out ratios, human nutrition. Now retired from INRA, he is currently leading a migratory life between his home in the French Basque country and the University of Las Palmas in Grand Canaria, where he is the European Research Area chair on ecosystem approaches to sustainable aquaculture development in the eco-aqua initiative.

On calling Sachi to receive his award, Bjorn spoke of his pleasure and personal honour to make the presentation of Honorary Life Membership to him on behalf of the European Aquaculture Society. Judging from the appreciation showed by the audience, Sachi was a very popular awardee.
Janet H Brown

A pre-conference excursion to the historic oyster growing region of Mali Ston Bay was the opening event at the Aquaculture Europe 2017 Meeting in Dubrovnik and with Conference Chairman Ivan Katavić highlighting the native oyster production of Croatia at the opening ceremony of the conference later the same day we could perhaps be forgiven for thinking that the event was centred on native oysters. That was certainly my reason for being there!

The European Aquaculture Society (EAS) has a system for creating and facilitating Thematic Groups to take forward a special area of interest taking advantage of the wide membership and geographic reach of the EAS. The latest of these is the Native Oyster Thematic Group. Such a grouping has been under discussion for some time; I think I first heard it mooted at a Euroshell meeting in Bordeaux some years ago but it was a more definite shape on the horizon at the EAS meeting in Edinburgh last year. In fact from talking to Alistair Lane, Executive Director of EAS who has been so instrumental in setting it up, I learnt that it had been more likely to finally achieve lift-off at the Dubrovnik conference because he had been approached by Vedran Kunica of the Mali Ston growers association (see box) for help with their oyster problems when in the area for initial planning for the conference. So it became merely a question of Alistair persuading someone to take on the hard work and responsibility and commitment of time to set things up. This job was nobly undertaken jointly by Gercende Courtois de Viçose based in Gran Canaria who has worked for a long time with abalone projects which had brought her into contact with oyster growers and Rosa Fernández whose work with Cetmar (www.cetmar.org) in knowledge transfer may uniquely qualify her for this job.

After and initial ‘call for interest’, a few conference calls were set up to arrange the first actual meeting of the group in Dubrovnik. I am not sure how many people realised how appropriate this location was for a discussion of restoration of oysters. The potential downside to the timing was the scheduled workshop on restoration of oysters organised by German Federal Agency for Nature Conservation (BfN) with the Alfred Wegener Institute in Berlin at the beginning of November but the positive view on this is that it means work to restore native oysters both for commercial production and as restored habitat is gaining a real head of steam. So the first meeting of the newly formed thematic group convened on the first day of the conference. There were 3 sessions, (i) supply of juveniles, (ii) ongrowing technologies and challenges and (iii) restoration. There were presentations, discussion and the aim was to produce a set of priorities for taking the endeavour forward. At times during the day this seemed a very distant possibility but with suggestions already garnered from answers to questionnaires sent out to participants signed up to the group ahead of the meeting and some exemplary note taking and editing from Gercende there was a summary produced and votes taken on prioritisation.

The overwhelming need appeared to be demand for spat. For commercial hatcheries this is not an easy market since if oysters do get well established successful recruitment could make the hatchery unviable in the long term. (But this might still be to be a long way off.) It is still a considerable risk for a hatchery in what may be an uncertain market and what is probably need in the view of Alistair Lane is some sort of public private partnership. Without such assistance North American shellfish restoration would not have got underway and provision of state/university funded hatcheries has fuelled both restoration and aquaculture development very successful in States such as Virginia. It could well be what is needed for a breakthrough here in Europe.

Native oysters on the agenda at AE2017

Participants at the AE 2017 workshop on flat oysters
The day itself was very instructive and well set up so that for each topic there was essentially a presentation from a mainly research viewpoint and a second from a more commercial/practical viewpoint and with time for discussion to allow conclusions to be drawn. These included presentations from Luz Pérez-Parallé on hatchery production of flat oysters; the current state of oyster production in Northern Europe from Trish Daly and the Mediterranean by Kruno Bonačić. After lunch it was the turn of Tony Legg to talk about ongrowing, this time unveiling the Ortac 4 with new improved anti-fouling devices which will be trialled in Mali Ston (see photo).

The final session was on restoration with a presentation from Bernadette Pogoda who talked on ongoing initiatives in Europe and Pauline Kamermans in more specific experience in The Netherlands where an actual mixed reef is already established.

While native oysters have been a feature of Mali Ston for a long time the actual farming of them using suspended ropes became established some 50-60 years ago. They are essentially growing oysters in the traditional way of the Mediterranean using spat collectors and then attaching the collected spat onto lines in pairs, or more recently in threes as they do in Mediterranean France. The spat collectors are different types of plastic but the best they find are old mussel lines which they suspend in the water. There are usually two spawnings a year and they put the first collectors out in May but it seems likely that there are some changes in the pattern of spawnings and the growers may well be missing the best times according to Kruno Bonačić recently returned to work as scientist in the University of Dubrovnik. If they use the plates or couppelles they often settle too thickly on the undersides and then it is hard to separate the oysters. It takes 1.5-2 years after this settlement to grow to market size. In the past the oysters were grown on wood which was also used for collecting spat. The declared production is about 1.5 million oysters which works out at roughly 150 tonnes pa but it may well be more and a figure double this was suggested to me. Production however was adversely affected by the war, not the Second World War but the Croatian war of Independence 1990-1995.

