



BIOL893

Advanced Marine Conservation and Management

S1 Block 2019

Dept of Biological Sciences

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Disclaimer

Macquarie University has taken all reasonable measures to ensure the information in this publication is accurate and up-to-date. However, the information may change or become out-dated as a result of change in University policies, procedures or rules. The University reserves the right to make changes to any information in this publication without notice. Users of this publication are advised to check the website version of this publication [or the relevant faculty or department] before acting on any information in this publication.

General Information

Unit convenor and teaching staff

Convenor

Jane Williamson

jane.williamson@mq.edu.au

Contact via email

205 Culloden Road, Room G10

Tutor

Vincent Raoult

vincent.raoult@newcastle.edu.au

Contact via email

off campus

Tutor

Louise Tosetto

louise.tosetto@mq.edu.au

Contact via email

205 Culloden Road, Room G18

Kate Barry

kate.barry@mq.edu.au

Credit points

4

Prerequisites

Admission to MMarScMgt or MConsBiol or GradDipConsBiol or MPlan or MSc or MEnv or MScInnovation

Corequisites

Co-badged status

BIOL773 Marine Conservation and Management

Unit description

*Please note this unit requires a minimum number of students enrolled to run, and has a maximum dependent on resource limitations. Marine ecosystems play a crucial role in global health and functioning 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 explore how such habitats can be conserved in the face of adversities such as human exploitation, habitat modification and climate change. BIOL893 takes a problem-solving approach to gain an advanced understanding of such issues. Students gain 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 develop advanced skills for presenting key concepts in marine conservation and management via novel assessment items such as assessing management options and writing a 100-word summary. BIOL893 enhances ecological and marine biological knowledge and skills for students intending to continue with higher degree research or seeking employment in management and conservation careers. The unit involves a compulsory fieldtrip to Heron Island, Great Barrier Reef, in the mid-semester break (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 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
- Apply field methods and teamwork skills
- Communicate issues at an academic and local community level
- Design and implement a group scientific project, analyse and evaluate the results in the context of relevant scientific literature, and produce a document of publishable standard

General Assessment Information

ASSESSMENT DETAILS

Details of assessments will be provided in class, on iLearn.

ASSESSMENT SUBMISSION

Digital copies of all assessments will be required. Assessments will be run through Turnitin. All assessments need to be written in the student's own words.

ACADEMIC HONESTY

Plagiarism is the presentation of thoughts and work of another as one's own.

Examples include:

- Copying thoughts or work of another without appropriate acknowledgement
- Paraphrasing another person's work with very minor changes
- Piecing together sections of the work of others into a new document.

All assessments need to be written in the student's own words. The penalties imposed by the University for plagiarism are serious and may include expulsion from the University. ANY evidence of plagiarism will be dealt with following University policy. Penalties for plagiarism will be imposed for each assessment and clearly defined in marking grades. Further penalties imposed by the Faculty disciplinary committee may range from a loss of all marks and the award of zero depending on the circumstances.

EXTENSIONS, PENALTIES AND DISRUPTION TO STUDIES

The deadlines for assignments are not negotiable. If an assignment is submitted late a penalty of -5% of the mark allocated for the assignment will be deducted per day (i.e. 6 days late = -30% of marks available). Submission must occur within one week (7 days) of the due date or the assignment will not be marked.

If you experience a serious and unavoidable disruption to your studies and require an extension for an assessment please submit a Disruptions to Studies notification via ask.mq.edu.au with supporting documentation, and a Professional Authority Form completed by your healthcare professional. If you anticipate a potentially serious and unavoidable disruption (e.g., upcoming surgery) speak to the unit staff early and apply for an extension before the due date.

UNIT COMPLETION

To pass this unit you must attend the field trip and achieve an overall minimum grade of 50%.

Assessment Tasks

Name	Weighting	Hurdle	Due
Snorkel assessment	0%	Yes	8th March
Management assessment	25%	No	1st April
100 word summary	10%	No	8th April
Group methods and results	25%	No	11th April
Final paper	40%	No	3rd June

Snorkel assessment

Due: **8th March**

Weighting: **0%**

This is a hurdle assessment task (see [assessment policy](#) for more information on hurdle assessment tasks)

You must attend a snorkel assessment at the swimming pool at Macquarie University on the assessment date.

