



BIOL773

Marine Conservation and Management

S1 Day 2017

Dept of Biological Sciences

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General Information

Unit convenor and teaching staff

Convenor

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Credit points

4

Prerequisites

Admission to MRes

Corequisites

Co-badged status

Unit description

Marine ecosystems play a crucial role in the health and functioning of our world, and consist of a complex and dynamic interplay of biological, chemical and physical processes. Once thought to be relative stable in the face of adversity, we now know that most marine systems are fragile and easily disturbed. In this unit we assess what constitutes a 'healthy' marine habitat, and explore how such habitats can be conserved in the face of adversities such as human exploitation, habitat modification and climate change. BIOL773 takes a problem-solving approach to gain an advanced understanding of such issues. Students have first hand experience in designing and carrying out a research project, which is written in Journal format with the ultimate aim of producing a document of publishable quality. Students will also receive advanced skills for presenting key concepts in marine conservation and management via novel assessment items such as giving short presentations, producing an elevator pitch, and writing a 100-word summary. BIOL773 enhances ecological and marine biological knowledge and skills for students intending to continue with higher degree research. Note: BIOL773 involves a compulsory fieldtrip to Heron Island, Great Barrier Reef, in mid-semester break, Session 1 (separate excursion fee applies).

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

Learning Outcomes

On successful completion of this unit, you will be able to:

Develop an understanding of why marine conservation and management is necessary from a local to global perspective

Identify threats at individual, population and community levels in local, regional and global marine ecosystems

Conceptualize the conflicts between marine conservation, the management of marine resources, and the role of the general community in the process

Develop an understanding of reef structures, organisms and ecosystems

Learn and apply field methods and teamwork skills

Learn how to communicate issues at an academic and local community level

Design and implement a scientific project, analyse and evaluate the results in the context of relevant scientific literature, and produce a document of publishable standard

Assessment Tasks

Name	Weighting	Hurdle	Due
<u>Podcast presentation</u>	20%	No	28th March
<u>Practical assessment</u>	11%	No	31st March
<u>Science communication</u>	9%	No	4th April
<u>Group methods and results</u>	10%	No	8th April
<u>Final paper</u>	50%	No	2nd June

Podcast presentation

Due: **28th March**

Weighting: **20%**

Effective science communication is a very powerful and undervalued skill. It is important that the research that we undertake as scientists can be communicated well in multiple formats, not only to our peers, but also to non-specialist scientists, managers and general public. It can be difficult to ensure that a wide variety of individuals understand the ramifications of our research and why we do what we do. This is especially true when the results or implications of your research require individuals to change their lifestyle, impact on them financially, and/or challenge their entrenched beliefs. It is usual, therefore, for conservation strategies to create conflict, which can have both local and global implications.

In this Assessment Task you will choose one of the selected videos, which highlight conservation

and management issues. Only one student can assess and present a particular video. *Whilst on Heron Island you will be required to give a 10 minute presentation on the topic of your video and then respond to questions from your peers (5 minutes)*. Note that you are not providing a summary of the video itself but presenting the major issues, solutions, and broader implications of each video by sourcing from the primary literature. You may use PowerPoint but no props please. *As the field trip will be very busy it is expected that you will have your presentation in final format prior to leaving for Heron Island.*

On successful completion you will be able to:

- Develop an understanding of why marine conservation and management is necessary from a local to global perspective
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- Learn how to communicate issues at an academic and local community level

Practical assessment

Due: **31st March**

Weighting: **11%**

It is important that you have an understanding of the marine biodiversity at Heron Island. In the first couple of days on the Island we will be identifying and keying out vertebrates, invertebrates (visible to the naked eye) and algae as a group. While some of you have been to Heron Island for other units, this is unlikely to put you at an advantage as the keys we use are quite different and we are identifying to species level where at all possible.

On the 31st March I will set up a 2-hour practical assessment for you to individually complete. You will need to identify some organisms to species level and use keys to identify other species.