The war has not been the only problem since sea bream farm escapes have the unhelpful predilection for eating young oysters (less than a year old). Farming of sea bream is no longer allowed in the area but the fish remain. Researchers have been trialling growing the young oysters in plastic boxes to provide protection in the early stages (see photo). Also mussels imported into the area for culture have also introduced a lot of biofouling species which may become an increasing problem in time.

In the meantime we had a delightful visit taking a boat trip out to one of the ongrowing sites, being served Rakija (fruit brandy) with the native oysters and then a glass of locally produced white wine with some cooked local mussels - a great surprise and delight at 10am! While the supply of spat is clearly the critical issue there are more difficult decisions to be made since one of the big issues remains the disease bonamia which has been part of the reason for decline in the native oyster. While avoiding introducing bonamia into uninfected areas is very important and has to be defended against by control of movement, one important question remains, “Do we introduce bonamia resistant stock into areas where oysters are no longer found or bonamia free oysters?” Genetics will be increasingly important and practical answers need to found to enable young spat to be put out into their final growing position as early as possible as this remains a real bottleneck. The big hope out of this is that having a specific forum through EAS to share knowledge and ideas, there may be a real opportunity to see progress with native oysters so that they can once again be providing both feast and habitat for the future.

The original article by Janet Brown was published in The Grower and Fish Farmer.
Can good communication change consumer perception about aquaculture?

R. Flos & L. Reig

According to all available data aquaculture is still one of the fastest growing sectors of food production and contributes significantly to the protein supply and the well being of millions of people. The sector has demonstrated to be able to perform and implement an impressive scientific and technological development and today offers a wide diversity of safe, healthy and high quality products. Nevertheless, the consumer perception is not always positive about aquaculture.

In this context The Universitat Politècnica de Catalunya has led two projects of the Reference Network in R+D+I in Aquaculture of Catalunya and in collaboration with researchers from the Centre for Agro-food Economy and Development, the Universitat Autonoma de Barcelona (UAB), and the Institute of Marine Science. One of the projects dealt with the perception about aquaculture along the full value chain (VALORA) and the other addressed how to communicate information to consumers to dispel the myths that still exist related to aquaculture processes and products (VALE+).

In Aquaculture Europe 2016 results of VALORA were presented (Flos et al. 2016; Escobar et al. 2016), showing how perception changes along the value chain (high and low frequency consumers, fishmongers, wholesalers). Through a qualitative method the main positive and negative ideas about aquaculture were obtained and classified following the main subjects. Wholesalers, fishmongers and high frequency consumers considered that there is a need for more information and communication. The respondents assigned different levels of importance to topics such as environment, market, welfare, quality, society and health.

The same qualitative method was used to assess the perception of different consumer groups. After analysing the image that the Spanish press offers about aquaculture (Reig et al. 2016), a group of students from an Audiovisual Communication Degree at UAB was also surveyed (Reig, et al., 2017). Results can be compared with those of the other groups of consumers.

Perception about market and economy was mainly positive for all groups, being less important for students what could likely be because they are not responsible of buying food at home. Even if there were some negative perceptions about the impact of aquaculture on the environment, the vision was mainly positive for low frequency consumers and especially for students, who showed a more ethical bias. Quality was mainly approached as negative, and this was especially important for consumers. Welfare, with a negative bias, was only important for low frequency consumers and students.

After assessing perception, the interest was then focused on choosing a single subject and conducting a quantitative study to determine how perception may change with a scientifically sound and easy to read message using different communication tools (VALE+). Preliminary results have been presented in Flos et al. (2017).

The analysis of all results, together with a survey to experts, led to a consensus to choose fish quality as the myth to dispel in this first step. A document about fish feeding was written by the researchers participating in the project, who are experts in different fields related to aquaculture. The document was scientifically based but easy to read and transferred both to a plain text in pdf and to an interactive docuweb. A quantitative study with 300 Spanish consumers was conducted. The survey included a series of questions about their profile (demography, socioeconomic, involvement, knowledge on aquaculture concept) as well as a questionnaire asking for their opinions on different aquaculture subjects, mainly, but not exclusively, related to product qual-
ity and fish feeding. After answering the questionnaire, they were asked to read the document either as pdf or as doc.

web. Then they were confronted to the same questionnaire about aquaculture without being able to look at their previous answers. After reading the document they significantly increased their agreement with the positive statements and increased the disagreement with the negative ones, showing in all cases a more positive view of the aquaculture subjects. There were no significant differences between consumers having used one of the two communication tools. This confirms the importance of providing good information, content being more important that the tool itself, providing that the tool is scientifically sound, easy to read and built in an appealing way.

