



**Report
of the Expert Panel
on the REACCREDITATION
of the Postgraduate interdisciplinary university study programme in
Environment Protection and Nature Conservation
Josip Juraj Strossmayer University of Osijek**

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INTRODUCTION

The Expert Panel appointed by the Agency for Science and Higher Education (ASHE) created this Report on the Re-accreditation of the Postgraduate interdisciplinary university study programme in *Environment Protection and Nature Conservation* on the basis of the Self-Evaluation Report of the Programme, other documentation submitted and a visit to the Josip Juraj Strossmayer University of Osijek.

The Agency for Science and Higher Education (ASHE), a public body listed in EQAR (European Quality Assurance Register for Higher Education) and a full member of ENQA (European Association for Quality Assurance in Higher Education), re-accredits higher education institutions (hereinafter: HEIs) and their study programmes in line with the Act on Quality Assurance in Science and Higher Education (Official Gazette 45/09) and the Ordinance on the Content of a Licence and Conditions for Issuing a Licence for Performing Higher Education Activity, Carrying out a Study Programme and Re-Accreditation of Higher Education Institutions (OG 24/10). In this procedure parts of activities of higher education institutions and university postgraduate study programmes are re-accredited.

Expert Panel is appointed by the Agency's Accreditation Council, an independent expert body, to carry out independent evaluation of post-graduate university study programmes.

The Report contains the following elements:

- Short description of the study programme
- The recommendation of the Expert Panel to the Agency's Accreditation Council
- Recommendations for institutional improvement and measures to be implemented in the following period (and checked within a follow-up procedure)
- A brief analysis of the institutional advantages and disadvantages
- A list of good practices found at the institution
- Conclusions on compliance with the prescribed conditions of delivery of a study programme
- Conclusions on compliance with the criteria for quality assessment.

Members of the Expert Panel:

- Mark Davies, Professor, Faculty of Health Sciences and Wellbeing, Sunderland University, United Kingdom of Great Britain and Northern Ireland
- R. J. Pieters, Chair of Chemical Biology of Multivalent Systems, Utrecht University, Netherlands
- Mathias Senge, Chair of Organic Chemistry, Trinity College Dublin, Ireland
- Fabian Cerda, doctoral student, Max Planck Institute of Biochemistry, Germany
- Marianne Holmer, Professor, Head of Department of Biology, Syddansk Universitet, Denmark
- Isabel Sá Nogueira, Associate Professor, Head of Laboratory, Faculdade de Ciências e Tecnologia Universidade NOVA de Lisboa, Portugal
- Inger Elisabeth Måren, Associate Professor, Department of Biological Sciences, University of Bergen, Norway

- Peter Bennett, Reader in Biodiversity and Evolutionary Ecology, University of Kent, United Kingdom of Great Britain and Northern Ireland
- Domagoj Vugić, doctoral student, Institut Curie, France
- Maalte Braack, Director of Mathematical Seminar, Christian-Albrechts-Universität, Kiel, Germany
- Barbara Drinovec Drnovšek, Professor, Fakulteta za matematiko in fiziko, Univerza v Ljubljani, Slovenia
- Sebastian Eterovic, doctoral student, Mathematical Institute, University of Oxford, United Kingdom of Great Britain and Northern Ireland
- Donald Bruce Dingwell, Department for Earth and Environmental Sciences Chair of Mineralogy and Petrology, Ludwig-Maximilians-Universität München, Germany
- Giovanni B. Andreozzi, Coordinator of the Ph.D. programme in Earth Sciences, Sapienza Università di Roma, Italia
- Ponfa Roy Bitrus, doctoral student, Department of Geology and Petroleum Geology, University of Aberdeen, United Kingdom of Great Britain and Northern Ireland
- Anders Omstedt, Professor Emeritus, Department of Marine Sciences, The Faculty of Science, University of Gothenburg, Sweden
- Rafael Laso Perez, doctoral student, Max Planck Institute for Marine Microbiology, Germany
- Kai-Olaf Hinrichsen, Professor, Technische Universität München, Germany
- Alexandra Pinto, Associate Professor, Director of PhD programme in Chemical and Biological Engineering, Universidade de Porto, Portugal
- Mohamed Hussien, doctoral student, Faculty of Chemistry and Pharmacy, L. M. Universität München, Germany
- Mikael Rinne, Associate Professor, Aalto University, Finland
- Anders Omstedt, Professor Emeritus, Department of Marine Sciences, The Faculty of Science, University of Gothenburg, Sweden.

