CONFIDENTIAL

REPORT OF THE INDEPENDENT EXTERNAL RESEARCH MISCONDUCT INQUIRY: DR OONA LÖNNSTEDT

Submitted to the Vice-Chancellor,
James Cook University
June 2020

Panel:
Emeritus Professor Alan Rix (chair)
Professor Bronwyn Gillanders
The Hon. Geoff Giudice AO
Emeritus Professor Tony Underwood

[page left blank]

REPORT OF THE INDEPENDENT EXTERNAL RESEARCH MISCONDUCT INQUIRY: DR OONA LÖNNSTEDT June 2020

Executive Summary

[ES1] This is the report of an Independent External Research Misconduct Inquiry Panel ("Panel") established by the Vice Chancellor of James Cook University ("JCU") on 12 December 2019. The Panel is constituted under clause 10.2.1 of the James Cook University Code for the Responsible Conduct of Research ("Research Code"). The Panel's Terms of Reference are set out in Appendix 1 of the Report.

[ES2] The Panel was established following a preliminary inquiry by JCU into the PhD and associated research conducted by Dr Oona Lönnstedt between 2010 and 2013. This followed questions raised by external parties, including an academic journal, and a research misconduct finding against Dr Lönnstedt in Sweden. The Panel did not enquire further into those matters, but focussed on "potential issues" raised by the University as a result of its own internal investigation. Although no formal allegations of research misconduct were made against Dr Lönnstedt by the University, the Panel considered the issues raised, in the light of the definition of research misconduct set out in Clause 9.1 of the Research Code (see paragraph [7] of the Report).

[ES3] A hearing took place in Townsville on 28-29 January 2020 involving a number of witnesses and some statements submitted by email. The Panel also sought and received evidence from Dr Lönnstedt, her former supervisor and supervisor/head of school, some co-authors, senior JCU executives and its Graduate Research School, and staff at the Lizard Island Research Station. Additional material had already been brought together by the University or was obtained in follow-up enquiries.

[ES4] As a result, a large body of documentation concerning Dr Lönnstedt's candidature and research activities, ethics applications, published papers and associated data, witness statements and exhibits etc, was available to the Panel, both at the hearings and in the period thereafter as the Panel considered the evidence. The Panel also benefitted from the advice of and submissions from Counsel Assisting the Panel, and submissions both from Counsel for the University and from the University itself.

[ES5] The series of potential issues arising from Dr Lönnstedt's research which were raised by JCU related to (i) animal ethics, (ii) data mismatches and (iii) data availability. The Panel considered specific matters raised under these three categories.

[ES6] The Panel found that in each of the three potential issue areas highlighted by JCU in its preliminary investigation (animal ethics, data mismatches and data availability), problems of research practice have been identified, but none that constitute "misconduct" as defined in the Research Code:

i. there were undoubtedly a number of breaches of the Research Code by Dr Lönnstedt arising from not properly observing the timing and conditions of animal ethics approvals. These breaches do not, of themselves, constitute misconduct;
ii. inadequate reporting of data has been identified in a number of papers, but the Panel considers that this reflects on professional standards rather than misconduct;
iii. the Research Code was also breached because Dr Lönnstedt and her supervisor did not ensure that her data was properly lodged and secured upon completion of the PhD. Separately, data for Dr Lönnstedt's papers published from her PhD were not uploaded onto JCU's open access Tropical Data Hub until 2018. Again, this suggests poor practice but not misconduct.

[ES7] The Panel, following the definitions contained in the Research Code, sees no need to pursue the breaches of the Code further, as there is no evidence in those breaches of "intent and deliberation, recklessness or gross and persistent negligence" on the part of Dr Lönnstedt, her supervisor(s) or co-authors.

[ES8] The Panel therefore determines that there are no grounds for a finding of research misconduct against Dr Lönnstedt or any other person.

Introduction

[1] This is the report of an Independent External Research Misconduct Inquiry Panel ("Panel") established by the Vice Chancellor of James Cook University ("JCU"), Professor Sandra Harding AO, on 12 December 2019. The Panel is constituted under clause 10.2.1 of the James Cook University Code for the Responsible Conduct of Research (" Research Code" or "Code"). A hearing took place in Townsville on 28 and 29 January involving a number of witnesses and some statements submitted by email. The Panel was greatly assisted on that occasion and has been since by Counsel Assisting, Ms Karen Carmody of the Queensland Bar. The University was represented by Mr Simon Grant, also of the Queensland Bar.

Background and Context

[2] The background to and reasons for the establishment of the Panel are as follows. Dr Oona Lönnstedt is a former PhD student and part-time staff member at JCU. She was awarded a doctorate by JCU on 10 July 2014. Sometime in late 2017 or early 2018 the Provost and Deputy Vice-Chancellor (Research and Innovation) at JCU, Professor Cocklin, initiated a preliminary investigation into the possibility that Dr Lönnstedt had been guilty of research misconduct while at JCU. In February 2018 Professor Cocklin received the outcome of the preliminary investigation.[1] On 28 March 2018 he formally advised the Vice Chancellor that in his opinion there was a *prima facie* case of research misconduct involving Dr Lönnstedt and that an independent external research misconduct inquiry should be established.[2] In providing that advice Professor Cocklin was acting as a designated person under s.9.3.2 of the Research Code.

[3] The Vice Chancellor established the Panel on 12 December 2019. As we have noted above, it is not clear exactly when she made the decision that a Panel should be established. That decision triggered an obligation to inform Dr Lönnstedt of the decision, as we explain below.

[4] Professor Cocklin's advice to the Vice Chancellor of 28 March 2018 explained the circumstances which had led to the preliminary investigation. First, it was noted that on 7 December 2017 Dr Lönnstedt and a fellow researcher had been found to have committed research misconduct while employed at the University of Uppsala, it being found that they had intentionally fabricated data. Secondly, it was noted that JCU had received (in early March 2018) "at least two communications" from parties external to JCU (a researcher from each of Uppsala University and the University of Saskatchewan) "raising concerns about the accuracy and/or completeness of research data underpinning a number of papers by Dr Lönnstedt (as the lead author) and requesting access to the metadata and 'evidence that all these trials took place.'" Thirdly, the journal *Biology Letters* had expressed concern (in February 2018) about a paper co-authored by Dr Lönnstedt and was undertaking an investigation. We comment further on these matters later.

[1] "Summary of potential issues regarding the research conducted by Oona Lönnstedt at James Cook University", 12 February 2018, Terms of Reference, Document 002, Attachment at pp.4-12. This document, and others cited below and referred to in Appendix 5, were collated for JCU and made available to all parties.
[2] Terms of Reference, Document 002

The Panel's Terms of Reference

[5] It is important to set out some of the formal Terms of Reference for the Panel (the full Terms of Reference are reproduced in Appendix 1).[3] Under the heading "The Panel's Tasks" the following appears:

> "The Panel has been convened to conduct an inquiry as to the alleged breaches of the Research Code. The purpose of the inquiry is to make findings of fact, to assess whether a breach of the Research Code has occurred and if so the extent of the breach and recommended actions.
>
> The Panel is required to:
>
> 1. Inquire into the following matters:
>
> a. whether any conduct by Dr Lönnstedt, as alleged in Attachment 1, amounts to research misconduct or is otherwise a breach of the Research Code;
> b. whether any conduct by any University staff member, in connection with the matters alleged in Attachment 1, amounts to research misconduct or is otherwise a breach of the Research Code;
> c. any matter reasonably incidental to the matters raised in 1(a)-(b).
>
> 2. Prepare a report subsequent to the inquiry which details:
>
> a. The Panel's findings of fact and associated reasoning;
> b. the steps the Panel took to reach its findings of fact (e.g. interviewing witnesses, obtaining documents, etc.);
> c. what documents, statements or other evidence the Panel took into account to support its findings;
> d. the Panel's recommendations on whether:
>
> i the allegations should be dismissed; or
> ii there has been a breach of the research Code , but not an instance of research misconduct; or
> iii there has been a case of research misconduct.
>
> 3. Provide its report, and recommendations, to the Vice Chancellor, by no later than 28 February 2020, or such other date as is agreed with the university."

[6] The document referred to as Attachment 1 is Professor Cocklin's advice to the Vice Chancellor of 28 March 2018.

The Research Code

[7] As we have indicated, the Panel is established pursuant to clause 10.2.1 of the Research Code.[4] That clause is found in Part B of the Research Code which is headed "Breaches of the Code, Research Misconduct, and the Framework for Resolving Allegations." Section 9.1 is

[3] Terms of Reference, Document 001
[4] Terms of Reference Document 003

headed "Basic Concepts". It sets out what constitutes a breach of the Research Code, what constitutes research misconduct and distinguishes between the two. It should be set out in full.

> ***9.1 Basic concepts***
> In this Part B, 'Breaches of the Code' are specific actions or omissions that lack the seriousness of consequence or wilfulness to constitute research misconduct.
> Such breaches can be remedied by counselling or advice. Their repetition or continuation may, however, lead to more serious consequences and may constitute research misconduct.
> 'Research misconduct' involves serious breaches of the Code that are sufficiently substantial to warrant formal allegation, investigation and denial or admission.
> If proven, such misconduct may lead the Vice-Chancellor to believe that disciplinary action is required. This action will be in accordance with the "Misconduct or Serious Misconduct" provisions of the Union Collective Agreement.
> A complaint or allegation relates to research misconduct if it involves all of the following:
> - an alleged breach of this Code;
> - intent and deliberation, recklessness or gross and persistent negligence;
> - serious consequences, such as false information on the public record, or adverse effects on research participants, animals or the environment.
>
> Research misconduct includes fabrication, falsification, plagiarism or deception in proposing, carrying out or reporting the results of research, and failure to declare or manage a serious conflict of interest. It includes avoidable failure to follow research proposals as approved by a research ethics committee, particularly where this failure may result in unreasonable risk or harm to humans, animals or the environment. It also includes the wilful concealment or facilitation of research misconduct by others.
> Repeated or continuing breaches of this Code may also constitute research misconduct, and do so where these have been the subject of previous counselling or specific direction.
> Research misconduct does not include honest differences in judgment in management of the research project, and may not include honest errors that are minor or unintentional.

