RE-ACCREDITATION
The Center for Marine Research-CMR, Rovinj of the Ruđer Bošković Institute in Zagreb

Date and place of visit
6 November 2013

Date of report
26 November 2013
COMPOSITION OF THE PANEL OF EXPERTS FOR RE-ACCREDITATION PROCEDURE
(names of panel members and institutions from which they come from):

1. Professor Jordi Colomer, University of Girona, Spain (chair)
2. Professor Mark Davies, University of Sunderland, United Kingdom
3. Professor Ian Duce, School of Biology, University of Nottingham, United Kingdom

Support to the expert panel (names):
- Emila Blagdan, coordinator, Agency for Science and Higher Education
- Maja Šegvić, coordinator, Agency for Science and Higher Education
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INTRODUCTION

Brief description of the scientific organization

NAME OF SCIENTIFIC ORGANIZATION: The Center for Marine Research (CMR) in Rovinj of the Ruder Bošković Institute in Zagreb
ADDRESS: Giordano Paliaga 5, 52210 Rovinj
NAME OF THE HEAD OF DEPARTMENT: Renato Baćel Ph.D
AREA, FIELD AND SUBFIELD OF SCIENTIFIC RESEARCH: basic and applied oceanographic research
ORGANISATIONAL STRUCTURE: The Center for Marine Research (CMR) in Rovinj is department of the Ruder Bošković Institute in Zagreb.

RESEARCH / NON-RESEARCH RATIO: 33 / 17
NUMBER OF SCIENTISTS elected into a scientific grade: 23
NUMBER OF OTHER RESEARCHERS (PhD students included): 10

Work of the expert panel

Work of the expert panel is based on the Self-evaluation report, as well as on site visit (6/11/2013), where the panel had the opportunity to visit the facilities, check physical resources of the institution, and hold meetings with the a set of groups within the Institution. According to the protocol the expert panel toured the institution and held brief meetings with researchers and junior researchers.
The expert panel also toured the research vessels at the port of Rovinj.
DETAILED ANALYSIS BASED ON CRITERIA FOR RE-ACCREDITATION

1 QUALITY OF SCIENTIFIC RESEARCH

1.1 Quality of human resources

The structure and number of staff in the Center for Marine Research (CMR) aligns well with its vision and strategy. There are 23 scientists; 10 young researchers; 5 ships’ crew and 12 supporting and technical staff. The scientific staff is distributed across the 6 laboratories whose current activities and future relevance underpin the CMR’s research strategy, based on 3 research streams; the institute recognises the need to develop an ecosystem-based approach to encompass both its scientific applied research and its efforts in education.

The lack of legal entity status and the central administration in Zagreb pose a number of long-time administrative issues that do not support fast decision-making in identifying and applying for developing research and funding opportunities. CMR recognises as a weakness the interdependence to the Central Institute in Zagreb and the panel agrees that the clarification of such dependence could greatly facilitate the effectiveness of the day-to-day scientific development.

As with many institutes in Croatia, the staff developed their careers within the CMR (and higher institutions in Zagreb) by successful progression through the scientific grades. This has currently resulted in a top-heavy staff structure with a high proportion of staff in senior grades. The recruitment of young researchers at an international level and the long formation of young researchers that undergo a 6 year period of training for a PhD are weaknesses. Such structures do no align with the vertical structures in most of the research institutes and universities in Europe. PhD student recruitment represents an excellent opportunity to increase inward mobility and internationalise the science base of the CMR. The CMR is not fully and actively encouraging outward mobility of PhD students and research associates to obtain up-to-date training in laboratories of international collaborators, although at the regional Adriatic level the collaboration is larger.

The panel learnt that criteria for promotion operate within a national framework which is the primary means for determining progression. The CMR recognises the problem of reconciling the
national policy of promotion based on the number of papers published with providing appropriate incentives for scientists to produce outputs in higher impact international journals. The panel strongly encourages the research departments to align their research in term of typical European standards, with a stronger collaboration with marine research institutes all over the Mediterranean that would help to generate and maintain excellence. The panel recognised that the scientific staff are highly committed and extensively engaged in teaching undergraduate, masters and PhD students with university partners in Pula and Zagreb and carrying out routine monitoring programmes alongside their mission to obtain competitive funding and carry out basic scientific research. To compete for EU and other international sources of funding the CMR may need to consider its priorities, and whether investigators develop more inter synergetic strategies within the institute. The number of departments should be reconsidered in terms of laboratory facilities, internal promotions and international excellence.