The higher education institution was visited by the following Expert Panel members:

- Matthias Senge, Chair of Organic Chemistry, Trinity College Dublin, Ireland
- Peter Bennett, Reader in Biodiversity and Evolutionary Ecology, University of Kent, United Kingdom of Great Britain and Northern Ireland
- Fabian Cerda, doctoral student, Max Planck Institute of Biochemistry, Germany.

In the analysis of the documentation, site visit and writing of the report the Panel was supported by:

- Viktorija Juriša, coordinator, ASHE
- Marija Omazić, interpreter at the site visit, ASHE

During the visit to the Institution the Expert Panel held meetings with the representatives of the following groups:

- Management
- Study programme coordinators
- Doctoral candidates
- Teachers and supervisors
- External stakeholders.

The Expert Panel also had a tour of selected research facilities.

SHORT DESCRIPTION OF THE STUDY PROGRAMME

Name of the study programme contained in the licence: Postgraduate interdisciplinary university study programme in Environment Protection and Nature Conservation

Institution delivering the programme: Josip Juraj Strossmayer University of Osijek

Institution providing the programme: Josip Juraj Strossmayer University of Osijek

Place of delivery: Osijek, Zagreb (officially registered only in Osijek)¹

Scientific area and field: Officially registered as a programme in Interdisciplinary fields of sciences, but HEI issues diplomas in the fields: Natural Sciences and Biotechnical Sciences.²

Number of doctoral candidates: 57

Financed by HEI: 2

Financed from other sources: 55 (17 are financed by employers, 38 self-financed)

Number of teachers: 60

Number of supervisors: 34 supervisors (to 57 candidates)

Ratio of supervisors to doctoral students: 1:1.68

Teaching / research activity ratio: 75 / 105 ECTS (41%)

Programme outline: 60 ECTS in courses during 1st and 2nd semester, during 3rd semester, 15 ECTS by electives, 15 ECTS by dissertation topic defence, during 4th and 5th semester 60 ECTS by research and extracurricular activities, and in 6th semester 30 ECTS for writing and defending doctoral dissertation

Learning outcomes of the study programme: The learning outcomes of the doctoral programme are not defined.

¹ Revised following the feedback from HEI and approved by the Accreditation Council of the Agency.

² Ibid.

RECOMMENDATION BY THE EXPERT PANEL TO THE ASHE'S ACCREDITATION COUNCIL

Upon the completion of the re-accreditation procedure and the examination of the materials submitted (Self-Evaluation Report etc.), the visit to the higher education institution and interviews with HEI members in accordance with the visit protocol, the Expert Panel renders its opinion in which it recommends to the Accreditation Council of the Agency the following:

issue a letter of expectation for a period of three (3) years in which period the higher education institution should make the necessary improvements.

RECOMMENDATIONS FOR THE IMPROVEMENT OF THE STUDY PROGRAMME

1. Closer alignment between external institutes and the University in controlling PhD progression is recommended to ensure that students are not adversely impacted by frequent changes in external co-supervisors.
2. More opportunities for research training in areas of conservation biology and environmental protection that are different to the rather narrow fields of the current supervisors is recommended to ensure that the PhD programme aligns with international norms for these fields (e.g. conservation genetics, small population biology, ecosystem services, and human dimensions of conservation like law and economics). New appointments should be in these kinds of areas of conservation biology to expand the range of topics available for students to receive supervision in.
3. **The Panel suggests that a reassessment of the number and content of taught courses is needed to allow more time for students to concentrate on research.**
4. In Osijek, students have very close supervision throughout their research training, but there is a need to ensure that they are given sufficient freedom to develop independent research activity.
5. Formation of a Doctoral School in the Faculty of Sciences (as already exists in the Faculty of Humanities and Faculty of Social Sciences) is recommended for training in research skills.
6. Reassess the number and content of taught courses. Fewer courses are recommended, and it is important to ensure that these are delivered every year. Include more general research skills courses possibly through the establishment of a Doctoral School of Sciences, which can take over the general coursework.
7. Expand the current EU project funding to exploit the unique local environmental conditions, especially in research areas that have direct social and public health benefits. Closer integration with the University Research Office is recommended to facilitate this and ensure that major EU funding calls in these areas and opportunities for international collaboration are pursued with vigour. This will increase the number of high quality funded PhD positions at Osijek.
8. A major part of the success of this PhD programme is due to the energy and vision of one individual who founded it. There is a need to ensure that plans for a successor are put in place by the University when he decides to retire to ensure continuity of the programme, although the need for this is not imminent.