[8] It is worth emphasising that according to these provisions research misconduct "involves serious breaches of the Code that are sufficiently substantial to warrant formal allegation, investigation and denial or admission." The importance of formal allegations is further evidenced by Section 9.4 of the Research Code which reads in part:

> "The allegation of research misconduct must be stated clearly in writing [and] the person facing the allegation has a right to be heard . . ."

[9] Section 10 of the Research Code deals with the framework for resolving allegations. It provides that where a preliminary investigation of an allegation of research misconduct leads to a prima facie finding and the Vice Chancellor decides that there should be a research misconduct inquiry, the Vice Chancellor must decide whether to constitute an internal institutional misconduct inquiry or an independent external misconduct inquiry. Section 10.2.1 of the Research Code deals with the Vice-Chancellor's role in these terms:

> "10.2 The Research Misconduct Inquiry
>
> 10.2.1 The decision by the Vice-Chancellor
> The decision taken by the Vice-Chancellor on the advice of the Senior Deputy Vice-Chancellor must be notified in writing to those making the allegation, the person who is the subject of the allegation, the Senior Deputy Vice-Chancellor and any other parties as required . . .
> In making the decision to proceed to an inquiry, and if so, whether the inquiry should be conducted internally or externally, the Vice Chancellor should consider the gravity of the allegation, the potential consequences of the allegation being upheld, and the need to maintain public confidence in research. In

> the event that these are likely to be serious, the Vice-Chancellor should establish an external research misconduct inquiry."

[10] We note that the requirement in 10.2.1 that the person who is the subject of the allegations is to be notified of the Vice Chancellor's decision appears not to have been complied with in this case. There was no communication with Dr Lönnstedt until 24 December 2019 when an email was sent to her indicating the date on which the Panel would convene in Townsville. Leaving that issue aside, it is apparent that the focus of these provisions is the existence of a formal written allegation or allegations of research misconduct. Furthermore the respondent, for want of a better word, is to be informed of the allegation(s) and given the opportunity to respond.

The "allegations"

[11] As appears from the passage from clause 9.1 of the Research Code set out above, research misconduct involves three elements, all of which must be present:

- an alleged breach of the Code;
- intent and deliberation, recklessness or gross and persistent negligence;
- serious consequences such as false information on the public record, or adverse effects on research participants, animals or the environment.

[12] The allegations against Dr Lönnstedt are at best vague and at worst non-existent. There are two potential sources for allegations. The first source is an enclosure to Professor Cocklin's report to the Vice Chancellor headed "Summary of potential issues regarding the research conducted by Oona Lönnstedt at James Cook University" (Summary of Potential Issues Document).[5] This document was attached to Professor Cocklin's advice and is reproduced in this report. The second source for the allegations is the submissions made to the Panel by JCU dated 13 January 2020. Of these two the more relevant is the Summary of Potential Issues Document.

[13] The first thing to note is that, as evidenced by its title, the Summary of Potential Issues Document does not make any formal allegations but rather raises potential issues. It is in three sections headed:

> (1) Animal Ethics,
> (2) Data mismatches, and
> (3) Data availability.

[14] The first section, that dealing with animal ethics permits, is concerned with whether various pieces of research were conducted pursuant to proper JCU animal ethics permits. There is a JCU requirement, in line with the Australian Code for the Responsible Conduct of Research and the Australian Code of Practice for the Care and Use of Animals for Scientific Purposes, that animal ethics permits be obtained for all research involving animals, including fish. The preamble to the document reads:

[5] Terms of Reference Document 002, pp.4-12

> "Several papers/PhD chapters quote ethics approvals that do not seem to fully cover the research described in that paper/Chapter. It is possible that ethics permits have been amended or that records currently in the file are incomplete."

The document then goes on to list anomalies in permits in relation to particular pieces of research. We deal with these pieces of research later but at this stage it should be noted that this section does not make any specific allegations of research misconduct of the kind contemplated by the Research Code.

[15] The second section of the Summary of Potential Issues Document – (2) Data mismatches – is in three sub-sections headed respectively:

> 2.1 Differences in sample size between Lizard Island records and records in papers/chapters;
> 2.2 Species not recorded in Lizard Island records; and
> 2.3 Dates of field work.

[16] By way of explanation, the Lizard Island Research Facility (LIRF) is used by many JCU research staff to conduct field experiments. The facility itself is owned and operated by the Australian Museum. We deal with LIRF in more detail later. In relation to the first two subsections, there is no allegation that it was mandatory for researchers using the Lizard Island facility to scrupulously enter records of all of the fish taken at the end of each trip. Furthermore counsel for JCU indicated that there was no such obligation at the relevant time.[6] In the circumstances it is difficult to discern an allegation of research misconduct from the material provided – no University witness suggested any. In relation to the third subsection, this was conceded by JCU during the Inquiry to be based on an error. The Summary of Potential Issues Document stated there was no record of Dr Lönnstedt being at Lizard Island when particular research was said to have been carried out. Dr Lönnstedt stated that the field work in question was not carried out at Lizard Island but at North West Island. This was accepted by JCU.[7]

[17] The third section of the Summary of Potential Issues Document indicates that data for several papers and PhD chapters are not available publicly. Since the Document was prepared, all of the data has been uploaded to the internet and are publicly available on JCU's Tropical Data Hub. In its submission to the Panel in January 2020 JCU noted that all of the data had now been uploaded and did not take the matter further. In the circumstances there is no allegation in relation to missing data.

[18] The Panel is faced with an unsatisfactory state of affairs. There are no formal allegations of research misconduct as required under the Code, despite the University's submissions to the Panel to the contrary. We are tasked, however, with broad terms of reference which require us to inquire whether the Code has been breached by Dr Lönnstedt or any other JCU staff member and whether, if we find a breach or breaches has occurred, they amount to research misconduct. Arguably the Research Code does not permit the establishment of an Independent External Research Misconduct Panel with such unconfined powers. Nevertheless we think it

[6] Submissions, JCU Submission, para.9.2
[7] Transcripts, Emeritus Professor Marsh, 29 January 2020, oral evidence transcript p.5

appropriate that we record our views on the substance of the matters that have been raised in the Summary of Potential Issues Document and some reasonably incidental matters.

FINDINGS OF THE PANEL

[19] At the outset, the Panel wishes to comment briefly on the three matters which led Professor Cocklin to commission the preliminary investigation. These are outlined in paragraph 4 above. The finding in Sweden of research misconduct while Dr Lönnstedt was at Uppsala University is not something that the Panel has looked further into, or considered, and it is not something which has influenced the deliberations or findings of the Panel. The second issue related to requests from a staff member from each of the Universities of Uppsala and Saskatchewan for access to data from some of Dr Lönnstedt's papers – these requests have, with the uploading of the data to the Tropical Data Hub in 2018, been remedied. The third matter was the investigation by the journal Biology Letters into the Lönnstedt *et al* paper published in that journal in 2014. Subsequent to the Cocklin referral, Biology Letters concluded that there was no case to answer, no misconduct had occurred and no further action has been taken by the journal.[8]

[20] The Panel will therefore only deal with the three sections of the "Summary of Potential Issues Document", addressing each of the potential issues that have been identified.

Animal ethics

[21] Section 1 on "Animal Ethics" in the "Summary" states as follows:

> Several papers/PhD Chapters quote JCU ethics approvals that do not seem to fully cover the research described in that paper/Chapter. It is possible that ethics permits have been amended or that records currently in the file are incomplete. In detail, the papers are:
>
> **(a) Lönnstedt OM and McCormick MI. 2011. Growth history and intrinsic factors influence risk assessment at a critical life transition for a fish. Coral Reefs, 30 (3). AND Honours thesis, Chapter 2.**
>
> Ethic A1067 (quoted in paper, none quoted in thesis) does not seem to cover *Apogon cyanosoma* (which is listed in the paper as the control species). A1067 covers a different Apogonidae (*Cheilodipterus quinquelineatus*).
>
> **(b) Lönnstedt OM and McCormick MI. 2013. Ultimate predators: lionfish have evolved to circumvent prey risk assessment abilities. PLoS ONE, 8 (10) ALSO PhD thesis Chapter 4**
> Ethics permit A1593 is mentioned in Chapter 4 of the thesis (no ethics permit mentioned in paper). However, A1593 does not cover *Dendrochirus zebra* or *Pterois volitans*. Only ethics permit that includes O. Lönnstedt and any lionfish species is A2080, which was approved 05/08/2014. The field work for this paper and Chapter 4 was conducted in September – December 2012. A2080 also only allows for 15 *D. zebra* and 15 *P. volitans* to be collected – the paper and thesis Chapter mention n=32.
>
> **(c) Lönnstedt OM, Ferrari MCO, Chivers DP. 2014. Lionfish predators use flared fin displays to initiate cooperative hunting. Biology Letters 10.**
> Ethics permit A1593 is mentioned in the paper. However, A1593 seems to be for a different project. The permit does not cover *Dendrochirus zebra*, *Apogon doerderlini* or *Pterois antennata*. Described

[8] Biology Letters 15: 20190766. "Correction to "Lionfish predators use flared fin displays to initiate cooperative hunting'": "…we are satisfied with the findings of the independent expert that no misconduct was involved in the experimental work or its reporting in the article." See JCU Bundle 2, Document 9.10

methodology in A1593 is different from what is mentioned in the paper. An editor from Biology Letters asked JCU about the ethics approvals for this research. In the reply, JCU referred to College of Science and Engineering (Marine Science) Blanket Permits G10/33239.1 and G13/35909.1 (see email trail Langford in response to Biology Letters request) and McCormick mentions G09/29995.1 in his application for A1593. However, these are GBRMPA permits and not ethics approvals. The only ethics permit that was available that includes O. Lönnstedt and any lionfish species is A2080, which was approved 05/08/2014. The field work for this paper was conducted in August – December 2012. A2080 also allows for only 15 *D. zebra* and 15 *P. volitans* to be collected – the paper indicates n=32.