These promising results show that further efforts should be devoted to understand how consumers perceive aquaculture as well as the best way to communicate aquaculture procedures and products to improve its appreciation.


Blue is the new green...
“Aquaculture Knowledge Transfer - Facilitating the pathway from research outputs to industry products”

The ongoing Horizon 2020 initiative COLUMBUS is pioneering a new technique to better understand how to optimise the use of knowledge derived from research. Through the COLUMBUS project’s process of identification of Knowledge Outputs (KOs) and the development of Knowledge Transfer plans to facilitate the increase of Technology Readiness Level (TRL) to bring this knowledge to market, COLUMBUS partners organised a special event at EAS Aquaculture Europe 2017 conference on 18 October 2017, Dubrovnik, to present several aquaculture case studies that are currently going through the process.

Case Study presentations were of innovative knowledge being effectively transferred and applied with measurable impact. These presentations included a sensor, whose technology originated from the oceanographic sector (used to measure ice-melt) finding new applications in waste water, drinking water – and aquaculture RAS systems, and a fish shape app whose unique selling point lies in the opportunity to pick up the onset of juvenile fish malformations before they become visible. Following the CS presentations, an open forum with Q&A, moderated by Panos Christofiliogianis of AQUARK, partner in COLUMBUS, looked into several issues, including brainstorming new ideas, nurturing projects and protecting intellectual property, as well as identifying end-users and ‘knowledge amplifiers’. The half-day workshop attracted around 60 participants from 10 countries and representing the general stakeholder participation of the full event.

COLUMBUS partners and transfer experts were also present at the AE2017 COLUMBUS Brokerage Stand during the rest of the conference to allow interested parties to set up individual meetings to review their project and its potential. For those wishing to go further, this is the start of a process that could include: mentorship in IP protection; development of a business plan; identification of end-users and development partners; assessment of appropriate channels to market; etc.

The EAS Aquaculture Europe event has developed into a place to share and communicate the latest scientific research, attracting a dynamic and multi-disciplinary audience. AE2017 attracted total participation of 1700 from more than 60 countries. 92 exhibitors were present at the AE2017 trade show. EAS has decided to implement brokerage events as an integral part of its AE events – for knowledge management between researchers and exhibitors (using the COLUMBUS approach), for student mentor-
During the recent European Commission info Week on Horizon 2020 Societal Challenge 2 (SC2) “Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the Bioeconomy”, the COLUMBUS project was given the spotlight.

As part of this week-long programme, an event was held to specifically address Blue Growth Research and Innovation, and its cross-sectorial and interdisciplinary approach to marine, maritime and aquatic research and innovation and its relevance to EU policies and to the blue economy. This event showcased examples of impactful EU projects and their uptake by different stakeholders including policy makers, as well as synergies with other major programmes and initiatives that contribute to the blue economy in Europe and beyond.

The event consisted of introductory remarks by Commission representatives on the instruments and tools to fund blue growth, followed by sub-sessions on the value of sustainable marine bioresources, marine stressors and food security and marine data and digitisation. Four projects were presented in each sub-session and followed by comments from a user panel of industry and other key representatives.

The event was opened by John Bell, Director of Bioeconomy in DG RTD, who provided the scope and the challenge that lies before us. He referred to the recently published report “Investing in the European future we want” from the High-Level Group on maximising impact of EU Research and Innovation Programmes, chaired by Pascal Lamy, and specifically its main message on the need to invest in research and innovation and where success depends ever more on the production and conversion of knowledge into innovation. He noted that with important policy decisions that will impact the next 5-10 years, we will need to change the way in which we organise our society around Blue Growth. He specifically asked the research community to step up its efforts to become the ‘intelligence service’ for policy makers and fill the knowledge gaps that have been identified.

The COLUMBUS video “The Importance of Marine Scienc-
es” was shown just after and more detail on the initiative was provided by COLUMBUS project manager Cliona Ni Cheallachain with the second COLUMBUS video showing “An introduction to Knowledge Transfer” with a detailed explanation of the process developed by COLUMBUS.

In her presentation, Cliona went on to explain how the core objective of COLUMBUS - to ensure that applicable knowledge generated through EC-funded science can be transferred effectively to unlock the potential of the oceans to create future jobs and economic growth in Europe – has been put into action. As the project draws towards its end, key achievements include the identification of 6415 projects, 1199 Knowledge Outputs (KO) identified and 96 KO prioritised for transfer. Through the generation of 60 case studies, COLUMBUS is therefore providing evidence that EC Funded marine research projects are generating valuable knowledge with real applications for blue growth impact.

Given that retrospective knowledge collection is prohibitively expensive and difficult, a key COLUMBUS recommendation is that funding agencies implement effective processes for high quality collection of Knowledge Outputs during the project life.