1.2 Quality of scientific research

This research balances the needs to monitor processes and extend knowledge of the marine environment, particularly with respect to the Adriatic Sea. The research is very important in a national context and is of high quality with respect to providing information for national agencies and more recently international agencies such as the EU. This should increase the interest of researchers from the EU in the CMR activities. The mission of the CMR is "to develop and apply the best achieved fundamental scientific knowledge about the marine ecosystem and transfer it to the national and international scientific community and Croatian society through applied research and education". The panel encourages the institute to maintain the effort of carrying out research at an international level but this should not produce a mismatching with disseminating research at the national level. The panel considers that the efforts should also be focussed on disseminating applied research to a large number of national stakeholders. This might produce better research outputs.

Scientists at the CMR are productive in terms of published outputs and it is apparent to the panel that the CMR is taking steps towards increasing its international profile by explicitly encouraging scientists to publish papers in English in high impact journals indexed in Woos. Bibliometric indicators suggest progress in the past 4 years: the number of published papers
doubled between 2008 and 2011. Although this effort aligns with the quality of the output based on the number of citations in each year (160 in 2012) the panel would strongly encourage the CMR to continue to improve the quality of the published outputs, in consideration of European standards, i.e., global h index of the institute and global citations per output.

Scientists at the CMR have led a significant number of national and bilateral projects in recent years, especially with Italy and Germany, representing a significant source of income. They have also been participants in a few EU and other international projects. Recent entry to the EU may improve opportunities for international activity and the resources at the CMR should position it well to enhance its chances for major international funding if it continues to raise its international profile.

2 PRODUCTIVITY OF SCIENTIFIC RESEARCH

The expert panel was of the opinion that the data presented in the self-evaluation document showed good levels of scientific productivity in all the categories described. Numbers of published outputs, projects and PhD theses were all satisfactory. The challenge for the CMR will be to increase productivity whilst improving the scientific quality of the research. The expert panel encourages the Directorate to produce synergies between researchers in each research stream.

3 IMPACT AND IMPORTANCE OF SCIENTIFIC RESEARCH

3.1 Transfer of research results to society

The Centre has limited interaction with stakeholders where the mechanisms for that interaction are established. Such interactions are largely confined to with other Croatian centres of marine research. While these interactions disseminate scientific work within the community, this is not systematised in any way, except in relation to the scientific community. Since the Centre is without legal entity it cannot develop formal partnerships with its stakeholders and this may be hindering the Centre’s activity profile and visibility. However, the development of formal and stable partnerships could be a function of the Institute and the panel recommends that the Centre approaches the Institute with a view to formalising the relationship the Centre has with its stakeholders and thus potentially allowing the Centre to build fruitful collaborations.
Through open days both in Roving and at the Institute in Zagreb, the Centre has been involved in the dissemination of its findings to society, but such activity is undo-ordinated and the panel recommends the recording of, co-ordination of, and enhanced involvement in public dissemination, commensurate with an organisation of the Centre's size. For example, greater use of the public aquarium for the communication of research activity might be appropriate. Through its interactions with public bodies and its stronger interactions at the level of the European Union, the Centre is heavily involved with scientific and policy-making bodies.

3.2 International impact

The international impact of the Centre has developed in recent years. There has been participation in two EU COST actions, work package leadership in FP7 projects, some interaction with international (EU) policy making, and limited reviewing at an international level. In 2011 the Centre hosted the European Marine Biology Symposium. Nevertheless, overall, the international impact of the Centre could be further strengthened. There is very limited international mobility of its research staff and there are no mechanisms for attracting foreign staff and students: in the main advertisements are in Croatian. While the Centre has some visibility it is not well known internationally and in comparison with other Croatian marine laboratories. The panel recommends that the Centre develop and implement a strategy to formalise and progress its international impact.

3.3 Impact on economy

It is difficult to conceive that none of the Centre's work has been exploited such that there is transfer of technology to relevant organisations, including industry and the private sector. However, the Centre does not keep a record of any activity in this respect and nor does it have any system for the commercialisation of results. Thus the panel recommends that a functional system with adequate administrative support is established for the commercialisation of results. Such a system will not only recognise the Centre's activity but has the potential to promote it.

Though general research, participation in teaching and interaction with governmental organisations the Centre makes contributions to society but its contributions to industry are at a low level. In part because of its lack of interaction with industry, the Centre's laboratories are not accredited and are minimally utilized in co-operation with stakeholders. The self-evaluation
addressed co-operation with business and public sector bodies, but this was for the Institute as a whole and the contribution of the Centre, if any, could not be identified.