On successful completion you will be able to:

- Develop an understanding of reef structures, organisms and ecosystems
- Learn and apply field methods and teamwork skills

Science communication

Due: **4th April**

Weighting: **9%**

The process of science is no longer an ivory tower issue. Scientists need to think on their feet and quickly adapt the multilayered complexity of their research to the general public. It is important to consider that there may also be more than one perspective of a particular piece of research that is valid, and that listening to different perspectives can be fruitful. Scientific research, new technologies, paradigm shifts, etc., play a major role in today's key political,

economic, cultural and social policy discussions, as well as in public dialogue. As such, you need to be equipped with the skills to disseminate fresh research to appropriate audiences, particularly in the current climate when there is dwindling governmental support for science in Australia.

This Assessment Task has **three outputs, each worth 3% (all due on the same day)**:

(1) Elevator Pitch. *You will produce a short summary of your research that can be told to another scientist who specializes in this field, lasting from between 30 and 60 seconds, that describes the research you have just completed on Heron Island.* Assume that this scientist has an advanced knowledge of the subject and the tools, theories, origins and relevance on the subject. The Convenor, along with the Tutor and your peers, will grade you for the most interesting and value-adding pitch. For more information on elevator pitches:

<http://thepostdocway.com/content/elevator-pitches-scientists-what-when-where-and-how>

(2) 100 Word Summary. Should you continue in research you will be asked to write lay summaries for journals, research proposals, grants, seminars, etc. These are usually written for educated, but non-specialist, audiences, such as other academics (but not necessarily scientists), policymakers, government officials, editors. The 100 word summary is often the most important part of a submission or application because it is the decisive factor where the audience will decide to read on or move to the next piece. *You will submit a 100 word summary that describes the research you have just completed for an educated, but non-specialised, audience.* This document should be emailed to your Convenor by 5pm on the due date. Your Convenor and Tutor will grade this output. You may find this site useful: <http://www.wikihow.com/Summarize-a-Journal-Article>

(3) 10 Minute Presentation. *You will produce a 10 minute PowerPoint presentation that explains your research and its significance for children of primary school age.* Your aim should be to engage and excite the children into wanting to know more on the topic, while still teaching the details of the research. Primary school children like the use of active words, and examples that they can relate to. If unsure, please visit: http://www.lamsfoundation.org/lams2006/pdfs/Ang_Wang_LAMS06.pdf

On successful completion you will be able to:

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- Conceptualize the conflicts between marine conservation, the management of marine resources, and the role of the general community in the process
- Learn how to communicate issues at an academic and local community level
- Design and implement a scientific project, analyse and evaluate the results in the context of relevant scientific literature, and produce a document of publishable standard

Group methods and results

Due: **8th April**

Weighting: **10%**

As BIOL773 is not a statistics or graphics unit, your individual abilities in these skills will not be assessed. What I do want to ensure, however, is that all students have access to the correct results that have been adequately analysed and graphed. For the final paper, therefore, *you will write the methods, analyse, interpret, graph and write the results as a group while you are on Heron Island*. This section needs to be submitted *as a group* via email to the Unit Convenor by 5pm on the due date. All individuals must participate in this Assessment Task, and anyone who has been observed not to participate adequately may have individual marks deducted from this section. Please remember that the final product of this section will only be as good as the collective effort. Only one person needs to email the section to the Unit Convenor, but will need to CC all other participants into this email.

On successful completion you will be able to:

- Learn and apply field methods and teamwork skills
- Learn how to communicate issues at an academic and local community level
- Design and implement a scientific project, analyse and evaluate the results in the context of relevant scientific literature, and produce a document of publishable standard

Final paper

Due: **2nd June**

Weighting: **50%**

Students will research a topic assessing an anthropogenic impact and/or the management of an impact on the biodiversity and conservation of a tropical marine ecosystem. As a group you will research the topic given to you, then design and implement a research project to assess that impact on Heron Island. You and your peers will largely drive the design and running of the project, under the guidance of your Convenor and Tutor. The project is a collaborative effort but individual manuscripts will be written, following the format of the target journal.

The aim of this Assessment Task is to produce a piece of research that is innovative and significant, and one that contributes to current knowledge in that research field. Acquisition of real research skills is important at Masters Level coursework, where you are preparing to lead your own projects. The currency at the completion of your Masters Degree is, however, publications. I thus add an extra incentive for research quality. Should all go well and the project is well analysed and interpreted and you have all contributed substantially, I will take your individual assessments, rewrite them into a manuscript with participant's names as co-authors (in addition to the Convenor and Tutor's names), and submit it to an appropriate journal. This will only occur if the project is of a suitable standard and/or if appropriate data are collected. The Unit Convenor and Tutor will decide whether each participant has contributed enough physically and intellectually to be a co-author on the paper, as per the university standards

(<https://staff.mq.edu.au/research/integrity-ethics-and-approvals/research-integrity/areas-of-conduct>).