Cross-cutting applications of knowledge have very high potential added value, hence further capacity building efforts are required across the marine science community to be able to carry out effective knowledge transfer and bring about a culture change in the approach to impactful science for society at large.

A summary report of the EC Blue Growth Research and Innovation Day will be published soon on the DG Research and Innovation website.


John Bell, Director of Bioeconomy in DG RTD and Cliona Ni Cheallachain, COLUMBUS Project Manager
Two Postdoctoral positions (2 years) in Microbiology/ Molecular Biology at University of Gothenburg, Sweden

Closing date January 15, 2018

Seeking two suitable candidates with background in microbiology and molecular biology, preferably with relevant aquaculture experience with either fish or invertebrates. The first position is part of a project examining the role of microbial populations in recirculating aquaculture systems (RAS), anaerobic digesters and in hydroponics (HYP) units with the goal of better understanding conditions that will maximise beneficial transfers of microbes and their products among components of decoupled aquaponics systems. A second candidate will work on bacterial relationships related to biofloc and biofilms and pathogens within Recirculating Aquaculture Systems (RAS). These positions require excellent English proficiency but do not require EU or Swedish residency as they are open to all international applicants. Candidates must be willing to travel frequently and for extended periods within Europe and overseas. Salary €41,000 after tax with excellent benefits including health coverage, paid vacation and considerable international travel. Please find more details about the positions at:

We are very pleased to inform you that the scientific opinion "Food from the Oceans" has now been published and submitted to the European Commission.

This Scientific Opinion responds to a request from the European Commission formulated by Commissioner Karmenu Vella (Environment, Maritime Affairs and Fisheries) for scientific advice on how more food and biomass can be obtained from the oceans in a way that does not deprive future generations of their benefits.

The advice takes the form of five sets of recommendations. The first calls for mainstreaming a "food from the ocean" paradigm based on responsible culture and capture, into a broad food systems policy framework, as well as into other relevant EU and global systems-level policy agendas. Reflecting the fact that scientific evidence points to mariculture (marine aquaculture) as having the biggest potential to increase food from the ocean, the second set pertains to the development of mariculture globally. As far as Europe’s part in this is concerned, this would require raising the strategic priority of mariculture and bringing all available means to bear on facilitating its development – notably marine spatial planning and other such integrated planning and assessment tools. The importance of the continued development of responsible fisheries management and maintaining marine ecosystems is reflected in a set of recommendations aimed at sustaining wild-capture. A fourth set aims at facilitating policy change by optimizing the use of instruments such as the Open Method of Coordination as well as the forthcoming Blue Bioeconomy Forum. The final set targets future-proofing policy by recommending further development of the Common Fisheries Policy science advice system and actions to fill key knowledge gaps such as scientifically-motivated pilot fishing of as-yet unexploited lower trophic-level species.

This Scientific Opinion will inform preparation for the successor of the present European Maritime and Fisheries Fund and, more broadly, policy development and implementation in the coming years to help increase responsible harvesting of food from the ocean.

The Scientific Opinion is based on a detailed analysis of publicly-available scientific evidence and literature as well as close consultation with the scientific community. In particular, it is informed by an accompanying Evidence Review Report produced by SAPEA, an independent, Horizon-2020-funded consortium of European scientific academies, which constitutes a key component of the European Commission’s Scientific Advice Mechanism.

Contact: SAM-HLG Communication Office – ec.sam@ec.europa.eu

AQUA 2018 will celebrate the fact that aquaculture is one of the most important food production industries in the world. Aquaculture is the most efficient producer of high quality food and contributes to global health and wealth. Aquaculture respects the environment, creates employment and offers significant investment opportunities.

AQUA 2018 will take place from August 25-29 in the beautiful French city of Montpellier and will comprise a scientific conference, trade exhibition, industry forums, workshops, student events and receptions. The event will highlight the latest aquaculture research and innovation to underpin continued growth of this exciting food production sector.

The AQUA events are co-organised by the European Aquaculture Society (EAS) and the World Aquaculture Society (WAS) and are held every six years. Past events were held in Nice (2000), Florence (2006) and Prague (2012).
The 2017 General Assembly of the European Aquaculture Society was held on Wednesday, October 18, 2017 at the Valamar Lacroma Hotel, Dubrovnik, Croatia during the Aquaculture Europe 2017 event. 26 EAS members (and 1 non-member) attended the GA and 15 procuration forms were received prior to the meeting – in the name of the President or other members. Hence a total of 41 EAS members were represented.

Welcome, apologies and approval of the agenda

EAS President 2016-2018 Bjorn Myrseth opened the meeting at 17h40 and welcomed those present. He informed members of the procurations received. Copies of a compilation of GA material, containing EAS membership status and activity report and the audited financial report for 2016, had been sent to all members prior to the assembly and further copies were made available to those present. In accordance with the statutes, the agenda had been circulated to EAS members at least three weeks before the assembly.