(d) Lönnstedt OM; McCormick MI and Chivers DP. 2013. Predator-induced changes in the growth of eyes and false eyespots. Scientific Reports 3, 2259 ALSO PhD Chapter 3
And

(e) Lönnstedt OM; Munday PL; McCormick MI; Ferrari MCO and Chivers DP. 2013. Ocean acidification and responses to predators: can sensory redundancy reduce the apparent impacts of elevated CO2 on fish? Ecology and Evolution 3 (10). ALSO Chapter 6
And

(f) Lönnstedt OM; McCormick MI and Chivers DP. 2013. Degraded environments alter prey risk assessment. Ecology and Evolution 3 (1) ALSO Chapter 5
And

(g) Lönnstedt, O; McCormick, M; Chivers, D; Ferrari, M. 2014. Habitat degradation is threatening reef replenishment by making fish fearless. Journal of Animal Ecology, 83 (5)
Ethics permits A1593 and A1720 are mentioned in the paper and Chapter 4 (none mentioned in Chapters 5 and 6). However, *Amblygobius phalanea* (which is a herbivorous goby, used as control in (d), (e), and (f)) does not seem to be covered by either approval. *Apogon doederleini* (used as a control in (f) and (g) also does not seem to be covered by either approval.
Field work for this work was conducted between 29/09/2010 – 03/01/2011 (see Lizard Island Research Station records). A1593 wasn't approved until 12/10/2010; A1720 wasn't approved until 10/10/2011.

(h) Lönnstedt, Oona M., and Frisch, Ashley J. 2014. Habitat bleaching disrupts threat responses and persistence in anemonefish. Marine Ecology Progress Series, 517.
Ethics permit A1593 is mentioned in the paper. However, different species of Amphiprion and Cephalophalis are mentioned on the ethics permit rather than the species mentioned in the paper (which are *Amphiprion akindynos* and *Cephalophalis cyanostigma*).

[22] The issues identified here relate to inconsistencies between the Ethics Approval ("EA") apparently in place for the research, and

(i) the type of fish species collected,
(ii) the number of particular species taken,
(iii) the dates during which fieldwork was undertaken, and
(iv) the failure to identify the relevant EA in a paper or chapter.

[23] In relation to (i) and (ii) it would appear that there are inconsistencies between the number and the types of fish species collected during fieldwork. Dr Lönnstedt, in her submission to the panel, accepts misidentifying the species in relation to items (a), (c) and (d) - (g) above.[9] Other witnesses emphasised that, for example, identification of apogonid species as juveniles is difficult.[10]

[9] Exhibits 1 and 2
[10] Transcripts, Professor Munday oral evidence, 28 January 2020 and transcript, p.10 of 19; Witness Statements, McCormick response to Professor Gordon 5 September 2018, p.3

[24] The main lapse in relation to species collected would appear to be in relation to lionfish (Scorpaenidae spp). As indicated, only EA 2080 provided for collection of lionfish by Ms Lönnstedt, and that was approved on 5 August 2014, nearly two years after the research fieldwork and experiments were undertaken.[11] The fieldwork was conducted in late 2012 at LIRS, and Chapter 4 makes clear that lionfish and brown rock cod were collected on the reefs and brought back to the research station[12]. Both Chapter 4 (p.47) and the resulting paper (#7 p.5) cite A1593, although Dr Lönnstedt in her response to the Panel[13] claims ethics approval for Chapter 4 through Dr McCormick being named on A1829. But in late 2012 Dr McCormick was not Dr Lönnstedt's supervisor, so any "approval by default" through a supervisor was not possible, and all research investigators had to be included on ethics applications. In any case, of the 14 species proposed to be targeted under A1593, lionfish were not included.

[25] A1593 deals with predator-prey interactions, so it is the appropriate EA for Paper #7 on ultimate predators. But the Biology Letters paper (#9) deals with predator behaviour, which is presumably why the Summary of Issues Document notes that "A1593 seems to be for a different paper"[14]. Dr Lönnstedt's explanation is that she was working with another PhD student who held A1829, "and we decided to split the papers as he had his own PhD to undertake…it was only later that I realised I wasn't directly named on A1829 (but I got my name put on the next version of the same permit A2248)."[15] This permit A2248 was approved on 9 December 2015, but was for a different project (interactions between predators) from those published in Papers #7, 9 and 12. It could be assumed that the lionfish collected were also shared or "split".

[26] It may be that Dr Lönnstedt at the time was confused as to which applications covered which projects (there were many projects, with different collaborators), and on which applications she was listed. Nonetheless, fieldwork was conducted in late 2012, allegedly under an EA that did not include one of the key taxa (Scorpaenidae spp, lionfish) used in the project. This key taxon appears to have been collected under a separate EA held by another student. None of the three resulting publications on lionfish behaviour (#7, 9, 12) cited an EA on which lionfish had been approved for collection.

[27] In relation to (iii), it is clear that there were some instances of fieldwork being done outside the dates specified in the EA-specified dates. The fieldwork for a number of papers (Papers #3, 4, 5, 6 and 8) was conducted within the period between September 2010 and January 2011, and EAs 1593 and/or 1720 are cited. A1593 was not approved until 12 October 2010 (with Dr Lönnstedt approved to start on 1 January 2011) and A1720 was not approved until 10 October 2011 (with a 1 November 2011 start date) – both of them after the relevant fieldwork had commenced.

[28] Indeed, it appears to be the case that, except for Chapter 4, the fieldwork for the whole of the thesis was started and/or conducted prior to the formal project commencement date on

[11] JCU Bundle 2, Document 14

[12] PhD thesis p.46, see JCU Bundle 1, Document 19. For LIRS records see JCU Bundle 2, Documents 20.2 and 20.3

[13] Exhibit 2, p.2

[14] Terms of Reference, Document 2, p.4

[15] Exhibit 2, p.2

the ethics approval (A1593). For Chapter 4, however, there was no approval in place for the collection of the fish species that were to be the focus of the research.

[29] One could argue that undertaking the fieldwork in the peak spring/summer period when the ethics approval had been approved but before the formal start date was a matter of good planning and project management, to get in early and get finished, in the knowledge that approval had been or would soon be granted. Indeed, Dr McCormick indicates (see below) that later changes to the animal ethics guidelines do allow this. It does not, however, negate the fact that, at the time, the fieldwork was done outside the approved timeframe.

[30] In relation to (iv) the failure to identify the relevant EA in a paper or chapter, the Panel has confirmed that several chapters in the Honours and PhD theses make no reference to EAs, and two papers (#3 and #12) also omit this information.[16] Specifically, there are no references to EAs at all in the honours thesis, but the paper that emerged from Chapter 2 of that thesis (#2) does reference EA1067. Several chapters in the PhD thesis do not refer to EAs, but of Papers #3-7 that were published from the thesis, only Paper #3 omits any reference to an EA, but it does say "undertaken under JCU animal ethics guidelines".[17]

[31] Approval conditions in relation to work for Paper #11 (item (h) in para. 21 above) will be discussed further in para. 45 below. In general, the use and citation of ethics approval A1593 for that project (on habitat bleaching) was inappropriate.

[32] Neither the Honours thesis nor the PhD contain any general statement on or details of the ethics approvals, GBRMPA and other permits, or research station protocols that were necessary for the research to be carried out. It is difficult, therefore, to understand the broad ethics approval context in which the research was conducted.

[33] Dr Lönnstedt has acknowledged that there were errors in relation to which permits she was listed on and when, and some rectifications were apparently made on several occasions in EA amendments or replacement EAs.[18] However, such amendments do not allow retroactive approvals for work previously undertaken outside the specifications of the permit.

[34] In conclusion, in relation to the issues raised in the first part of the "Summary" document, it appears that there were a series of errors and omissions by Dr Lönnstedt (and indeed her co-authors) in relation to the Animal Ethics guidelines, specifically in relation to the conditions and timing of ethics approvals. These must all be classed as "breaches" under the JCU Research Code.

[35] It is also important to consider the general context of the operation of the animal ethics procedures at the time, as referred to both by witnesses and other submitted documentation.[19] A number of witnesses and documents argue that the animal ethics processes were less well-

[16] JCU Bundle 1, Document 019, PhD thesis; JCU Bundle 2, Document 1, Honours thesis; for published papers, JCU Bundle 2, Documents 2-18
[17] Two papers (#8 and #10) erroneously cite "A5193" rather than "A1593"
[18] Exhibit 2
[19] Dr McCormick statement, Exhibit 5, pp.2-3; Witness Statements, McCormick response to Professor Gordon, 5 September 2018, p.3

organised than they are now, with the requirement for numerous amendments and repeat documentation for minor changes to the research arrangements. Certainly the paperwork can appear confusing.

[36] Dr McCormick stated to Professor Gordon in September 2018 as follows:

> The system at the time involved filling out a comprehensive animal ethics proforma, where methodology and theory were given and often intertwined. If one was successful with an ARC grant for instance, it was typical to simply cut and paste the main body of the text into the form. I didn't realise until recently that one did not have to list species, but could put down the family if there was any doubt about which species may be used in the actual study (e.g., based on temporally unpredictable availability of juveniles). These approvals could be given for up to 3 years, but could be amended as often as necessary. Prior to the end of the approved period, the approval could then be rolled over with a renewal, which often expanded and updated protocols and added species. This could occur multiple times. Species were originally listed on the form, but later where itemised in an Excel spreadsheet (not on the form, so easily lost or overwritten). Upon initial approval, renewal and/or amendment, a one-page approval would be sent to the people on the permit with the number, title and the signature of the ethics board. This page did not list the species involved, protocols, locations or numbers of animals. It was these one-page approvals were given to the Directors of various research stations (e.g. Lizard Island) at the start of a research trip. This means that approvals had their own history (multiple renewals and amendments), which was largely unknown to anyone but the original applicant. For example, one of my earliest permits was one on 'Chemical Alarm Odours', which I have a draft of dated 1 May 2002. This was approved as A737 and was renewed as A1067, A1593, and then A2005 every three years, with multiple amendments each year. If the documents were put together associated with the rolling approval it would be well over 100 pages long. One can easily see that it could be: a) difficult to be across the details, even with the best of intentions, and b) easy to make rolling mistakes (e.g., approval AXXX covers that project, so must also cover this project).
> Since then, in late 2016, the JCU animal ethics procedures were substantially modified to focus more on protocol statements (Standard Operating Procedures), and taxa vulnerability groupings (e.g. vulnerable, rare, commonplace). They can no longer be renewed or rolled over, although they can be amended as often as necessary. There is also a retrospective animal ethics policy. This has dramatically improved not only the application process, but makes it much easier for researchers to know what is embodied in an approval, and improved the audit process.[20]

[37] Professor Kingsford, in his oral evidence, stated that there was a lack of alignment between approvals and who was covered, and that the McCormick group had many students working on overlapping projects. He suggested that the animal ethics process was more concerned with the number of fish to be euthanased, not the number collected.[21]