The final paper will be due at 5pm on the due date. More information on this assessment task can be found in the field trip handout.

On successful completion you will be able to:

- Develop an understanding of why marine conservation and management is necessary from a local to global perspective
- Identify threats at individual, population and community levels in local, regional and global marine ecosystems
- Conceptualize the conflicts between marine conservation, the management of marine resources, and the role of the general community in the process
- Develop an understanding of reef structures, organisms and ecosystems
- Learn and apply field methods and teamwork skills
- Learn how to communicate issues at an academic and local community level
- Design and implement a scientific project, analyse and evaluate the results in the context of relevant scientific literature, and produce a document of publishable standard

Delivery and Resources

Access to iLearn is required to complete assessment tasks and unit resources.

Marine ecosystems play a crucial role in the health and functioning of our world, and consist of a complex and dynamic interplay of biological, chemical and physical processes. Once thought to be relative stable in the face of adversity, we now know that most marine systems are fragile and easily disturbed. In this Unit we assess what constitutes a 'healthy' marine habitat, and explore how such habitats can be conserved in the face of adversities such as human exploitation, habitat modification and climate change. BIOL773 takes a problem-solving approach to gain an advanced understanding and communication of such issues. Students have first hand experience in designing and carrying out a research project, which is written in journal format with the ultimate aim of producing a document of publishable quality. Students will also receive advanced skills for presenting key concepts in marine conservation and management to a range of audiences via novel assessment items such as giving short presentations, 100 word summaries and elevator pitches. BIOL773 enhances ecological and marine biological knowledge and skills for students intending to continue with higher degree research. This unit is part of the Biological Sciences Master of Research Program (MRES).

This Unit is run as a **compulsory field trip at Heron Island, from the 28th March until the 7th April inclusive**. There are various logistic issues that you need to work through prior to the field trip. Please ensure that you read those in iLearn and follow the instructions as soon as possible. It is assumed that you will arrive in Gladstone for the ferry fully prepared.

The unit also has **one on-campus morning, run at a mutually agreed time March, from 9.30**

to 12.30. It is essential that you attend this session, as the podcasts for the presentation worth 20% will be decided. Moreover, logistics for the fieldtrip will be finalised. Please read the practical notes for the “Podcast Presentation” prior to this date. **Please notify the convenor ASAP if you wish to enrol in BIOL773 but cannot make this meeting.**

The field trip fee is \$1,000 and must be paid to the University Cashier by 17h March. The payment form is on iLearn. Students who fail to pay the required fee by the due date will forfeit their place in the Unit. Any student who is unable to pay by this date or for whom the fee is prohibitive should contact the unit convenor at their earliest convenience. Depending on circumstances, extensions may be possible.

Students are responsible for their own travel arrangements and costs to and from Gladstone Marina. The ferry departs Gladstone Marina at approximately 14:00 on the **28th of March** and returns to the marina at approximately 13:00 on the **7th of April**. See: <http://www.heronisland.com/Getting-Here.aspx> for additional information. The cost of the ferry is included in your levy. Should you miss the allocated ferry you will need to organise and pay for your own transport to (or from) the Island.

There are a number of logistics outlined on the iLearn site for this Unit. It is essential that students work through these and fulfil these deadlines. Please contact the Convenor if any difficulties arise.

The field activities are physically strenuous so please ensure you give the Convenor a realistic assessment of your capabilities. We will be eating and preparing communal meals. Students must inform the Convenor of any dietary requirements during the on-campus session and via iLearn so that we can prepare appropriately for you. Any food allergies or potential medical issues also need to be disclosed to the Convenor at (or before) the on-campus session. Students are strongly encouraged to bring their own snorkelling equipment and wetsuits and to label any equipment or personal items that they bring.