He informed members of the EAS Strategy Retreat that had taken place in February this year and said that the agenda had been formulated to share with EAS members the outcomes of this strategy discussion and some of the many suggestions and recommendations that had arisen from it and that had been initially discussed during the EAS Board meeting just prior to AE2017.

The GA unanimously approved the agenda with no additional items.

Adoption of the minutes of the 2016 General Assembly

The minutes of the last General Assembly (held in Edinburgh, Scotland at AE2016) were published in the Aquaculture Europe newsletter, November/December 2016, pp. 7-14.

The GA unanimously approved the adoption of the minutes of the 2016 General Assembly.

EAS Membership & Activity Report 2017

Executive Director, Alistair Lane presented the current membership status and recent trends:

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<td>545</td>
<td>473</td>
<td>506</td>
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Note: 2017 figures are to September 9.
Observations:

- Membership to date in 2017 is based on August figures and made up of 204 renewals from 2016; 50 new and past members and 35 new and renewals with registration to AE2017. This last figure is expected to increase significantly with year-end estimate 452, so somewhat less than in 2016.
- E-membership is no longer available, and we have made a separate category for student members, that were previously included in the Individual category at the reduced rate.
- 221 members paid their fees online.
- EAS had three Premium Sponsors in 2017 – with MSD, Marine Harvest and Evonik all renewing their commitment to EAS. Sparos have also renewed their sponsorship of the EAS Student Group.
- Institutional Membership is up by 3, as is Individual (paid) Life Members compared to last year.

Principal EAS activities in 2017

- The Aquaculture Europe magazine is published twice a year (in March and September).
- The Aquaculture Europe newsletter (PDF) is published six times per year.
- EAS has been working to prepare the AE2017 (Dubrovnik) and AQUA 2018 (with WAS, Montpellier) events. AE2019 will take place in Berlin and initial work has started, with the first SC meeting taking place in February 2018.
- EAS has been involved with the EU Horizon 2020 project COLUMBUS (Monitoring, Managing and Transferring Marine and Maritime Knowledge for Sustainable Blue Growth) [http://www.columbusproject.eu/](http://www.columbusproject.eu/) and work has also started on EURASTIP project (Promoting multi-stakeholder contributions to international cooperation on sustainable solutions for aquaculture development in South-East Asia) [http://eurastip.eu/](http://eurastip.eu/) with EAS acting as a third party to EATIP.
- EAS is also a partner in a multi-disciplinary and cross-sector project VALUMICS (Understanding food value chain and network dynamics) [http://valumics.eu/](http://valumics.eu/) The key goal of VALUMICS is to provide decision makers throughout food value chains with a comprehensive suite of approaches and tools that will enable them to evaluate the impact of strategic and operational policies to enhance the resilience, integrity and sustainability of food value chains for European countries.
- EAS is a member of the External Advisory Board of CtrlAQUA (Centre for Research Based Innovation in Controlled-environment Aquaculture) funded by the Research Council of Norway.
- EAS has also been asked to be a moderator at the EU Maritime Spatial Planning and Blue Growth event in October.
and a rapporteur for the EU Horizon 2020 Infoweek – “Blue Growth and Research and Innovation” in November.

Bjorn Myrseth then invited questions and comments from the members on the membership status and activity summary.

With none forthcoming… the GA unanimously approved the membership status and activity report.

**EAS Financial Reports for approval by the General Assembly**

In the absence of EAS Treasurer, Margriet Drouillon, three reports were presented to the GA by Alistair Lane. These were the audited financial report for 2016, the current 2017 status and year end estimate and the EAS 2018 Budget.

**Audited Financial Report for 2016**

The 2016 EAS net result was €64,876 (against a budget of €5,258) with a balance total of €441,556 (against 2015 balance of €332,767).

A summary table, with figures in k€, shows the result against budget for each of the three principal activities – home office, AE events and Projects.

Total receipts were 351k€ (budget 223k€) against expenditure of 286k€ (budget 227k€).

Generally in EAS, quarters 2 and 3 have fixed costs with very little revenues and usually leading to significantly negative cash flow. This pattern was similar for 2016 despite efforts to collect AE2016 revenues early. The whole year result was therefore only achieved through Q4 with a positive €173k€ cash flow in that final quarter, related to the settlement of AE2016. It should be noted that from 2017 onwards, we will request a down payment against Aquaculture Europe revenues each year to offset negative cash flow in quarter 3 each year.

Total membership in 2016 was 506 (compared to 473 in 2015), generating fees of €50,234 (budget €50,531). While renewals of 2014 members was slightly below average (5%) the re-recruitment of previous members (95) and the number of new (and renewed) members joining with registration for AE2016 (152) was slightly above expectations.
The grant of €1.501 from the Provincial Government of West Flanders was received as normal. EAS Premium and Student Group Sponsorship was exactly on budget (25.5k€) with Marine Harvest, MSD and Evonik as Premium Sponsors and with Sparos sponsoring the Student Group.