ADVANTAGES OF THE STUDY PROGRAMME

1. The student-staff relationship is of high quality. Students are very motivated and dedicated to their studies. This is facilitated by early selection and mentorship of suitable students during undergraduate studies.
2. Highly motivated and experienced staff that has a detailed knowledge of local issues in environmental protection and conservation.
3. Continuous training and mentoring throughout their university career which also results in excellent PhD study-to-job transition. All PhD graduates of the programme have found appropriate employment after completing their degrees.
4. Local employers and stakeholders in the health and environmental sectors were highly complementary of the research skills of the doctoral graduates from the programme that are in their employment and wish for these links to continue.
5. The relatively small number of research students ensures an unusually high level of personal supervision.
6. A good gender balance among both PhD students and supervisors.
7. The unique local habitats and species setting provide challenging opportunities for research projects in environmental protection and conservation.

DISADVANTAGES OF THE STUDY PROGRAMME

1. Internationalization. At present the visibility (e.g. via advertisement of positions) is limited to the national level. International links are encouraged by the programme, but these are difficult to originate and maintain due to funding levels, and there are no international students on the programme.
2. The link with Zagreb is challenging to maintain due to the distance between it and the University, which has led to difficulties in students gaining access to co-supervisors and research facilities.
3. The range of topics available for PhD students to pursue is narrow and limited by the expertise of the current teaching staff. Future appointments should be in new areas of conservation biology to expand these.

EXAMPLES OF GOOD PRACTICE

1. High quality supervision, mentoring and support for PhD students. Excellent relationship between students and teaching staff. Constant training, mentoring and career advancement.
2. Efforts are made to ensure a low student-staff supervision ratio.
3. Students are encouraged to attend international conferences.
4. Research papers are written in English to ensure that they are available to the international science community.
5. The requirement of a minimum of one publication in an international journal to complete a PhD thesis.
6. There are controls in place to ensure students experience a balanced programme of research, classes and teaching.
7. Research projects have direct impacts for society, including biodiversity protection, food security and public health.
8. Supervisors are supportive of parental leave.

COMPLIANCE WITH THE PRESCRIBED CONDITIONS FOR THE DELIVERY OF A STUDY PROGRAMME

Minimal legal conditions:	YES/NO notes
1. Higher education institution (HEI) is listed in the Register of Scientific Organisations in the scientific area of the programme, and has a positive reaccreditation decision on performing higher education activities and scientific activity.	YES
2. HEI delivers programmes in the two cycles leading to the doctoral programme, i.e., first two cycles in the same area and field/fields (for interdisciplinary programmes), and employs a sufficient number of teachers as defined by Article 6 of the Ordinance on the Content of a Licence and Conditions for Issuing a Licence for Performing Higher Education Activity, Carrying out a Study Programme and Re-Accreditation of Higher Education Institutions (OG 24/10).	YES*
*If Departments of Biology and Chemistry, Faculties of Agriculture and Food Technology, Faculty of Economics and Business, Civil Engineering and Law are taken into account. ³	
3. HEI employs a sufficient number of researchers, as defined by Article 7 of the Ordinance on Conditions for Issuing Licence for Scientific Activity, Conditions for Re-Accreditation of Scientific Organisations and Content of Licence (OG 83/2010).	YES*
*If the above stated departments and faculties taken into account. ⁴	
4. At least 50% of teaching as expressed in norm-hours is delivered by teachers employed at the HEI (full-time, elected into scientific-teaching titles).	YES*
If the above stated departments and faculties taken into account. ⁵	
5. Student: teacher ratio at the HEI is below 1:30.	YES
6. HEI ensures that doctoral theses are public.	YES (not in DABAR, but on UNIOS repository: http://zpio.unios.hr/raadovi/)
7. HEI launches the procedure of revoking the academic title if it is determined that it has been attained contrary to the conditions stipulated for its attainment, by severe violation of the studying rules or based on a doctoral thesis (dissertation) that has proved to be a plagiarism or a forgery according to provisions of the statute or other enactments.	YES
Additional/ recommended conditions of the ASHE Accreditation Council for passing a positive opinion	

³ Ibid.

⁴ Ibid.

⁵ Ibid.