Your competency as a snorkeler will be assessed in a practical assessment in the pool. While the hurdle is for attendance and not for competency in the assessment criteria, not receiving competency in particular areas of the assessment may decrease your participation in some practical components of BIOL893 at Heron Island.

The snorkel induction involved the following assessments: swim 200m continuously without swimming aids / tread water for three minutes / demonstrate proper snorkel clearing / demonstrate duck diving and object retrieval from 2m depth / demonstrate appropriate surface snorkeling technique.

Students are encouraged to voluntarily attempt the competences to become Macquarie University research snorkeler, which involves demonstration of the additional two capabilities: swim 800m continuously with snorkeling gear in under 19 min / tow or push a tired snorkeler with snorkeling gear for 200m in under 6 min.

On successful completion you will be able to:

- Apply field methods and teamwork skills

Management assessment

Due: **1st April**

Weighting: **25%**

You will complete a 1500 word written assignment on a recent topical issue relating to marine

management or resource use. Each student's topic must not overlap substantially. More information on topic selection and assessment criteria will be available on the iLearn website. You will be required to arrive on the island with your completed assessment on a memory stick. There will be no time to work on the assessment during the field trip or on the boat to the 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
- Identify threats at individual, population and community levels in local, regional and global ecosystems
- Conceptualize the conflicts between marine conservation, the management of marine resources, and the role of the general community in the process
- Communicate issues at an academic and local community level

100 word summary

Due: **8th April**

Weighting: **10%**

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 5 pm 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>

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 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
- Apply field methods and teamwork skills

- Communicate issues at an academic and local community level

Group methods and results

Due: **11th April**

Weighting: **25%**

You will write the methods, analyse, interpret, graph and write the results as a group while you are on Heron Island. This assessment needs to be submitted as a group via email to the unit convenor by 5 pm on the due date. All individuals must participate in the assessment task, and anyone who has been observed not to participate adequately may have individual marks deducted. 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 final assessment to the unit convenor but must CC all other participants into this email.

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
- Develop an understanding of reef structures, organisms and ecosystems
- Apply field methods and teamwork skills
- Design and implement a group scientific project, analyse and evaluate the results in the context of relevant scientific literature, and produce a document of publishable standard

Final paper

Due: **3rd June**

Weighting: **40%**

You will research a topic assessing an anthropogenic impact and/or management issue 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 unit staff.

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 in 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. Unit

staff will decide whether any 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-ofconduct>).

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

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 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
- Apply field methods and teamwork skills
- Design and implement a group scientific project, analyse and evaluate the results in the context of relevant scientific literature, and produce a document of publishable standard

Delivery and Resources

Please note that this unit, when co-taught with BIOL773, requires a minimum number of enrolled students to run and has a maximum number which is dependent on resource limitations.

OVERALL RUNNING OF THE UNIT

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 relatively stable in the face of adversity, we now know that most marine systems are fragile and easily disturbed. In BIOL893 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. BIOL893 takes a problem-solving approach to gain an advanced understanding and communication of such issues. Students receive 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 a short presentation, and a 100-word summary. BIOL893 enhances ecological and marine biological knowledge and skills for students intending to continue with higher degree research. This unit is part of the Masters of Marine Science and Management Program (MMSM).

This unit is run as a **compulsory field trip at Heron Island, from the 1st April until the 12th April inclusive**. The field trip starts and ends at the Gladstone ferry terminal. 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 two on-campus times. The first is run at a mutually agreed time in early March, from 9.30 to 12.30 to discuss the research and assessments. It is essential that you attend this session, as the podcast topics for the presentation will be decided in the session. Logistics for the field trip will also be finalised. Please read the practical notes for the “Podcast Presentation” prior to this date.

The second is a practical session at the Macquarie University pool on the 8th March. As this is a hurdle assessment, please notify the convenor ASAP if you wish to enrol in BIOL893 but cannot make this meeting. If you already registered as a research snorkeler with Macquarie University, you can apply for RPL for this task via the unit convenor. This must be done before the 8th March.

The field trip fee is \$2,000 and must be paid to the University Cashier by 18th 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. The fee covers bench fees, boating, food, accommodation and return boat transport between Gladstone and Heron Island.