The overall expenditure on Home Office was significantly (39k€) higher than budget, with other extraordinary costs of 38.5k€ incurred for the EAS40 celebrations covering travel costs and gifts for Past Presidents to come to AE2016, the online survey costs for our AE events and the extraordinary bonus paid to EAS staff in Q2 on the 2015 result.

Home office personnel cost allocation was also higher than budget, with less time being allocated to project work (notably COLUMBUS), but offset by lower office costs where significant economies on office services were renegotiated with suppliers. Other cost items remained very close to budget, except for website/marketing costs including the EAS40 logo and EATiP membership.

Confrecne costs in the EAS bookkeeping are only those actually incurred by EAS over the year, and not the full costs of the event, as much of these are paid by our conference director, John Cooksey (MFC), from revenues collected for registration and booth sales.

Overall expenditure on AE events was higher than budget and especially so for preparation (first Steering Committee meeting) of AE2017.

For AE2016, the EAS Bookkeeping contained total receipts of 219k€ (from grants, sponsorship and especially from settlement payments from MFC) against expenditure of 32k€ (mostly personnel and travel costs) and leading to a result of 187k€ against budget of 86k€. It should be noted here that the very significant grant for AE2016 provided by the Scottish Government was not included in our accounts, as the infrastructure (room rental) costs of the Edinburgh International Conference Centre was invoiced directly to them.

For the third consecutive year, the Aquaculture Europe result has greatly exceeded expectations and attracted attendance of 1700 in Edinburgh in 2016, 1060 in Rotterdam in 2015 and 1450 in San Sebastian in 2014. An online survey was made in November 2016 and received input from 600 persons into the strong and weaker points of our AE events, providing an excellent basis for the appraisal of our AE events made during a special strategy retreat held in March 2017.

During 2016, EAS continued work on the Horizon 2020 project – COLUMBUS – Monitoring, Managing and Transferring...
In summary:

- A proposal was made to the EAS Board for several balance sheet adjustments (decrease in social liability to better align with the capital invested in the pension plan and increase in provisions for exceptional charges to provide assurance for risk against the AQUA2018 result) that were subsequently approved by the EAS Board.

Personnel cost allocation to Columbus was lower than budget in 2016, with tasks being held over to 2017, and notably the organisation of a brokerage event planned for AE2017.

The EURASTiP proposal was successful, with the start date of this project being fixed for January 1st, 2017 and for a duration of three years.

The overall balance of EAS accounts in 2016 was €441,556 against the 2015 balance of €332,767 (see balance on next page).

Total cash assets increased significantly to €412,556, compared to €220,648 in 2015 and €64,833 in 2014, thus consolidating further a good financial position. Deferred income is €28k€ from 2017 membership fees already paid in 2016 from the renewals process and EU project (down)payments received in 2016 for 2017 activities.

The 2016 accounts and financial statements were controlled and certified by the EAS accounts commissioner Mr. Ludo Quirijnen on March 11, 2017.

A proposal was made to the EAS Board for several balance sheet adjustments (decrease in social liability to better align with the capital invested in the pension plan and increase in provisions for exceptional charges to provide assurance for risk against the AQUA2018 result) that were subsequently approved by the EAS Board.

**2017 Q2 status and year-end estimate**

Alistair Lane then presented and explained the current status Q2 and 2017 year-end estimate.

In summary:

- The 2017 Quarter 2 EAS bookkeeping net result was €-26,133 against a budget of €-72,032 and bringing the 2017 year-to-date result to €-55,579.
- After adjustments for future meetings and uncompleted projects (usually booked in Q4) the comparable YTD result is €-6,956.
- Total receipts for the quarter were 21k€ (budget 17k€) against expenditure of 47k€ (budget 89k€). The biggest contributor to this reduction in expenditure is the costs of the EAS Strategy Retreat (budgeted in other extraordinary costs, but actually booked as a positive in actual travel costs, through the obtaining of a regional grant for travel.
- Whole year estimate (after adjustments) is 23k€ against the budget -24k€ and this is mostly due to a relatively large upside being forecast for the AE2017 result.

He noted that the estimate for AE2017 result was conservative, and based on the latest revenue report received.

**EAS 2018 Budget**

The EAS budget for 2018 gives a net result (after adjustment for future events) of €4.670, with receipts of €269,354 against expenditure of €280,684.

2018 is the year in which we organise the AQUA event with WAS, hence the cost/profit sharing agreement with WAS is the driver for the AQUA 2018 result and its contribution to the overall budget. EAS also has a portfolio of three projects, although one of these finishing in Q1.

Key elements of the 2018 budget:

- Personnel cost allocation to Columbus was lower than budget in 2016, with tasks being held over to 2017, and notably the organisation of a brokerage event planned for AE2017.

**Stakeholder Contributions to International Cooperation on Sustainable Solutions for Aquaculture Development in South-East Asia.**

- Sustainable Solutions for Aquaculture Development in South-East Asia.

- Marine and Maritime Knowledge for Sustainable Blue Growth and contributed to the EATiP proposal for an additional H2020 project EURASTiP - Promoting Multi-Stakeholder Contributions to International Cooperation on Sustainable Solutions for Aquaculture Development in South-East Asia.