[20] Witness Statements, McCormick response to Professor Gordon, 5 September 2018, p.3
[21] Transcripts, Professor Kingsford oral evidence, 28 January 2020, notes taken by Panel Chair and transcript p.4

[38] A research group like Dr McCormick's had multiple researchers and students on multiple EA permits, and personnel changed regularly. Dr Lönnstedt argues in her response that

> With respect to ethics permits I'm probably not the best person to ask as it's a really confusing and convoluted process with problems associated with renewals and amendments (when added together some are over 100 pages long). Professor Mark McCormick was the head of the laboratory I was a part of (the Fish Ecology Laboratory), and he has a better understanding of the different ethics permits. There are so many amendments and multiple renewals (not protocol based) with each individual permit that I think only he can answer your questions (but I have tried explaining all the different ethics used in my responses). If JCU had offered a course in animal ethics processes and ethics permitting during my time as a student that would have cleared things up, but this wasn't offered back then.[22]

[39] Professor Marsh disagreed about training opportunities, and stated in her interview that:

> First one is that is about research integrity training that was certainly compulsory at James Cook University and I note that both the confirmation of candidature documents, which is number 12. If you look at page 5, point 3, at the confirmation of candidature there was a check as to whether the candidate had done such training and it was reported that she had and it was and is a requirement of confirmation of candidature. So I guess I dispute that statement that's made.[23]

[40] Dr McCormick has further submitted that:

> To my knowledge and the recollection of the many research staff, past and present post-graduate students, and current head of the ethics committee….. there has never been a course at JCU on the history, importance, legal structure and laws, University and research obligations associated with Animal Ethics. At no stage was I, or any of my students trained in the processes and obligations associated with animal ethics, or any other research permitting system. Knowledge of the process associated with animal ethics was through researcher-to-researcher discussions, with specific clarifications from the animal ethics committee as they commented on specific animal ethics proposals. Successful applications were used as blue prints for how to do subsequent applications.[24]

Dr McCormick goes on to say that:

> To summarize, animal ethics at JCU have changed substantially over the years to account for changes more generally within scientific disciplines. JCU has not been at the forefront of animal ethics policy and there has been a history of poor communication of

[22] Exhibit 1, Dr Lönnstedt letter to Panel, 27 January 2020, p.1
[23] Transcripts, Emeritus Professor Marsh, 29 January 2020, transcript, p.5 of 10.
[24] Exhibit 5, Dr McCormick, 26 January 2020, p.3 of 9

> the requirements, procedures, protocols and logic of the animal ethics process to the students and staff at JCU.[25]

[41] Evidence provided by the University, however, makes it clear that there was a Research Skills training program for research students in place in 2010. At the time Dr Lönnstedt commenced her PhD in June 2010, the University required all PhD candidates to attend Research Conduct & Ethics Training. A copy of the Research Skills Handbook from 2010 stated the following in respect of Research Conduct & Ethics Training (page 12):

> *Responsible Conduct of Research is a compulsory workshop for ALL postgraduates, whether you require ethics approval or not, to understand ethical responsibilities in dealing with supervisors, fellow researchers and data and with maintaining an ethical research workplace. The Australian Code for the Responsible Conduct of Research (2007) states that responsible research should be encouraged and guided by the research culture of the University. These workshops introduce postgraduate students to the culture of responsible research and the ethical conduct of research projects. The presentations will outline the principles of research conduct and the key issues in the ethical conduct of research involving fellow researchers, supervisors, human participants or the scientific use of animals. The workshops will also offer advice on how to prepare and submit ethics applications and explain the processes of the University's ethics committees. Ethical issues affecting research students will be explored through group discussions of scenarios based on real-life ethical dilemmas. This knowledge is essential for all trainee researchers wishing to comply with the national code of conduct and research ethics.*

[42] The training program schedule indicates that a session (although not a full course as such) would have been available to Dr Lönnstedt on 29 September 2010, incorporating amongst other things a 45-minute session on animal ethics and a similar session on the responsible conduct of research. The slides for the latter session pay particular attention to the importance of data retention and storage.[26]

Data mismatches

[43] Section 2 on "Data Mismatches" in the Summary of Potential Issues states as follows:

> **2.1 Differences in sample sizes between Lizard Island records and records in papers/chapters**
>
> **2.1.1 *Dendrochirus zebra***
> There have been reports (see email trail from Dr A. Hoggett, Director of Lizard Island Research Station) that the number of lionfish (*Dendrochirus zebra*) reported in two publications and one PhD Chapter (n=32 and n=36, respectively, see details under (a) and (b) below) do not match with the number recorded by the Lizard Island Research Station (n=12 recorded in the
> Lizard Island Field Guide). A. Hoggett suggests contacting Lönnstedt's research assistants (contact details on file) to clarify number of *D. zebra* caught.

[25] Exhibits, Dr McCormick, Exhibit 5, p.3 of 9. Dr McCormick also stated his view about the lack of integrity training in his Response to Questions of 25 February 2020 (Panel Requests for Information)
[26] Panel Requests for Information, JCU letter 27 March 2020, Attachment 2, plus Attachment Ethics (Research Conduct) and Attachment Research Skills Handbook

Lönnstedt OM and McCormick MI. 2013. Ultimate predators: lionfish have evolved to circumvent prey risk assessment abilities. PLoS ONE, 8 (10) ALSO PhD thesis Chapter 4

Data available of JCU's Tropical Data Hub (downloaded and in file) indicate 32 *D. zebra* were used.

Lönnstedt OM, Ferrari MCO, Chivers DP. 2014. Lionfish predators use flared fin displays to initiate cooperative hunting. Biology Letters 10.

Data provided as supplementary data (downloaded and in file) indicate 36 *D. zebra* were used.

2.1.2 Pterois volitans

Lizard Island data records show that O. Lönnstedt reported 8 *P. volitans* (lionfish) from one site, ref 827 (Nov/Dec 2012) and ~5 *Pterois sp* from 3 sites, ref 799 (Aug/Sep 2012). Sample sizes for *P. volitans* reported in the data available on JCU's Tropical Data Hub for the publication below indicate n=32.

Lönnstedt OM and McCormick MI. 2013. Ultimate predators: lionfish have evolved to circumvent prey risk assessment abilities. PLoS ONE, 8 (10) ALSO PhD thesis Chapter 4

2.1.3 *Pterois antennata*

Lizard Island records show that O. Lönnstedt reported 3 *P. antennata* from one site (ref 827). Supplementary data available online show n=6 (in text) and n=10 (in supplementary file 007) in the publication below.

Lönnstedt OM, Ferrari MCO, Chivers DP. 2014. Lionfish predators use flared fin displays to initiate cooperative hunting. Biology Letters 10.

2.2 Species not recorded in Lizard Island records

Various species are mentioned in papers/Chapters but there are no records in the Lizard Island Research Station records that O. Lönnstedt has collected those species during one of her field trips. Email from Dr A. Hoggett mentions the following details:

> "The original data is on forms submitted by Oona at the end of three of the four main field trips for her PhD, scans attached:
> • 29 Sep 2010 to 3 Jan 2011 (ref 667)
> • 25 Aug to 22 Sep 2012 (ref 799)
> • 16 Nov to 20 Dec 2012 (ref 827)
> We don't have a form from Oona's other PhD trip, 25 Oct 2011 to 6 Jan 2012.
> Her trip in Jan-Mar 2013 was as an assistant to Ashley Frisch on a shark project. It's possible that she also did some of her own work on that trip but she didn't report any collecting to us. Her trip in Jun-Jul 2013 was an odd one. She and Justin Rizzari were both coming to LIRS as interns for about 3 months when they would both work on their PhDs as well as helping us. Oona came for about two weeks but Justin did not come. Oona was not able to do any field work without a dive buddy so she left. During the period of her PhD, Oona had two other trips on which she was nominally assisting other people (Mark McCormick, Yolly Bosiger). It's possible that she did some of her own work on those trips but if she did we have no record of any collections she made."

In detail, the Lizard Island records do not show any of the following species ever being collected by O. Lönnstedt during the following field trips:

(a) 29/09/2010-03/01/2011

Synodus dermatogenys (lizardfish) was used in Lönnstedt OM; McCormick MI; Meekan MG; Ferrari MCO and Chivers DP. 2012. Learn and live: predator experience and feeding history determines prey behaviour and survival. Proceedings of the Royal Society of London Series B, Biological Sciences, 279 (1736). ALSO PhD Chapter 2 as one of the two predators used in the experiments. Sample size is not specified.

Amblygobius phalanea (herbivorous goby) was used in Lönnstedt OM; McCormick MI and Chivers DP. 2013. Predator-induced changes in the growth of eyes and false eyespots. Scientific Reports 3, 2259 ALSO PhD Chapter 3 AND in Lönnstedt OM; McCormick MI and Chivers DP. 2013. Degraded environments alter prey risk assessment. Ecology and Evolution 3 (1) ALSO Chapter 5 as a control. Sample size is not specified.

Apogon doederleini (cardinalfish) was used in Lönnstedt OM; McCormick MI and Chivers DP. 2013. Degraded environments alter prey risk assessment. Ecology and Evolution 3 (1) ALSO Chapter 5 AND in Lönnstedt, O; McCormick, M; Chivers, D; Ferrari, M. 2014. Habitat degradation is threatening reef replenishment by making fish fearless. Journal of Animal Ecology, 83 (5) as a control. Sample size is not specified.

(b) 25/08/2012 - 22/09/2012, and 16/11/2012 - 20/12/2012

Chromis viridis was used in Lönnstedt OM and McCormick MI. 2013. Ultimate predators: lionfish have evolved to circumvent prey risk assessment abilities. PLoS ONE, 8 (10) ALSO PhD thesis Chapter 4 as a prey species. Sample size unknown.

Cephalopholis microprion (rock cod) was used in Lönnstedt OM, Ferrari MCO, Chivers DP. 2014. Lionfish predators use flared fin displays to initiate cooperative hunting. Biology Letters 10. Sample size n=10.

(c) 28/01/2013 - 1/03/2013; and 17/06/2013 - 2/07/2013

Amphiprion akindynos (n=60-180) and ***Cephalophalis cyanostigma*** (sample size unknown) were used in Lönnstedt, OM., and Frisch, AJ. 2014. Habitat bleaching disrupts threat responses and persistence in anemonefish. Marine Ecology Progress Series, 517.