1. HEI (or HEIs in joint programmes) has at least five teachers appointed to scientific-teaching titles in the field, or fields relevant for the programme involved in its delivery.	YES
2. In the most recent reaccreditation, HEI had the standard Scientific and Professional Activity marked as at least "partly implemented" (3).	YES*
* This is a university programme (university was not reaccredited as a whole, only the faculties and the departments, which all do fulfil this criteria).	
3. The doctoral programme is aligned with the HEI's research strategy.	NO (the HEI has no clear strategic plan in place).
4. The candidate : supervisor ratio at the HEI is not above 3:1.	YES
5. All supervisors meet the following conditions: a) PhD, elected into a scientific title, holds a scientific or a scientific-teaching position and/or has at least two years of postdoctoral research experience; b) active researcher in the scientific area of the programme, as evidenced by publications, participation in scientific conferences and/or projects in the past five years (table 2, Supervisors and candidates); c) confirms feasibility of the draft research plan upon admission of the candidate (or submission of the proposal); d) ensures the conditions (and funding) necessary to implement the candidate's research (in line with the draft research plan) as a research project leader, co-leader, participant, collaborator or in other ways; e) trained for the role before assuming it (through workshops, co-supervisions etc.); f) received a positive opinion of the HEI on previous supervisory work.	NO*
*Some supervisors are retired (although when appointed, they were still employed), and there is no supervision training.	
6. All teachers meet the following conditions: a) holds a scientific or a scientific-teaching position; b) active researcher, recognized in the field relevant for the course (table 1, Teachers).	NO
Same as above, some retired (during the year).	
7. The supervisor normally does not participate in the assessment committees.	YES
8. The programme ensures that all candidates spend at least three years doing independent research (while studying, individually, within or outside courses), which includes writing the thesis, publishing, participating in international conferences, field work, attending courses relevant for research etc.	NO
9. For joint programmes and doctoral schools (at the university level), cooperation between HEIs is based on adequate contracts; joint programmes are delivered in cooperation with accredited HEIs; the HEI delivers the programme within a doctoral school in line with the regulations and ensures good coordination aimed at supporting the candidates; at least 80% of courses are delivered by teachers employed at HEIs within the consortium.	NO

QUALITY ASSESSMENT

<p>1. RESOURCES: TEACHERS, SUPERVISORS, RESEARCH CAPACITIES AND INFRASTRUCTURE</p>	
<p>1.1. HEI is distinguished by its scientific/ artistic achievements in the discipline in which the doctoral study programme is delivered.</p>	<p>High level of quality The information in the Self-Evaluation Report (SER) gives details of the research outputs and citations of staff involved in supervising doctoral research. Supervisory staff have a good record of publishing in international journals in the areas of environmental conservation, agriculture and food technology. In the 5-year period, research staff involved in the programme published 572 research papers cited in Scopus, and they have enviable 10,778 citations. The information given about the distributions of citations among teaching staff in the Appendix shows that, while there is some unevenness in terms of productivity and citation impact, the research outputs of staff are in line with European norms. This is assisted by the contributions made by teaching staff based at the linked research institute in Zagreb.</p> <p>Staff are also successful at attracting competitive funding to support their research and training of PhD students. They act as investigators on 22 projects funded by the Croatian Science Foundation. 71 projects are funded from other sources, of which 51 projects received national funding and 20 are international projects.</p> <p>The Panel regarded internationalisation of the programme to be an area of weakness. This was evident in areas such as international staff and PhD student recruitment, research collaboration, attendance and hosting of major conferences, inviting scientists from abroad to give master classes for students, and opportunities for staff development such as international research visits and sabbatical leave.</p> <p>Recommendation: The Department is advised to promote opportunities to engage in international collaborative research. This would help to exploit international opportunities for major EU grant funding to support high quality research in Croatia.</p> <p>Recommendation: A more proactive approach to internationalisation of the Department's research</p>

	<p>community is highly recommended. This should include actively seeking to recruit international staff and PhD students, research collaborators, attendance and hosting of major international conferences, and enhancing opportunities for staff development such as international research visits and sabbatical leave.</p>
<p>1.2.The number and workload of teachers involved in the study programme ensure quality doctoral education.</p>	<p>High level of quality PhD supervisors and other teaching staff are content with their teaching loads, which do not follow the usual practice in Croatia of norm hours. Instead, individual supervisions and assignments are set for students. The obligatory courses are taught by 8 teachers, which totals 15 hours of teaching per teacher. All classes are delivered at Osijek and the total number of contact hours of students for all obligatory courses is 200, of which 120 are lectures, and the rest are seminars, labs and discussions of assigned topics.</p>
<p>1.3.The teachers are highly qualified researchers who actively engage with the topics they teach, providing a quality doctoral programme.</p>	<p>High level of quality Supervisors and other teaching staff are well-qualified to supervise research (as evidenced by the information provided in the Appendix). They are highly experienced and most have a successful track-record of PhD completions. However, much of their research is rather narrow in scope compared to other European universities with programmes in this area.</p> <p>Recommendation: More opportunities for research training in areas of conservation biology and environmental protection, that are different to the rather narrow fields of the current supervisors, is recommended to ensure that the PhD programme aligns with international norms for these fields (e.g. conservation genetics, small population biology, ecosystem services, and the human dimensions of conservation like law and economics). New appointments could be in these areas of conservation biology to expand the range of topics available for students to receive supervision in.</p>
<p>1.4.The number of supervisors and their qualifications provide for quality in producing the doctoral thesis.</p>	<p>Improvements are necessary The programme has additional criteria (above the legal minimum) that ensure that a supervisor is an active researcher engaged in an appropriate project (e.g. as the project co-ordinator). Thirty-four teachers meet these criteria, and the ratio of potential supervisors and students is 1:1.59. Many students also benefit from external co-</p>