Expenditure on ongoing projects is usually brought back to zero in the bookkeeping, with the adjustment in revenue being carried over to the balance sheet against receipt of the final payment for that project.

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Key elements of the 2018 budget:

- **Membership revenues (46.7k€)** are based on a reduction compared to previous years (506 in 2016, estimated 452 in 2017 and budgeted at just 390 in 2018). While the renewal in Q1 compares to the average over the last three years, there is a significantly lower level of new and new join-up of past members foreseen with AQUA2018 registration (as also seen on previous AQUA events).

- **EAS Premium sponsorship** is based on the renewal of the three existing agreements with MSD, Marine Harvest and Evonik. The EAS_SG grant of 3k€ from Sparos is included in Q1.

- **EAS grants** are based on the same level of support from the Province of West Flanders (€1.051) that we have not been able to increase.

- **Personnel costs include a provision for the ‘standard inflation rate’ of 2% and staff pension plan.**

- **Travel costs** include one statutory Board meeting to take place just prior to AQUA2018 (Q3). A second Board meeting (end Q1) has also been budgeted. A limited budget for EAS-staff and President’s travel is also included.

- **Web hosting costs** include an increased amount for the https:// certificate that shows EAS as a secure site for members’ data and financial transactions.

- **AQUA2018 is included for EAS costs/revenues only and hence as appearing in our accounts. On revenues, these include grants from Montpellier Metropole and the Occitanie Region prepared and submitted by EAS. The Q4 settlement from MF Cooksey in Q4 includes re-imbursement of EAS costs and the agreed EAS contribution of 40k$ or 36.3k€. Note that this EAS fixed contribution is considerably lower than the 60k€ that we have for Aquaculture Europe events.**
European Aquaculture Society (EAS)

Annual account in EUROS for the financial year from 01/01/2016 to 31/12/2016

BALANCE SHEET

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tangible fixed assets (office equipment)</td>
<td>324</td>
<td>886</td>
</tr>
<tr>
<td>Financial investments</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total fixed assets</strong></td>
<td>324</td>
<td>886</td>
</tr>
<tr>
<td>Publication stock value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AQUI royalties</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>EU project payments</td>
<td>-</td>
<td>22,625</td>
</tr>
<tr>
<td>Grant payments</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other receivables</td>
<td>1,731</td>
<td>69,264</td>
</tr>
<tr>
<td><strong>Total accounts receivable (less than one year)</strong></td>
<td>1,731</td>
<td>91,889</td>
</tr>
<tr>
<td>Bank savings account (cash reserves)</td>
<td>375,901</td>
<td>212,575</td>
</tr>
<tr>
<td>Bank current accounts plus cash in hand</td>
<td>36,655</td>
<td>8,073</td>
</tr>
<tr>
<td>Pre-paid expenses (conferences)</td>
<td>26,944</td>
<td>15,759</td>
</tr>
<tr>
<td>Other current assets</td>
<td>-</td>
<td>3,587</td>
</tr>
<tr>
<td><strong>Total current assets</strong></td>
<td>441,232</td>
<td>331,882</td>
</tr>
<tr>
<td><strong>TOTAL ASSETS</strong></td>
<td>441,556</td>
<td>332,767</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Liabilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organisation's funds</td>
<td>218,509</td>
<td>218,509</td>
</tr>
<tr>
<td>Accumulated result (previous years)</td>
<td>- 96,519</td>
<td>- 152,114</td>
</tr>
<tr>
<td>Result (current year)</td>
<td>64,876</td>
<td>55,595</td>
</tr>
<tr>
<td><strong>Total equity</strong></td>
<td>186,866</td>
<td>121,990</td>
</tr>
<tr>
<td>Provisions for social liabilities</td>
<td>100,000</td>
<td>130,000</td>
</tr>
<tr>
<td>Provisions for exceptional charges</td>
<td>70,000</td>
<td>25,000</td>
</tr>
<tr>
<td><strong>Total provisions for liabilities and charges</strong></td>
<td>170,000</td>
<td>155,000</td>
</tr>
<tr>
<td>Accounts payable (less than one year)</td>
<td>37,334</td>
<td>3,908</td>
</tr>
<tr>
<td>Taxes, remuneration and social security</td>
<td>19,352</td>
<td>19,058</td>
</tr>
<tr>
<td><strong>Total accounts payable</strong></td>
<td>56,686</td>
<td>22,966</td>
</tr>
<tr>
<td>Membership fees/advertising received for following year</td>
<td>8,273</td>
<td>8,768</td>
</tr>
<tr>
<td>EU project payments received for following year</td>
<td>19,732</td>
<td>24,043</td>
</tr>
<tr>
<td><strong>Total deferred income</strong></td>
<td>28,004</td>
<td>32,811</td>
</tr>
<tr>
<td><strong>TOTAL LIABILITIES</strong></td>
<td>441,556</td>
<td>332,767</td>
</tr>
</tbody>
</table>
AE2019, AE2020 and AE2021 expenditure is included for various cost items – including time, printing and preparation meeting travel. Costs are offset in the ‘adjustments for future meetings’ on the line below the result for each activity.