2.3 Dates of field work

(a) Lönnstedt, Oona M., and Frisch, Ashley J. 2014. Habitat bleaching disrupts threat responses and persistence in anemonefish. Marine Ecology Progress Series, 517.
Paper states that field work was conducted in April/May 2013. Lizard Island Research Station records show that Lönnstedt was not at the station in April/May 2013, but from 28/01/2013 - 1/03/2013; and 17/06/2013 - 2/07/2013.

[44] The issues identified here relate to discrepancies in numbers and types of fish collected as recorded at LIRS and as published. There is also the problem of one period of fieldwork not having been recorded at LIRS.

[45] This latter issue "2.3 Dates of Field Work" has now been identified as an error on the part of JCU[27]: Dr Lönnstedt was undertaking fieldwork at North West Island, not LIRS, at the time identified. However, irrespective of that clarification, JCU has no records of Dr Lönnstedt undertaking fieldwork at North West Island, as the application for field trip ID 6770 mentioned Ashley Frisch (her co-author on the subsequent paper (#11), who had previously worked on anemone bleaching[28]) and two other postgraduate students, for fieldwork at North West Island between 10 April and 16 May 2013, on a project relating to "Apex predators on coral reefs", on which Frisch published later.

[46] Dr Frisch has confirmed that Dr Lönnstedt did undertake research at North West Island (in a "keen and diligent" fashion) during the field trip in April-May 2013, that he collaborated with her on the anemone bleaching project, and that "a makeshift laboratory with tables, shade-

[27] Transcripts, Emeritus Professor Marsh transcript, 29 January 2020, p.5
[28] See Google Scholar citations: https://scholar.google.com.au/citations?user=4pc5-ukAAAAJ&hl=en

covers, and a cluster of plastic boxes as temporary aquaria" was set up by Dr Lönnstedt on the island.[29]

[47] Let us now deal with the issues under "2.1 Differences in sample sizes", and consider the discrepancy between Lizard Island collection records and the evidence set out in chapters/papers. This raises the issue of the status and reliability of the LIRS records, which appear to be completed by researchers during or at the end of their fieldwork. A number of witnesses indicated that they were unaware of the status of these records, and had other comments about the reporting situation on Lizard Island. Dr McCormick's evidence sums up the situation as he and Dr Lönnstedt apparently saw it:

> I have been working at Lizard Island Research Station (LIRS) since 1986 and at no stage was the importance of completing the collection forms at the end of a research trip to Lizard Island research station made clear. Neither researchers nor my research students were ever told that the Lizard Island Directors used these as a permanent and important collection record. It was believed that they were internal documents that were used to tabulate the types of research projects undertaken, the types of chemicals used, the sites used and whether others should avoid collecting in these areas, and the types of animals researched. It was believed that this was simply for the production of their Australian Museum annual report.
>
> At times collection lists to Lizard Island may have been overlooked in the haste to clean and leave the island with a very large research group. At other times they could have been estimated by someone other than myself (e.g., research officer) as an approximate tabulation of what was used in research by the lab group. Ten or so years ago I usually gave my research assistant the task of tabulating these numbers for Lizard Island. If this record was forgotten to be given to the Directors prior to leaving, it was not followed up by the Directors after the trip, which subconsciously reinforced that it was unlikely to be an important document. In more recent years, since we have known of the importance of their documents, we have kept a running tally of animals used on one of the white boards in our main research lab so we can be as accurate as possible.[30]

[48] Professor Kingsford made the point that it was not mandatory to provide data to LIRS for its records unless it related to a permit held by the Island Research Station itself. He accepted that there may be data mismatches, but said that that does not mean that the fish were not caught or the research not conducted.[31] He thought that Dr Lönnstedt would have been seen by many people undertaking her research at the Island, given the "craziness" of the LIRS summer research period, by which the Panel understood that many students and researchers were working on the Island (where access was highly competitive) for long hours on a variety of projects over many days or weeks).

---

[29] Dr Ashley Frisch, email 14 April 2020 to Counsel Assisting. Dr Lönnstedt and Dr Frisch were also co-authors in 2016 with M. Finn for a paper on North West Island anemone bleaching, with fieldwork done in April-May 2013. Finn, Lönnstedt and Frisch were cited as contributing equally to that research (Marine Ecology vol.37 (3))

[30] Exhibits, Dr McCormick statement, Exhibit 5, 26 January 2020

[31] Witness Statements, Professor Kingsford witness statement, 27 January 2020, pp.11-13, and oral evidence 28 January transcript p.12

[49] Professor Munday was of the view that the LIRS records were kept to check on who was doing what, and that it was a "fairly casual" process.[32]

[50] Evidence from the Director of the LIRS indicated that researchers at the Station are asked to complete the "Research Sites and Collecting Form" on departure (a practice since around 2001), but not all researchers were asked to report catch numbers and species (for some it would not be feasible). "But for large organisms of which researchers know (or think they know) the species names – yes, we ask all researchers to provide that information".[33] Apparently most researchers comply but some need to be chased up. Researchers have to report to GBRMPA in due course also.

[51] Although it is not entirely clear from the evidence what the practices actually were in the period 2010-2013, it is the case that LIRS has long-standing procedures in place for inducting researchers and for encouraging them to report on departure. There are, however, no written protocols (and there appears to be no induction or reporting information on the LIRS website). The Report Form itself is given to researchers and explained at the time of induction. Inaccuracies or omissions in completing the records could be seen as administrative errors or lapses rather than mistakes in the research itself. A number of JCU academics clearly regarded the LIRS records in this way.

[52] In relation to the apparent discrepancy between the LIRS records during fieldwork, and the chapters/papers, Dr Lönnstedt maintains in her response to the Inquiry that the JCU interpretation of the data for the numbers of fish used are misinterpretations.[34]

[53] An analysis of these concerns 2.1.1 to 2.1.3 shows that they relate to the collection of certain species of lionfish, their presence/absence in LIRS records, and the numbers of fish represented in the catch records compared to the numbers apparently used in the research reported. The validity of these concerns hinges on (a) the status and reliability of LIRS records, and (b) the interpretation of the data in the chapters/papers.

[54] We have discussed the issue of LIRS records in paragraphs 47-52 above. The interpretation of the data associated with the two lionfish papers of which Dr Lönnstedt was the primary author (those papers on ultimate predators (#7) and flared fin displays (#9)) is an important issue. An analysis of the two papers and associated data was undertaken for this report by Emeritus Professor Tony Underwood on behalf of the Panel:

> I was asked to attempt to determine how many lionfish were used in experiments in two papers (as below). The lionfish are *Dendrochirus zebra*, *Pterois antennata* and *Pterois volitans.* For each paper, I have examined the numbers of fish listed or mentioned in the documents produced by JCU[35], in the reply [to the Panel] by Dr Lönnstedt[36] and in the actual papers, as listed below.

[32] Transcripts, Professor Munday oral evidence, 28 January 2020, transcript p.14.
[33] Panel Requests for Information, Dr Anne Hoggett AM, Director LIRS, 24 February 2020, p.1
[34] Exhibit 2
[35] See Documents 9 – 9.10 and 10 – 10.2 in JCU Bundle 2
[36] Exhibit 2

> In summary, for Paper #7 (Lönnstedt, O.M. & McCormick, M.I. (2013). Ultimate predators: lionfish have evolved to circumvent prey risk assessment abilities. *PLOS One* 8(10) e75781), a total of 196 - 222 lionfish of each of two species (*Dendrochirus zebra* and *Pterois volitans)* were needed. Fish were clearly being used repeatedly without any statement of how often or how many fish, so it is impossible to know how many lionfish were involved.
>
> For Paper #9 (Lönnstedt, O.M., Ferrari, M.C.O. & Chivers, D.P. (2014). Lionfish predators use flared fin displays to initiate cooperative hunting. *Biology Lette*rs 10: 20140281), a total of 134 - 174 fish of each of two species (*Dendrochirus zebra* and *Pterois antennata)* were needed. Fish were clearly being used repeatedly without any statement of how often or how many fish, so it is impossible to know how many lionfish were involved.

[55] Dr Lönnstedt does state that "many of us shared or borrowed fish between labs and experiments".[37] Professor Kingsford stated that he understood Ms Lönnstedt had used other students' fish.[38]

[56] The numbers of lionfish usages required in the experiments described in the two lionfish papers would appear to far exceed either the number of fish caught and recorded at LIRS or the number caught and recollected by Dr Lönnstedt. This suggests multiple re-use of lionfish caught either by Dr Lönnstedt or by other researchers. Such re-use does not appear to be mentioned in the published papers. Equally, it could be the case that the numbers of fish actually used were indeed smaller than as described in the Methods in the papers – it is just not made clear in sufficient detail.

[57] The Panel's view of the practice of re-use of fish in the experiments recorded in these papers is that we would expect the numbers of fish used in experiments to be described accurately in order to demonstrate the nature of the data, the validity of the statistical analyses and therefore the robustness of the conclusions. It is, however, difficult to give an absolute answer to this question because different researchers in different areas of ecology have different background understanding of why it matters. When animals are used more than once in experiments, at least two different problems can result (statistical non-independence and biological non-independence), which is why the actual numbers of animals and the nature of any re-use should be described.

[58] For statistical reasons, it is also important to advise about any re-use because it compromises analyses, and efforts should be made to identify what effects such re-use would have on any interpretations and conclusions. Not to state that animals were re-used and not to give the actual numbers is extremely misleading and should not happen. It is, nevertheless, the case that, in some fields, people have chosen not to care about it and it is also the case that the two papers we examined in detail were refereed by reputable journals.

[59] It is normal in ecological and biological publications for authors to describe what they did with sufficient care so that readers are not confused. Reviewers are supposed to note any issues that might compromise results and ask the authors to justify how they reached their

[37] Exhibit 1, Dr Lönnstedt letter, 27 January 2020, p.1 of 3
[38] Transcripts, Professor Kingsford oral evidence, 28 January 2020, notes by Panel Chair and transcript pp.12-13

conclusions if problems of experimental design would cause problems for interpretation. This is part of normal procedures. It cannot have been followed here because the Panel found it impossible to know how many fish were actually used. The research here was inadequately documented.

[60] Concerns set out in "2.2 Species not recorded in Lizard Island records" relate to species of fish used in chapters and published papers, but not listed by Dr Lönnstedt on the LIRS records. Again, this is related to the perceived importance of LIRS records, and their status as an accurate record of fish catches by individuals or groups during fieldwork (see paragraphs 47-52 above).