Students are responsible for their own travel arrangements and costs to and from Sydney and Gladstone Marina. The ferry departs Gladstone Marina at approximately 13:30 on the 1st of April and returns to the marina at approximately 13:00 on the 12th of April. See <http://www.uq.edu.au/heron-island-research-station/plan-your-visit> 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 can be 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 other 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.

UNIT WEBSITE

The unit web page can be accessed via the student portal (log in at <https://iLearn.mq.edu.au/login/MQ/>). There you will find unit information, resource material, announcements, forums and dialogue facilities. You are encouraged to use the discussion and email facilities for

communication amongst your fellow MQ students and the MQ unit convenor. Please check the unit website regularly for any announcements and additional resource material.

TECHNOLOGY USED AND REQUIRED

Students are expected to access all unit material through the iLearn website. Basic multimedia software (e.g., Windows Media Player, Quicktime) will be needed to listen to recorded podcasts. Students will be required to use internet resources for sourcing information and to use the appropriate software.

We are designing and analysing large datasets. You are strongly encouraged to bring your own laptop as it will be easier to work. It is often difficult to get access to a good computer at the research station as they are heavily used by many researchers.

Before coming to class please do the following:

- Ensure you are running up-to-date software with all security patches installed
- Install Microsoft Excel, PowerPoint and some form of a word processor (e.g., Microsoft Word). There are student versions of these available, and there are also some free alternatives.
- Have your computer language and keyboard set to English for any analyses conducted in R.

ASSUMED KNOWLEDGE

This unit is data-intensive. You will be downloading, manipulating and analysing datasets with many observations. As a result, you will need to be proficient in the use of Microsoft Excel and basic statistics. Please check the assumed knowledge section of the iLearn website prior to the field trip for online tutorials covering these topics.

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central>). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Grade Appeal Policy](#)

- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#) (**Note:** *The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.*)

Undergraduate students seeking more policy resources can visit the [Student Policy Gateway](https://students.mq.edu.au/support/study/student-policy-gateway) (<https://students.mq.edu.au/support/study/student-policy-gateway>). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit [Policy Central](http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/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/study/getting-started/student-conduct>

Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) 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 or if you are a Global MBA student contact globalmba.support@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

If you are a Global MBA student contact globalmba.support@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

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

Assessment tasks

- Snorkel assessment
- Management assessment
- 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 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
- Apply field methods and teamwork skills
- Communicate issues at an academic and local community level
- Design and implement a group scientific project, analyse and evaluate the results in the context of relevant scientific literature, and produce a document of publishable standard

Assessment tasks

- Snorkel assessment
- Management assessment
- 100 word summary
- 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 ecosystems
- Conceptualize the conflicts between marine conservation, the management of marine resources, and the role of the general community in the process
- Apply field methods and teamwork skills

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

Assessment tasks

- Management assessment
- 100 word summary
- Group methods and results
- 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
- Conceptualize the conflicts between marine conservation, the management of marine resources, and the role of the general community in the process
- Apply field methods and teamwork skills
- Communicate issues at an academic and local community level
- Design and implement a group scientific project, analyse and evaluate the results in the context of relevant scientific literature, and produce a document of publishable standard

Assessment tasks

- Management assessment
- 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

- Identify threats at individual, population and community levels in local, regional and global ecosystems
- Conceptualize the conflicts between marine conservation, the management of marine resources, and the role of the general community in the process
- Apply field methods and teamwork skills
- Communicate issues at an academic and local community level
- Design and implement a group scientific project, analyse and evaluate the results in the context of relevant scientific literature, and produce a document of publishable standard

Assessment tasks

- Management assessment
- 100 word summary
- Group methods and results
- 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

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

Assessment tasks

- Management assessment
- 100 word summary
- Group methods and results
- Final paper

Changes from Previous Offering

The science communication assessment has been replaced with a simpler 100-word summary assessment.

The snorkel assessment has been added as a hurdle assessment.

Changes since First Published

Date	Description
13/02/2019	Added text: Please note that this unit, when co-taught with BIOL773, requires a minimum number of enrolled students to run and has a maximum number which is dependent on resource limitations.