	<p>supervisors, who don't teach on the programme, and this means that the student-supervisor ratio is even lower. However, the link with Ruder Boskovic Institute in Zagreb is challenging to maintain due to the distance between it and the University, which has led to difficulties in students gaining access to co-supervisors and research facilities. In addition, students have very close supervision throughout their research training, but there is a need to ensure that they are given sufficient freedom to develop independent research activity.</p> <p>Recommendation: More integration and opportunities for meeting with external co-supervisors in Zagreb is recommended to ensure smooth transition of supervision when external co-supervisors leave, and to help students gain more access to their research facilities.</p>
<p>1.5.The HEI has developed methods of assessing the qualifications and competencies of teachers and supervisors.</p>	<p>High level of quality The Josip Juraj Strossmayer University has transparent criteria for selecting and monitoring the performance of supervisors. The assessment includes the following criteria: (1) research activities (number of research papers, citations, projects, study visits abroad); (2) teaching assistants' assessment of supervisors and supervision. If a supervisor gets a negative assessment twice, they can no longer be appointed supervisors.</p>
<p>1.6.The HEI has access to high-quality resources for research, as required by the programme discipline.</p>	<p>High level of quality The resources available for PhD research training are of high quality. The Panel was only able to tour one laboratory and did not view library or IT facilities. However, it asked the supervisors and students about their access to these essential facilities and their answers indicated that they were content with them. Examples of good practice include a dedicated desk and computer for every PhD student along with access to a fund for attending conferences.</p>
<p>2. INTERNAL QUALITY ASSURANCE OF THE PROGRAMME</p>	
<p>2.1. The HEI has established and accepted effective procedures for proposing, approving and delivering doctoral education. The procedures include identification of scientific/ artistic, cultural, social and economic needs.</p>	<p>High level of quality Established procedures are effective and result in the production of skilled and highly trained researchers. Training and teaching are of good quality. The HEI identifies suitable candidates early and takes into account the local needs (in terms of job placements and research areas). The programme is perfectly aligned with local aspects (e.g.,</p>

	nature reserves, city planning, ecological problems). Some improvements in alignment with national and international aspects might be beneficial.
2.2. The programme is aligned with the HEI research mission and vision, i.e. research strategy.	<p>Improvements are necessary</p> <p>While the programme is formally fully aligned with the HEI strategy (http://www.unios.hr/en/about-university/mission-and-vision/), the latter is so general as to be meaningless. Strategy documents available to the Panel were more along the lines of brief vision statements, and the present university administration as represented by the Rector expressed only generalities (internationalization, interdisciplinarity) which are too unspecific to be of benefit for the programme. The Panel recommends that the programme established its own strategic plan and uses this for feedback to the University administration. Verbally expressed plans for the future of the programme are of good quality and should be pursued.</p>
2.3. The HEI systematically monitors the success of the programmes through periodic reviews, and implements improvements.	<p>Improvements are necessary</p> <p>While the doctoral programme is monitored periodically and improvements are made based on the findings, the time frame in which revisions occur is too long. Based on the interviews, no recent evaluation of the programme took place and the students/alumni indicated the need for more frequent updates on content/topics/forms of delivery of classes.</p>
2.4. HEI continuously monitors supervisors' performance and has mechanisms for evaluating supervisors, and, if necessary, changing them and mediating between the supervisors and the candidates.	<p>Improvements are necessary</p> <p>In formal terms, the academic staff are monitored through appointment, evaluation and review procedures. If needed, supervisors are replaced. However, the latter happens too frequently to the detriment of students; notably in conjunction with supervisors from the affiliated research institutes. Efforts should be undertaken to decrease the frequency of supervisor changes.</p>
2.5. HEI assures academic integrity and freedom.	<p>High level of quality</p> <p>The HEI and the programme follows international standards and has established internal regulations which ensure academic integrity and freedom. See for example, http://www.unios.hr/wp-content/uploads/2015/11/Code-of-Ethics.pdf</p>
2.6. The process of developing and defending the thesis proposals transparent and objective, and includes a public presentation.	<p>High level of quality</p> <p>Established procedures, form sheets, etc. are of good quality and adequate. Students/alumni expressed satisfaction with the process.</p>