[61] Dr Lönnstedt, in her written evidence to the Panel, states:

> While conducting research we were often flying back and forth to Lizard Island Research Station, sometimes staying for long periods of time, sometimes short. In hindsight, we probably didn't have the best routine for filling out fish collections and sample sizes for the trips. As many of us shared or borrowed fish between labs and experiments (and/ or collected fish together) it was all a bit 'messy' (for lack of a better word), and to me it was often unclear who was responsible for filling out sample sizes/ collections. At no stage was the importance of reporting numbers of animal used for experiments at Lizard Island to the Directors of the research station made clear to me. We had never been told that the LIRS had a requirement to report on the numbers of fishes that were caught, it was just thought to be internal record keeping. Sometimes the forms weren't even collected by LIRS at the end of each trip (this may have been overlooked in the haste to clean and leave the island) and no one ever seemed to care. This record was not followed up by Lizard Island after the trip (which also subconsciously reinforced that it was unlikely to be an important document). I trusted it was all covered by the research station/ university in the end. So if there are any discrepancies/ differences in the records I am so terribly sorry but can just refer to a confusing and poorly worked out system. Hopefully today's routines are better than those of 10 years ago.[39]

Data availability

[62] Section 3 of the "Summary" states as follows:

> **(3) Data unavailable**
>
> Data for several papers and PhD Chapters are not available publicly, including for PhD Chapters 5 and 6 (there is an entry in the TDH for Chapter 6, but it is linked to the wrong data set).
>
> Papers with no publicly-available data include:
>
> - Lönnstedt, O; McCormick, M; Chivers, D; Ferrari, M. 2014. Habitat degradation is threatening reef replenishment by making fish fearless. Journal of Animal Ecology, 83 (5)
> - Lönnstedt, Oona M., and Frisch, Ashley J. 2014. Habitat bleaching disrupts threat responses and persistence in anemonefish. Marine Ecology Progress Series, 517.

[39] Exhibit 1, Dr Lönnstedt, letter, 27 January 2020

- Lönnstedt OM; Munday PL; McCormick MI; Ferrari MCO and Chivers DP. 2013. Ocean acidification and responses to predators: can sensory redundancy reduce the apparent impacts of elevated CO2 on fish? Ecology and Evolution 3 (10). ALSO Chapter 6
- Lönnstedt OM; McCormick MI and Chivers DP. 2013. Degraded environments alter prey risk assessment. Ecology and Evolution 3 (1) ALSO Chapter 5 of PhD thesis.

Professor Mark McCormick may have copies of these data sets. He has not been approached directly by the GRS.

[63] This matter hinges on when the JCU Tropical Data Hub became operational, when it became widely used, and what the approach of researchers was to loading data. It also goes back to the broad policy on the retention, storage and availability of data, which was mandatory under the Research Code (Section 2), and was the responsibility ultimately of the supervisor and head of school to ensure that this was done appropriately.[40] Dr Lönnstedt and her supervisor attested in the PhD submission form that arrangements had been made for data retention and storage.[41] Although several witnesses indicated that journals at that time generally did not require data to be uploaded with the published paper[42] (it is now common), this did not in any way dilute or remove the responsibility under the Research Code to ensure safe storage and retention of original PhD data.

[64] Professor Kingsford in his witness statement indicates that:

> It is my understanding that it was a requirement, at the time, of all PhDs, that the student provide a full data set to their supervisor. At the time of thesis submission there was no central repository at JCU for this data. The data from Lönnstedt's PhD, the data are/were held by Professor McCormick, as he was conducting research with Lönnstedt. In hindsight, it would have been a good idea for me to obtain a copy of the data, but I didn't do so where I believed that Professor McCormick had a copy, and he was an appropriate repository for the data given his involvement in the research and that he was co-author on most of the papers.[43]

[65] Professor Munday was not sure that a repository was available at that time.[44] However, Emeritus Professor Marsh stated in her evidence as follows:

> …can I say that my data, my long term dugong data, was successfully deposited in the repository in 2013…there is a point I'd like to make and that is that the responsibility was that the university held copies of the data and in some schools it was the responsibility that the university held copies of the data and put them in the repository….I think it's fair to say that not every school would have had exactly the same arrangement….I would have expected it [quantitative ecological data] to be in the repository. I would have but I want to say that I don't think the university checks on whether the data, research data are uploaded and secured properly. I think that is an

[40] Terms of Reference, Document 003, Code, Section 2
[41] JCU Bundle 1, Document 24, p.1
[42] Exhibit 5, Dr McCormick statement 26 January 2020, p.4; Witness Statements, Professor Munday 24 January 2020; Witness Statements, Chivers letter, 21 January 2020
[43] Witness Statements, Professor Kingsford witness statement, p.13
[44] Transcripts, Professor Munday oral evidence, 28 January 2020, transcript p.8

> area that definitely needed more development at that time and I think to be fair it might be an area that we still need to do more work on.[45]

[66] Information was received from JCU indicating that the Tropical Data Hub ("TDH") was set up as a central data repository on 5 June 2012. Initially, it was operating as a 'bespoke' service that required entries to be handcrafted by the eResearch section. Researchers could not upload the data themselves. The 'self-service' of data entry was slowly introduced across 2014, although this was not mandated. By 2014, training was supplied to all postgraduate students on how to deposit metadata entries into the TDH. At around this time postgraduate students and supervisors needed to sign off that data was stored securely at PhD submission and that a metadata record was generated in the TDH. Prior to 2014, only publications were held centrally through Research Online - this has now been in place for 15 years.[46]

[67] Given this history, it is therefore unlikely that the TDH was widely used by graduate students in 2013, and neither is it likely that usage was common practice across the University or its schools until "self-service" became possible and then mandatory.

[68] Dr Lönnstedt has indicated that she left a CD-ROM of her data "at JCU" when she departed Australia in (late) 2013,[47] after submitting her thesis on 6 December that year. Dr McCormick could not recall whether he had received the CD-ROM, and its whereabouts are unknown, although Dr McCormick has acknowledged separately that he held the data.[48] It is also clear that, with the assistance of Dr McCormick who contacted Dr Lönnstedt in 2018, all the relevant PhD data was uploaded to the TDH in "2018 and 2019". Dr McCormick has confirmed this.[49]

[69] Nonetheless, it is undeniable that the PhD data were only made available well after the thesis was submitted and the papers published. In addition, in two cases it seems that not all the data are raw data and it is therefore difficult to ascertain how they were calculated.[50]

[45] Transcripts, Emeritus Professor Marsh evidence, 29 January 2020, transcript p.8
[46] Panel Requests for Information, JCU letter, 27 March 2020 and Attachment 1
[47] Exhibit 1, p.2
[48] Exhibit 5, p.4
[49] Exhibit 5, and confirmed in Dr McCormick's Reply to Questions, 25 February 2020, in Panel Requests for Information
[50] See JCU Bundle 2, Tabs 6.1 and 7, relating to Papers 6 and 7 in Appendix 2 below

THE PANEL'S CONCLUSIONS

[70] It is useful, prior to setting out the Panel's conclusions, to deal with the meaning of the term "research misconduct" for the purposes of the Research Code. Clause 9.1 of the Code is set out in paragraph 7 above. That paragraph defines research misconduct by reference to three characteristics:

- an alleged breach of the Code;
- intent and deliberation, recklessness or gross and persistent negligence; and
- serious consequences such as false information on the public record, or adverse effects on research participants, animals or the environment.

[71] The paragraph goes on to refer to some examples of conduct which may constitute research misconduct, such as fabrication, etc., avoidable failure to follow research proposals as approved by a research ethics committee and repeated and continuing breaches of the Code. In the Panel's view these are examples only. Unless the Panel can make a positive finding in relation to each of the three elements set out above it cannot conclude that research misconduct has occurred.

[72] In summary, the Panel finds that, in each of the three potential issue areas highlighted in the "Summary of Potential Issues" document (Animal Ethics, Data Mismatches and Data Availability), problems of research practice can be identified, but none that constitute "misconduct" as defined in the Research Code.

[73] The Panel finds that there were multiple breaches by Dr Lönnstedt of the Research Code in relation to the animal ethics approvals. Indeed, 4 of the 5 chapters from the PhD that were published were subject to these breaches in that fieldwork was started and/or conducted prior to the approved date of project fieldwork commencement.

[74] There is no evidence to suggest that these breaches were intentional, given what some witnesses described as the complex animal ethics approval process at the time. In one sense it could be seen as efficient use by the student of the available time and a fieldwork opportunity, to undertake fieldwork in the belief or knowledge that ethics approval would soon be forthcoming, but it also suggests poor management of the paperwork and lack of attention to the detail of permits by student, supervisor and co-authors.

[75] The data mismatches relating to fish catches, and the problem of possible discrepancies between permits, LIRS records and published papers, is difficult to pin down for every case identified. There appear to have been mis-identifications of fish, incomplete recording of catches at Lizard Island, lack of clarity about the role and requirement of the LIRS recording protocols, fish used in experiments that LIRS has no record of Dr Lönnstedt catching, and some lionfish caught by Dr Lönnstedt for which there was no ethics approval.

[76] Furthermore, the two lionfish papers (#7 and #9) present problems in accurately determining the number of fish used, and/or re-used in the experiments, as there is insufficient information on these matters presented in the published papers.

[77] Different researchers in different areas of the biological sciences have different background understanding of why such data accuracy matters. As a result, it cannot be stated that there was misconduct in the research, even though it is clear that the researchers chose (that is, it would appear, deliberately) not to report the exact numbers of experimental fish, or their usage frequencies.

[78] Again, these problems suggest poorly documented and possibly rushed research, rather than deliberate obfuscation, negligence or intent to mislead. One would expect thesis examiners and paper reviewers to have picked up on the question of numbers and usage of lionfish, for example, but this does not appear to have happened. There is no evidence to suggest that fish were not caught or experimental work not done during the initial period of intense fieldwork and laboratory work at Lizard Island in the spring/summer of 2010-2011, or in late 2012. The Panel's analysis of the number of projects (five) being run concurrently by Dr Lönnstedt during that initial fieldwork period suggests that it would have been feasible for them all to have been completed – subject to long hours of work, the availability of dive buddies and lab assistants, and a well-organised research plan for the period.