The ongoing COLUMBUS project finishes in Q1. Two new projects - EURASTiP (where EAS is included as a third party to EATiP) and VALUMICS are included at budgeted levels. A new proposal, submitted in September 2017 called OpenIMTA has not been included, pending evaluation.

Bjorn Myrseth then asked for questions or comments related to the EAS 2018 budget and the replies are summarised here:

- Is the EAS Board still committed to organising a combined meeting with WAS every six years? While there is a risk on the financial result, the non-financial value of these combined events is recognised by the EAS Board and the agreement with WAS for the organisation of AQUA 2018 has been thoroughly revised to ensure good risk management.
- Why every 6 years? This is to fit in with the triennial approach of WAS regarding the World Aquaculture and Aquaculture America shows, doubled up to every six years for combination with Aquaculture Europe.

With no further questions or comments and with the 2017 estimate not specifically requiring GA approval, the GA unanimously approved the 2016 audited accounts and the 2018 budget.

**Outcomes of the EAS Strategy Retreat**

For the second part of the General Assembly, EAS President Bjorn Myrseth informed members of the outcomes of the Strategy Retreat held in Berlin in February 2017 and provided an overview of the many suggestions and recommendations that had arisen from it and that had been initially discussed during the EAS Board meeting just prior to AE2017.

He explained briefly the process that the Board, representatives of the EAS Student Group and selected invitees had gone through, including an initial SWOT analysis, mind-mapping key strategic areas and the decision to focus on three core issues – namely AE events, membership benefits and services and partnerships with other organisations and meeting (event) organisers.
The baseline elements for the strategy reflection are:

i. The main operating cost for EAS is personnel cost.

ii. AE event income over recent years has been variable.

iii. 5 years ago, EAS had little or no cash reserves.

iv. We have commitments and liabilities.

v. We need to explore and manage our risks.

Bjorn also made reference to the online survey sent after AE2016 to more than 2000 participants of AE events and which generated 600 responses that provided significant feedback.

The general concept is based around the **EAS COMMUNITY**. The concept is shown here, with existing members, past members, AE participants and the wider EAS (aquaculture) community that remains. Two elements that are missing here are the EAS Thematic Groups and the EAS Student Group and they cross over many of the other elements.

Bjorn then listed several of the recommendations that arose from discussion by the Working Groups on three pillars of the strategy, noting that the Board had not yet drawn specific conclusions, nor made final decisions.

### Improving our AE events

<table>
<thead>
<tr>
<th>Improvement</th>
<th>EAS Community</th>
<th>New membership models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define themes early</td>
<td>Build better statistics on the EAS Community, including professional competences and areas of interest</td>
<td>Membership included with AE registration fee</td>
</tr>
<tr>
<td>Quality is the key! Reduce variability, and increase overall</td>
<td>Encourage continuous interaction of the Community by providing new services to different levels</td>
<td>Very accessible fees for students</td>
</tr>
<tr>
<td>Continuous monitoring using various tools</td>
<td>Empower and resource the Thematic Groups as an interface with industry</td>
<td>12-monthly rather than annual membership cycles</td>
</tr>
<tr>
<td>Update and consolidate all the guidelines into one operating manual, including EAS Board implication and role</td>
<td>Modernise the EAS web site</td>
<td>Options to facilitate payment online – including direct debit options</td>
</tr>
<tr>
<td>Better integration and presentation of posters (look into e-poster options)</td>
<td>Provide tools for interactions – webinars, online meeting services</td>
<td></td>
</tr>
<tr>
<td>Better integration of trade show exhibitors – brokerage, pitches, investment</td>
<td>Provide brokerage – “adopt a student” for mentoring, and between exhibitors/companies for new knowledge outputs from research</td>
<td></td>
</tr>
<tr>
<td>Better Thematic Group and other (deep dive) workshops</td>
<td>Incentives for organising committees and session chairs</td>
<td></td>
</tr>
</tbody>
</table>

A summary of the main recommendations, as presented by Bjorn Myrseth is shown in the table below

The EAS secretariat has been tasked by the Board to look much further into costs and benefits and to present these to the EAS Board meeting in February, where final decisions will be taken and where the action plan will be approved.

Bjorn then asked participants for comments or questions.

- One experience shared was that of the PASTI organisation in Greece, where they are implementing e-posters to optimise costs and space. Several options are available and these need to be tested.
- This same organisation has also integrated membership fee into the conference registration. Issues arising from “paid fee for voting rights at the General Assembly” was solved with a fee of 1€ to validate the GA.

### Other information and closure

With no other business on the agenda, and with no further questions or comments, Bjorn Myrseth closed the 2017 General Assembly at 19h10.