<p>2.7. Thesis assessment results from a scientifically sound assessment of an independent committee.</p>	<p>High level of quality Formal procedures for thesis assessment are in place and follow international standards. The Council appoints the thesis assessment committee, which must be interdisciplinary and must have at least one member from partner institutions. It would be helpful if the University clarified whether the supervisor can participate in the committee, although this is not current practice.</p>
<p>2.8. The HEI publishes all necessary information on the study programme, admissions, delivery and conditions for progression and completion, in accessible outlets and media.</p>	<p>High level of quality All information is posted on the programme's website http://zpio.unios.hr/, which is updated regularly. The general information is available both in Croatian and English. Some of the subordinate forms are available only in Croatian and should also be in English to promote internationalisation.</p>
<p>2.9. Funds collected for the needs of doctoral education are distributed transparently and in a way that ensures sustainability and further development of doctoral education (ensures that candidates' research is carried out and supported, so that doctoral education can be completed successfully).</p>	<p>High level of quality The candidate's tuition payments form the main basis for funding the programme. The tuition collected is used to cover: costs of teaching – teacher fees for lectures, exams and supervision, costs of official travel (to teach or participate in thesis proposal defence or thesis defence as committee member). Distribution of the funds follows rational criteria. Without any detailed finance information, the Panel was unable to assess the long term financial sustainability of the programme based on the current funding model. However, the current system has clearly worked well in the past.</p>
<p>2.10. Tuition fees are determined on the basis of transparent criteria (and real costs of studying).</p>	<p>High level of quality The tuition cost is set based on the calculation of the costs of the study programme and based on 10 students per enrolment period. However, the Panel was not able to assess the programme costs in detail.</p>
<p>3. SUPPORT TO DOCTORAL CANDIDATES AND THEIR PROGRESSION</p>	
<p>3.1. The HEI establishes admission quotas with respect to its teaching and supervision capacities.</p>	<p>High level of quality The admission policy is based on the programme capacity (number of supervisors and teachers), as well as on the interest of new doctoral candidates. The required 1:3 supervisor to student ratio is fulfilled since the actual ratio is 1: 1.59. For monitoring their quality, supervisors are assessed according to two criteria's: research activities and teaching assistant's assessment of supervisors and supervision.</p>

<p>3.2. The HEI establishes admission quotas on the basis of scientific/ artistic, cultural, social, economic and other needs.</p>	<p>High level of quality All doctoral students graduated from this programme are employed. UNIOS reported that 18 out of 24 graduated PhDs work in research, 3 of them in public institutions, and 2 in the private sector. There are close links with industry, and the Panel was impressed by the stakeholders who hold the PhD programme in high regard. All PhD students that completed studies obtained relevant employment.</p>
<p>3.3. The HEI establishes the admission quotas taking into account the funding available to the candidates, that is, on the basis of the absorption potentials of research projects or other sources of funding.</p>	<p>High level of quality Some of the admitted candidates are fully funded by research projects, while others are self-funded. There are a relatively small number of PhD students which means that admission quotas are not necessary at present.</p>
<p>3.4. The HEI should pay attention to the number of candidates admitted as to provide each with an advisor (a potential supervisor). From the point of admission to the end of doctoral education, efforts are invested so that each candidate has a sustainable research plan and is able to complete doctoral research successfully.</p>	<p>High level of quality The information supplied in the SER establishes that study advisors monitor candidates activities and obligations; this means, for example, helping them with the choice of electives, keeping track of their research activities, suggesting which conferences to attend, helping with the choice of a final thesis supervisor, and arrange the participation of candidates in project work. In conversation with supervisors and students, the Panel established that each student receives help from their study advisor in these aspects of their PhD training. They also have research plans that are carefully monitored to ensure successful completion of the PhD.</p>
<p>3.5. The HEI ensures that interested, talented and highly motivated candidates are recruited internationally.</p>	<p>Improvements are necessary The call for applications is published in Croatian, but is not published internationally.</p> <p>Recommendation: Efforts should be made to attract international applicants, including advertising project scholarships in English on international websites available to graduates looking for PhD positions.</p>
<p>3.6. The selection process is public and based on choosing the best applicants.</p>	<p>High level of quality The application process is public and open for 30 days. In charge of the selection process is the Council of the Postgraduate Programme. According to the information supplied by UNIOS, the Council applies the following criteria in the process of selection: academic achievements, interest in doing research, publications, references from former professors or potential supervisors and the suggestion of</p>