[79] The Panel has therefore found no evidence to indicate research misconduct in relation to data collection or use, despite the fact that some research data has been recorded inadequately.

[80] In relation to the data availability, there is confusion about who retained the PhD data after it had been submitted, and where it was kept. The principal supervisor accepted that in hindsight he should have retained and secured a copy, as the University policy requires the School to do and as the supervisor and student had signed off that they had done. While the Tropical Data Hub was operating in 2013, it was not available for researchers to upload data themselves at that time, and the Lönnstedt PhD data was eventually uploaded into the TDH in 2018. This uploading notwithstanding, it remains the case that the data from Dr Lönnstedt's PhD were not properly lodged, retained or secured in 2013 as provided for in University policy and as had been attested to by the student and supervisor.

[81] The Panel has found no evidence to indicate research misconduct in relation to data availability. Despite obvious deficiencies in lodging and storing Dr Lönnstedt's data and University policy not being followed in this regard, it is not clear that failure to lodge the data properly was deliberate or intended to mislead.

[82] **In conclusion**, the Panel found that in each of the three potential issue areas highlighted by JCU in its preliminary investigation (animal ethics, data mismatches and data availability), problems of research practice have been identified, but none that constitute "misconduct" as defined in the Research Code:

i. there were undoubtedly a number of breaches of the Research Code by Dr Lönnstedt arising from not properly observing the timing and conditions of animal ethics approvals. These breaches do not, of themselves, constitute misconduct;

ii. inadequate reporting of data has been identified in a number of papers, but the Panel considers that this reflects on professional standards rather than misconduct;
iii. the Research Code was also breached because Dr Lönnstedt and her supervisor did not ensure that her data was properly lodged and secured upon completion of the PhD. Separately, data for Dr Lönnstedt's papers published from her PhD were not uploaded onto JCU's open access Tropical Data Hub until 2018. Again, this suggests poor practice but not misconduct.

[83] The Panel, following the definitions in the Research Code, sees no need to pursue the breaches of the Code further, as there is no evidence in those breaches of "intent and deliberation, recklessness or gross and persistent negligence" on the part of Dr Lönnstedt, her supervisor(s) or co-authors.

[84] The Panel therefore determines that there are no grounds for a finding of research misconduct against Dr Lönnstedt or any other person.

APPENDIX 1

TERMS OF REFERENCE
INDEPENDENT EXTERNAL RESEARCH MISCONDUCT INQUIRY
DR OONA LÖNNSTEDT

Background

In February 2018 the Provost and Deputy Vice Chancellor (Research & Innovation) received the outcome of a preliminary investigation identifying potential allegations of research misconduct by Dr Oona Lönnstedt.

The allegations concern research conducted by Dr Lönnstedt in respect of her PhD at the University and subsequent papers (some of which relied on research data associated with her PhD). The allegations relate to research conducted over the period from September 2010 - December 2012.

The allegations were referred to the Provost in his capacity as the Designated Person under the *James Cook University Code for the Responsible Conduct of Research* (Research Code). On 28 March 2018, the Provost referred allegations of research misconduct to the Vice Chancellor. A copy of the Provost's letter and its attachments is at Attachment 1.

The Vice Chancellor has determined it appropriate to establish an independent external research misconduct panel (Panel) to inquire into the allegations of research misconduct.
The University has been undertaking additional enquiries to understand the factual basis of the allegations and the evidence relevant to the allegations, so that the University may assist the Panel to conduct the inquiry.

The Panel is now convened and is authorised and directed to conduct its inquiry in accordance with these Terms of Reference.

Sitting dates for the panel are proposed as 28 -29 January 2020, in Townsville.

Relevant Research Code.
At the time of the research the subject of the inquiry, the document governing research integrity at the University was the Research Code, version 09-1, developed in accordance with the *Australian Code for the Responsible Conduct of Research, 2007*. A copy of the Research Code is at Attachment 2.

The Code also contains the procedures that apply to the inquiry, as supplemented by these Terms of Reference.

Constitution of the Panel
The Panel is appointed by the Vice Chancellor pursuant to clause 10.2.1 of the Research Code.
The Panel members are:

1. Emeritus Professor Alan Rix, School of Languages and Cultures, University of Queensland (Chair)
2. Professor Bronwyn Gillanders, School of Biological Sciences, Faculty of Sciences, University of Adelaide
3. Emeritus Professor Tony Underwood, School of School of Life and Environmental Sciences at the University of Sydney
4. The Hon. Geoff Giudice AO, former Federal Court Judge and Fair Work Commission President

The Panel's tasks
The Panel has been convened to conduct an inquiry as to the alleged breaches of the Research Code. The purpose of the inquiry is to make findings of fact, to assess whether a breach of the Research Code has occurred and if so the extent of the breach, and recommended actions.

The Panel is required to:

1. Inquire into the following matters:
    a. whether any conduct by Dr Lönnstedt, as alleged in Attachment 1, amounts to research misconduct or is otherwise a breach of the Research Code;

b. whether any conduct by any University staff member, in connection with the matters alleged in Attachment 1, amounts to research misconduct or is otherwise a breach of the Research Code;
c. any matter reasonably incidental to the matters outlined in 1(a)-(b).

2. Prepare a report subsequent to the inquiry which details:
a. the Panel's findings of fact and associated reasoning;
b. the steps the Panel took to reach its findings of fact (e.g. interviewing witnesses, obtaining documents etc);
c. what documents, statements or other evidence the Panel took into account to support its findings;
d. the Panel's recommendations on whether: I. the allegations should be dismissed; or
II. there has been a breach of the Research Code, but not an instance of research misconduct; or III. there has been a case of research misconduct.

3. Provide its report, and recommendations, to the Vice Chancellor, by no later than 28 February 2020, or such other date as agreed with the University.

Conduct of inquiry
The Panel is not bound by the rules of evidence and may conduct the inquiry as it sees fit provided that its procedures must be consistent with the principles of natural justice and due process.

Without limiting the Panel's conduct of the inquiry the Panel is expected to:

1. Examine the facts and information from the preliminary assessment, and gather and examine further relevant evidence if required.
2. Consider all material relevant to the matter, and may request additional material.
3. Obtain information from persons the Panel considers relevant to the matters alleged (including by way of interview and / or obtaining documentation). The Panel has the authority of the University to directly approach any current University staff and to require them to provide the Panel with documents and / or attend interviews.
4. Accord the respondent an opportunity to respond to the allegations. If the Panel considers that a University staff member may have also engaged in conduct that could be a breach of the Research Code or research misconduct, the staff member must be given a reasonable opportunity to respond to any allegations.
5. Accord the respondent/s the opportunity to hear and respond to any and all material to be used by the Panel in its decision making process. This includes permitting the respondent/s, if they wish, to question witnesses.
6. Permit the respondent/s to have a support person present at all hearings.
7. Permit the University and respondent, to be present at all hearings where evidence is taken or submissions are being made.
8. Ensure the inquiry is conducted free from bias and conflicts of interest.

Dr Lönnstedt and the University should be entitled to legal presentation, if requested.

Other persons may only have legal representation at the Panel's discretion, subject to it being in the interests of the inquiry and directly relevant to the subject of investigation. Before making that decision the Panel will allow the University and respondent to be heard on the appropriateness of legal representation.

If the respondent chooses not to make representations to, or appear before, the Panel, the inquiry will continue in their absence.

The Panel has the discretion to decide if it will accept written submissions from members of the public or persons outside the University. If the Panel decides to accept such submissions, the Panel must be satisfied that they are directly relevant to the issues the Panel is investigating. The Panel may place such limitations on accepting submissions as it considers appropriate.

It is preferable that any expert knowledge that may be required by the Panel is provided by witnesses rather than members of the Panel. If a Panel member has relevant expert knowledge that the Panel intends to rely on, it must be put to the respondent and the respondent given an opportunity to respond.

In making findings, the Panel should apply the balance of probabilities.

Whether the inquiry is open to the public or conducted in private is a matter for the Panel to decide on the basis of public interest. The Panel must hear the views Dr Lönnstedt (if she chooses to respond) and the University, before such a decision is made.

Counsel Assisting
The panel will be assisted by Ms Karen Carmody, Barrister at Law, acting as 'counsel assisting'. The role of counsel assisting it is to:

1. prepare the material to be put to the Panel and to examine (question) witnesses on behalf of the Panel;
2. provide legal advice to the Panel during the inquiry.

Counsel Assisting is not a member of the Panel.

Counsel Assisting's details are as follows:

Ms Karen Carmody
Level 14, Inns of Court 107 North Quay BRISBANE 4000 Ph: (07) 3236 1203 E: kcarmody@qldbar.asn.au

Administrative Support
All administrative support for the Panel will be provided by JCU Connect of James Cook University (including arranging travel, accommodation, venue booking, catering) through the Director, JCU Connect:

Ms Rochelle Finlay
Ph: (07) 4781 6538
E: directorjcuconnect@jcu.edu.au

The Panel's point of contact for all other matters relating to the inquiry is Vanessa Cannon, Chief of Staff (chiefofstaff@jcu.edu.au; (07) 4781 4078).

Conflict of Interest
During the investigation, Panel members must ensure that relevant interests are disclosed and managed. If an interest cannot be managed, i.e., where a perceived or actual conflict of interest might be viewed as influencing the impartiality of the Panel, relevant Panel members must be recused.

The University must be advised of any conflicts of interest that arise during the inquiry. The University may, where appropriate, substitute a Panel member who is subject to a conflict of interest.

Confidentiality
The Panel will manage information received during the inquiry as confidential, and take reasonable steps to protect information from misuse and loss, and from unauthorised access, modification and disclosure.

Cairns
Singapore
Townsville

ATTACHMENT 1 TO APPENDIX 1

JAMES COOK UNIVERSITY
AUSTRALIA

Professor Chris Cocklin
Senior Deputy Vice Chancellor
Townsville Campus
Townsville Qld 4811 Australia

T (07) 4781 6884
T (INT'L) +61 7 4781 6884
E sdvc@jcu.edu.au

28 March 2018

Professor Sandra Harding
Vice-Chancellor
James Cook University

Dear Vice Chancellor,

ALLEGATIONS OF RESEARCH MISCONDUCT – DR OONA LONNSTEDT

Concerns have been raised with the University following extensive national and international media coverage about a research misconduct ruling by an investigation board from Uppsala University, Sweden, on 7 December 2017 that Dr Oona Lonnstedt and a fellow researcher (both employed by the Uppsala University) were guilty of research misconduct due to having intentionally fabricated data. Dr Lonnstedt is a former PhD student (Doctor of Philosophy conferred on 10 July 2014) and part-time staff member of James Cook University (JCU).