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#). Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy http://mq.edu.au/policy/docs/assessment/policy_2016.html

Grade Appeal Policy <http://mq.edu.au/policy/docs/gradeappeal/policy.html>

Complaint Management Procedure for Students and Members of the Public http://www.mq.edu.au/policy/docs/complaint_management/procedure.html

Disruption to Studies Policy (in effect until Dec 4th, 2017): http://www.mq.edu.au/policy/docs/disruption_studies/policy.html

Special Consideration Policy (in effect from Dec 4th, 2017): <https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policies/special-consideration>

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of

Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Results

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit ask.mq.edu.au.

Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)
- [Ask a Learning Adviser](#)

Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

PG - Capable of Professional and Personal Judgment and Initiative

Our postgraduates will demonstrate a high standard of discernment and common sense in their

professional and personal judgment. They will have the ability to make informed choices and decisions that reflect both the nature of their professional work and their personal perspectives.

This graduate capability is supported by:

Learning outcomes

- Learn and apply field methods and teamwork skills
- Learn how to communicate issues at an academic and local community level
- Design and implement a scientific project, analyse and evaluate the results in the context of relevant scientific literature, and produce a document of publishable standard

Assessment tasks

- Podcast presentation
- Practical assessment
- Science communication
- Group methods and results
- Final paper

PG - Discipline Knowledge and Skills

Our postgraduates will be able to demonstrate a significantly enhanced depth and breadth of knowledge, scholarly understanding, and specific subject content knowledge in their chosen fields.

This graduate capability is supported by:

Learning outcomes

- Develop an understanding of why marine conservation and management is necessary from a local to global perspective
- Identify threats at individual, population and community levels in local, regional and global marine ecosystems
- Conceptualize the conflicts between marine conservation, the management of marine resources, and the role of the general community in the process
- Develop an understanding of reef structures, organisms and ecosystems
- Learn and apply field methods and teamwork skills
- Learn how to communicate issues at an academic and local community level
- Design and implement a scientific project, analyse and evaluate the results in the context of relevant scientific literature, and produce a document of publishable standard

Assessment tasks

- Podcast presentation

- Practical assessment
- Science communication
- Group methods and results
- Final paper

PG - Critical, Analytical and Integrative Thinking

Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

Learning outcomes

- Develop an understanding of why marine conservation and management is necessary from a local to global perspective
- Identify threats at individual, population and community levels in local, regional and global marine ecosystems
- Conceptualize the conflicts between marine conservation, the management of marine resources, and the role of the general community in the process
- Learn how to communicate issues at an academic and local community level

Assessment tasks

- Podcast presentation
- Science communication
- Final paper

PG - Research and Problem Solving Capability

Our postgraduates will be capable of systematic enquiry; able to use research skills to create new knowledge that can be applied to real world issues, or contribute to a field of study or practice to enhance society. They will be capable of creative questioning, problem finding and problem solving.

This graduate capability is supported by:

Learning outcomes

- Develop an understanding of why marine conservation and management is necessary from a local to global perspective
- Identify threats at individual, population and community levels in local, regional and global marine ecosystems

- Conceptualize the conflicts between marine conservation, the management of marine resources, and the role of the general community in the process
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Assessment tasks

- Podcast presentation
- Practical assessment
- Science communication
- Group methods and results
- Final paper

PG - Effective Communication

Our postgraduates will be able to communicate effectively and convey their views to different social, cultural, and professional audiences. They will be able to use a variety of technologically supported media to communicate with empathy using a range of written, spoken or visual formats.

This graduate capability is supported by:

Learning outcomes

- Learn how to communicate issues at an academic and local community level
- Design and implement a scientific project, analyse and evaluate the results in the context of relevant scientific literature, and produce a document of publishable standard

Assessment tasks

- Podcast presentation
- Science communication
- Final paper

PG - Engaged and Responsible, Active and Ethical Citizens

Our postgraduates will be ethically aware and capable of confident transformative action in relation to their professional responsibilities and the wider community. They will have a sense of connectedness with others and country and have a sense of mutual obligation. They will be able to appreciate the impact of their professional roles for social justice and inclusion related to national and global issues

This graduate capability is supported by:

Learning outcomes

- Learn and apply field methods and teamwork skills
- Learn how to communicate issues at an academic and local community level

Assessment tasks

- Podcast presentation
- Science communication
- Final paper