	<p>the thesis topic. The interview is also part of the process. There is not intense competition for PhD places, and a selection process is in place to ensure that the best applicants are selected when a competitive process of admission is necessary.</p>
<p>3.7. The HEI ensures that the selection procedure is transparent and in line with published criteria, and that there is a transparent complaints procedure.</p>	<p>High level of quality According to the SER, the list of admitted applicants in the programme is public. Applicants can file a complaint, and it is considered immediately. The feedback received in conversation with students and alumni by this Panel indicates that the process is clear and transparent.</p>
<p>3.8. There is a possibility to recognize applicants' and candidates' prior learning.</p>	<p>High level of quality The programme accepts candidates who have an MA in the area of natural or biotechnical sciences, and appropriate credit is given for relevant prior qualifications and training.</p>
<p>3.9. Candidates' rights and obligations are defined in relevant HEI regulations and a contract on studying that provides for a high level of supervisory and institutional support to the candidates.</p>	<p>Improvements are necessary Despite the fact that the Self-Evaluation Report (SER) mentions that candidate's rights and obligations are indeed regulated using relevant UNIOS regulations, the required details of this quality assurance procedure were not attached to the SER. Relevant chapters of it were not described and the contract template was not attached.</p> <p>Recommendation: The Department should provide more guidance about the candidates' rights and obligations, through written documents and possibly in an introductory lecture.</p>
<p>3.10. There are institutional support mechanisms for candidates' successful progression.</p>	<p>Improvements are necessary Despite the existence of a development fund to help with the costs of publications, the Panel agreed that institutional support must be reinforced in additional areas.</p> <p>Recommendation: The Department should provide enhanced support in career development (e.g. in scientific writing and presenting in English), and in funding the costs of student attendance at international conferences.</p>
<p>4. PROGRAMME AND OUTCOMES</p>	
<p>4.1. The content and quality of the doctoral programme are aligned with internationally recognized standards.</p>	<p>Improvements are necessary The SER states that the programme is comparable with a range of European postgraduate programmes, such as the Interdisciplinary doctoral programme in environmental protection of the University of Ljubljana and the Doctoral</p>

	<p>programme in interdisciplinary environmental sciences of the University of Helsinki.</p> <p>However, the Panel agreed that more opportunities for research training in areas of conservation biology and environmental protection that are different to the rather narrow fields of the current supervisors is recommended to ensure that the PhD programme aligns with international norms for these fields (see 1.3 above).</p> <p>The recruitment of international students could be improved by providing more information in English on the website and encouraging international visits and conference attendance by students and supervisors.</p>
<p>4.2. Programme learning outcomes, as well as the learning outcomes of modules and subject units, are aligned with the level 8.2 of the CroQF. They clearly describe the competencies the candidates will develop during the doctoral programme, including the ethical requirements of doing research.</p>	<p>Improvements are necessary</p> <p>The SER states that learning outcomes are aligned with the level 8.2 of the Croatian Qualification Framework, which means that all graduates will be able to create new knowledge in the field of their research using advanced knowledge, skills, activities and procedures. It is stated that each course in the programme has defined objectives, learning outcomes, content, type of teaching, links between learning outcomes and teaching methods, ECTS, students' obligations, evaluation and assessment techniques, and required reading.</p> <p>The learning outcomes for each course were not available to the Panel on their visit, so we have been unable to assess this fully.</p>
<p>4.3. Programme learning outcomes are logically and clearly connected with teaching contents, as well as the contents included in supervision and research.</p>	<p>Improvements are necessary</p> <p>The SER states the teaching methods include lectures, lab work, field work, research and independent presentation of seminars (for all obligatory courses). The Panel was unable to assess this fully. However, discussions with staff and students on our visit again suggest that this is not an area of concern. The study programme has a balance of obligatory and elective courses to facilitate training in research skills, although there are areas that could be improved.</p> <p>Recommendation: The Panel suggests that a reassessment of the number and content of taught courses is needed. Fewer taught courses are recommended and it is important to ensure that these are delivered every year. General research skills</p>