3.4 Transfer of research results to higher education

Staff of the Centre is involved in teaching, at levels from undergraduate to doctoral. Undergraduate and diploma students are registered at the University of Pula, and there are plans to produce a Master’s programme. Doctoral students are registered at a broader range of Croatian universities, for which a consortium between universities and marine laboratories has been established. Staff teach from their academic strengths and it was clear to the panel that staff were committed and proud teachers. The teaching workload is balanced with other duties and teaching is an integral part of the Centre’s activities. The panel regarded the obvious commitment to transferring research results to higher education as a strong point. Nonetheless the staff recognise their limitations and would appreciate some staff development or formal training in learning and teaching in higher education, as is commonplace in other nations. Staff are also involved in some teaching activity at non-university institutions and through workshops to governmental organisations on the Centre’s activities.

4 Efficacy and efficiency of the scientific organisation

4.1 Strategic plan

The CMR Rovinj, as part of the RBI, is guided by the strategic scientific program of the RBI and is broadly aligned with it. The strategic plan and the self-evaluation document presented to the panel referred to the RBI as a whole and this report was based also on findings obtained during the panel visit to the CMR Rovinj.

4.2 Management of the scientific organisation

The higher level management of the RBI includes the Board of Governors, office of the Director General and the Scientific Council. The director of CMR is a member of the Scientific Council of the RBI.
The panel learnt that membership of the RBI confers some advantages on the staff in Rovinj including the Institute's high reputation, infrastructure support available in Zagreb, significant administrative support for project application and management, as well as valuable library support for scientists and PhD students, however it was recognised that geographical isolation from the parent organisation presented logistical difficulties and precluded access to lectures and seminars centred in Zagreb.

CMR is managed by the Head of Department, recently appointed with a three year mandate, and research is carried out in six laboratories. Scientific staff and PhD students are distributed between these laboratories. The range of activities carried out is impressively diverse, however the panel concluded that the effectiveness of the centre was compromised by the structure and could be improved by closer collaboration between laboratories and improved cooperatively of working arrangements.

CMR staff are scientifically productive both in terms of quality and quantity of output, however the panel formed the opinion that the department could develop transparent management systems to motivate staff in enhancing the quality of their research outputs and provide better mentoring and support for PhD students to develop sound research topics at an early stage, and generate international papers as first author.

It was apparent that there is some mobility of scientific staff and PhD students but the panel recommends the development of a strategy to facilitate both outward and inward movement of staff.

4.3 Infrastructure

Although the CMR building is old, it has been extensively redeveloped in recent years providing well-found laboratories for most aspects of the Centre's activities. One floor remains to be up-graded and completion of this work will provide facilities suitable for the development of the scientific work of the centre. Laboratory equipment and instrumenatation is also of a generally high standard enabling CMR to apply modern techniques, including molecular biology, scanning electron microscopy and X-ray spectroscopy to its research.

4.4 Funds
During the last five years income for the RBI has in general declined, and likewise the income per scientist at CMR has also reduced overall, with a partial recovery in 2012. The panel understands that this reflects a freeze on government funded projects during the five years prior to a recent call for project applications. CMR has had some success in obtaining funding from EU COST and other international programmes and the panel encourages them to continue to develop their international collaborations to secure further international funds.
ADVANTAGES (STRONG POINTS)

- Commitment of scientists to transferring research results to higher education.
- Complementary mixed of novel and established technologies.
- A commitment to sustain long-term data in the face of financial climate.

DISADVANTAGES (WEAK POINTS)

- Poor engagement with stakeholders.
- Poor mechanisms for dissemination of research activities to the wider public.
- Limitations on space imposed by the building facilities restrict opportunities for scientific development.
RECOMMENDATIONS FOR QUALITY IMPROVEMENT

By the end of follow-up period the recommendations are:

- The panel recommends that a functional system with adequate administrative support is established for the commercialisation of results.
- The panel recommends that the Centre approaches the Institute with a view to formalising the relationship the Centre has with its stakeholders.
- The panel recommends the co-ordination with other international based institutes, and enhanced involvement in public dissemination.
- The need to develop policy to increase the number of publications in high impact international journals.
- The panel recommends that the Centre develop and implement a strategy to formalise and progress its international impact.
- A mechanism to import scientists with novel expertise at Post-doctoral.
- A better mechanism for systematic management of junior researchers.