	courses could be taught through the establishment of a Doctoral School of Sciences.
4.4. The doctoral programme ensures the achievement of learning outcomes and competencies aligned with the level 8.2 of the CroQF.	<p>Improvements are necessary</p> <p>The students benefit from high quality research-led teaching and supervision. Learning outcomes are achieved as evidenced by the fact that some students achieve more than one publication from their thesis, which is above the required level. However, the SER does not contain the learning outcomes for the PhD programme so the Panel was unable to fully assess this requirement.</p>
4.5. Teaching methods (and ECTS, if applicable) are appropriate for level 8.2 of the CroQF and assure achievement of clearly defined learning outcomes.	<p>High level of quality</p> <p>The teaching is research based and all courses attract ECTS points and these are clear and transparent to students. The Panel thought that more external opportunities for teaching and training could be made available to students, through study visits and possibly e-learning.</p>
4.6. The programme enables acquisition of general (transferable) skills.	<p>Improvements are necessary</p> <p>The programme does not present special activities for acquisition of generic transferable skills (e.g. grant writing, presenting at conferences, poster preparation etc.). In conversation with the students, it was mentioned that these activities are offered by the University, but not every student was informed about it. Students are encouraged to attend summer schools, along with national and international conferences.</p> <p>Recommendation: The Panel encourages the programme to promote and/or inform students about opportunities to acquire transferable skills, which could be taught through the establishment of a Doctoral School of Sciences.</p>
4.7. Teaching content is adapted to the needs of current and future research and candidates' training (individual course plans, generic skills etc.).	<p>High level of quality</p> <p>A balanced range of courses in biology and environmental science are provided to students, although the Panel suggests that the content of these modules are regularly updated to ensure that they keep abreast of scientific developments.</p>
4.8. The programme ensures quality through international connections and teacher and candidate mobility.	<p>Improvements are necessary</p> <p>International links are encouraged by the programme, but these are difficult to originate and maintain due to funding levels, and there are no international students on the programme. At present the visibility (e.g. via advertisement of positions) is limited to the national level, and is only</p>

	<p>evidenced in the form of published work in international journals.</p> <p>Recommendations: Internationalization should be encouraged in all areas, especially in recruitment of students and staff, and by encouraging conference and research visits.</p>
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*** NOTE: RECOMMENDATIONS OF THE EXPERT PANEL TO THE ASHE'S ACCREDITATION COUNCIL AND QUALITY LABEL**

The role of the Expert Panel in the re-accreditation of doctoral study programmes is manifold. The Expert Panel or part of the Expert Panel visiting a higher education institution drafts a report on the basis of a self-evaluation report, the accompanying relevant documentation, and a site visit to HEI. The draft report is adopted by all members of the Cluster Expert Panel, while the president of the Cluster Expert Panel is responsible for coordinating the assessment levels.

The report contains an assessment on whether a doctoral study programme delivered at a higher education institution complies with the prescribed laws and by-laws, as well as any additional/recommended requirements defined by the Agency's Accreditation Council, and whether a higher education institution can obtain a positive, i.e. satisfactory quality assessment according to the criteria set out in this document. Moreover, the Expert Panel must make recommendations for quality improvement.

Based on the assessment of all these elements, the Expert Panel may propose to the Accreditation Council of the Agency to issue either a confirmation on compliance, a letter of expectation for the period up to three (3) years in which period the higher education institution should eliminate the identified deficiencies, or to deny the license.

If the Expert Panel has assessed that a doctoral study programme delivered by a higher education institution does not meet legal and other requirements or that the quality of a study programme is not ensured (i.e. that HEI does not meet additional requirements or recommendations made by the Accreditation Council, or has a very poor quality assessment), they should propose to the Accreditation Council to deny the license.

If the Expert Panel considers that the relevant laws and bylaws have been met by a higher education institution, but that certain elements mentioned above do not meet the quality requirements, while they consider that the identified shortcomings can be corrected within a time frame of three years, they should issue a letter of expectation.

If the Expert Panel considers that all legal and additional/recommended requirements have been met and the quality assessment is satisfactory, i.e. that a study programme fulfils the learning outcomes appropriately defined for that level and scientific area, they may propose the issuance of a certificate and have a HEI commit to quality improvement and reporting to the Agency during the follow-up period.

Finally, if the Expert Panel has, in accordance with the criteria mentioned above, proposed issuing the certificate of compliance and assessed that, in addition to meeting the minimum quality requirements –

i.e. the qualification framework level - for a study programme, the programme should be identified as a doctoral programme of a 'high level of quality', the Expert Panel may propose to the Agency's Accreditation Council that such a doctoral study programme be awarded the 'high quality label'. Thus the Agency, with the consent of the Accreditation Council, grants a higher education institution the right to use the label for their academic and promotional purposes.

The 'high quality label' cannot be proposed or awarded to a programme or a higher education institution that does not comply with the requirements laid down by the laws and bylaws mentioned in this document, and any additional requirements recommended by the Accreditation Council. Moreover, the quality assessment awarded to a study programme should reflect a high level of quality inasmuch that at least half of the sub-criteria in each of the quality assessment criteria are assessed as being of high quality. The Accreditation Council of the Agency issues a final opinion on the label awarded. The content and form of the quality labels shall be prescribed by the Agency in a relevant general act.

The Accreditation Council of the Agency discusses the final report with all recommendations and suggestions, and issues their opinion on the report. Based on a prior opinion of the Accreditation Council, the Agency issues an Accreditation Recommendation to the minister responsible for science and higher education, and upon receipt of the minister's final decision on the outcome of the procedure, awards the 'high quality label' to a higher education institution.