More recently, JCU has received at least two communications from parties external to JCU (Dr Bengt Gerdin of the Uppsala University, Sweden, and Dr Kevin Schneider of the University of Saskatchewan, Canada) raising concerns about the accuracy and/or completeness of research data underpinning a number of papers by Dr Lonnstedt (as the lead author) and requesting access to the metadata and 'evidence that all these trials took place'.

In addition, the journal *Biology Letters* has issued an Expression of Concern relating to a paper co-authored by Dr Lonnstedt and is undertaking an investigation.

In response to these concerns, a preliminary investigation has been undertaken into the research conducted by Dr Lonnstedt in respect of her PhD at JCU and subsequent papers (some of which relied on the research data associated with her PhD), with a number of potential breaches of the Code being alleged, including:

(a) Several papers/PhD chapters quote JCU ethics approvals that do not seem to fully cover the research described in that paper/chapter;

(b) Data mismatches, including:
   a. Differences in sample sizes between Lizard Island records and records in papers/PhD chapters;
   b. Species not recorded in Lizard Island records;
   c. Dates of fieldwork; and

(c) Data for several papers/PhD chapters are not available publicly.

I enclose the following documents which record the breaches of the Code being alleged, following the preliminary investigation into Dr Lonnstedt's research at JCU:

(a) "Summary of potential issues regarding the research conducted by Oona Lonnstedt at James Cook University" dated 12 February 2018; and

(b) "Publications of Concern – Oona M Lonnstedt".

Requirements of the Code:
The *Code for the Responsible Conduct of Research* (at https://www.jcu.edu.au/policy/research-management/code-for-the-responsible-conduct-of-research) (**the Code**), which has been adapted from the *Australian Code for the Responsible Conduct of Research* (https://www.nhmrc.gov.au/_files_nhmrc/file/research/research-integrity/r39_australian_code_responsible_conduct_research_150811.pdf) (**the National Code**), guides the institution and its researchers in responsible research practices and promotes research integrity.

The principles and practices to encourage responsible research conduct are contained in *Part A* of the Code. Of particular relevance having regard to the concerns raised in respect of Dr Lonnstedt, are Section 1 (General Principles of Responsible Research), Section 2 (Management of Research Data and Primary Materials) and Section 4 (Publication and Dissemination of Research Findings).

Part B of the Code provides a framework for resolving allegations of research misconduct or breaches of the Code:

(a) 'Breaches of the Code' are specific actions or omissions that lack the seriousness of consequence or wilfulness to constitute research misconduct. Such breaches can be remedied by counselling or advice; and

(b) 'Research misconduct' involves serious breaches of the Code that are sufficiently substantial to warrant formal allegation, investigation and denial or admission.

A complaint or allegation relates to 'research misconduct' if it involves *all* of the following:

(a) an alleged breach of this Code;
(b) intent and deliberation, recklessness or gross and persistent negligence;
(c) serious consequences, such as false information on the public record, or adverse effects on research participants, animals or the environment.

The Code goes on to provide that 'research misconduct' includes:

> …. fabrication, falsification, plagiarism or deception in proposing, carrying out or reporting the results of research, and failure to declare or manage a serious conflict of interest. It includes avoidable failure to follow research proposals as approved by a research ethics committee, particularly where this failure may result in unreasonable risk or harm to humans, animals or the environment. It also includes the wilful concealment or facilitation of research misconduct by others.

Role of the Designated Person:

As the 'designated person' under the Code, my responsibilities include:

(a) to receive a written allegation;

(b) to conduct a preliminary investigation and assessment; and

(c) to advise the Vice-Chancellor whether a *prima facie* case of research misconduct exists and how to proceed. The options are:
    a. dismissing the allegations;
    b. instructing the College on how to deal with the allegations where no formal misconduct process is required;
    c. dealing with the allegations under provisions unrelated to research misconduct; or
    d. investigating the matter further through a research misconduct inquiry (an internal institutional research misconduct inquiry or an independent external research misconduct inquiry).

Where the designated person forms the view that a *prima facie* case of research misconduct exists and the allegations should be investigated further through a research misconduct inquiry, the advice to the Vice-Chancellor should include how the inquiry should be constituted.

Advice:

Based on my preliminary assessment of the allegations and the requirements of the Code, I am of the view that a *prima facie* case of research misconduct exists and that the allegations require further investigation through an independent external research misconduct inquiry.

Whilst it is ultimately a matter for your determination having regard to the requirements of the Code (see section 10.2), my advice and relevant material, my view is that an independent external research misconduct inquiry is appropriate due to:

(a) the gravity of the allegations; and
(b) the potential consequences for the respondent, the complainant, other parties and the institution (JCU) in the event that the allegations are upheld; and
(c) the need to maintain public confidence in research.

I am advised that if, in your judgment, these are likely to be serious, the National Code provides that you must establish an independent external research misconduct inquiry. The National Code further states that in the event a decision is made to conduct an internal institutional research misconduct inquiry, and it is later discovered that the potential consequences of the allegation(s) are more serious than originally anticipated, it may be necessary to disband the internal inquiry and make new arrangements for an external independent research misconduct inquiry.

Your Role:

Upon receiving my advice, you must decide whether to accept my advice and how to proceed.

If you decide that a research misconduct inquiry is needed, you must decide whether to use an internal institutional research misconduct inquiry or an independent external research misconduct inquiry.

You must provide your decision in writing to those making the allegations, the person who is the subject of the allegations (Dr Lonnstedt), me as the designated person, and any other parties as required under any agreement, such as funding bodies and collaborating institutions.

Yours sincerely

Professor Chris Cocklin
Senior Deputy Vice Chancellor
Enc:

Summary of potential issues regarding the research conducted by Oona Lonnstedt at James Cook University

(1) Animal ethics

Several papers/PhD Chapters quote JCU ethics approvals that do not seem to fully cover the research described in that paper/Chapter. It is possible that ethics permits have been amended or that records currently in the file are incomplete. In detail, the papers are:

(a) Lonnstedt OM and McCormick MI. 2011. Growth history and intrinsic factors influence risk assessment at a critical life transition for a fish. Coral Reefs, 30 (3). AND Honours thesis Chapter 2.

Ethic A1067 (quoted in paper, none quoted in thesis) does not seem to cover *Apogon cyanosoma* (which is listed in the paper as the control species). A1067 covers a different Apogonidae (*Cheilodipterus quinquelineatus*).

(b) Lonnstedt OM and McCormick MI. 2013. Ultimate predators: lionfish have evolved to circumvent prey risk assessment abilities. PLoS ONE, 8 (10) ALSO PhD thesis Chapter 4

Ethics permit A1593 is mentioned in Chapter 4 of the thesis (no ethics permit mentioned in paper). However, A1593 does not cover *Dendrochirus zebra* or *Pterois volitans*. Only ethics permit that includes O. Lonnstedt and any lionfish species is A2080, which was approved 05/08/2014. The field work for this paper and Chapter 4 was conducted in September – December 2012. A2080 also only allows for 15 *D. zebra* and 15 *P. volitans* to be collected – the paper and thesis Chapter mention n=32.

(c) Lonnstedt OM, Ferrari MCO, Chivers DP. 2014. Lionfish predators use flared fin displays to initiate cooperative hunting. Biology Letters 10.

Ethics permit A1593 is mentioned in the paper. However, A1593 seems to be for a different project. The permit does not cover *Dendrochirus zebra*, *Apogon doerderlini* or *Pterois antennata*. Described methodology in A1593 is different from what is mentioned in the paper. An editor from Biology Letters asked JCU about the ethics approvals for this research. In the reply, JCU referred to College of Science and Engineering (Marine Science) Blanket Permits G10/33239.1 and G13/35909.1 (see email trail Langford in response to Biology Letters request) and McCormick mentions G09/29995.1 in his application for A1593. However, these are GBRMPA permits and not ethics approvals. The only ethics permit that was available that includes O. Lonnstedt and any lionfish species is A2080, which was approved 05/08/2014. The field work for this paper was conducted in August – December 2012. A2080 also allows for only 15 *D. zebra* and 15 *P. volitans* to be collected – the paper indicates n=32.

(d) Lonnstedt OM; McCormick MI and Chivers DP. 2013. Predator-induced changes in the growth of eyes and false eyespots. Scientific Reports 3, 2259 ALSO PhD Chapter 3
And
(e) Lonnstedt OM; Munday PL; McCormick MI; Ferrari MCO and Chivers DP. 2013. Ocean acidification and responses to predators: can sensory redundancy reduce the apparent impacts of elevated CO2 on fish? Ecology and Evolution 3 (10). ALSO Chapter 6
And
(f) Lonnstedt OM; McCormick MI and Chivers DP. 2013. Degraded environments alter prey risk assessment. Ecology and Evolution 3 (1) ALSO Chapter 5
And
(g) Lonnstedt, O; McCormick, M; Chivers, D; Ferrari, M. 2014. Habitat degradation is threatening reef replenishment by making fish fearless. Journal of Animal Ecology, 83 (5)

Ethics permits A1593 and A1720 are mentioned in the paper and Chapter 4 (none mentioned in Chapters 5 and 6). However, *Amblygobius phalanea* (which is a herbivorous goby, used as control in (d), (e), and (f)) does not seem to be covered by either approval. *Apogon doederleini* (used as a control in (f) and (g) also does not seem to be covered by either approval.

Field work for this work was conducted between 29/09/2010 – 03/01/2011 (see Lizard Island Research Station records). A1593 wasn't approved until 12/10/2010; A1720 wasn't approved until 10/10/2011.

(h) Lonnstedt, Oona M., and Frisch, Ashley J. 2014. Habitat bleaching disrupts threat responses and persistence in anemonefish. Marine Ecology Progress Series, 517.

Ethics permit A1593 is mentioned in the paper. However, different species of Amphiprion and Cephalophalis are mentioned on the ethics permit rather than the species mentioned in the paper (which are *Amphiprion akindynos* and *Cephalophalis cyanostigma*).

(2) Data mismatches

2.1 Differences in sample sizes between Lizard Island records and records in papers/chapters

2.1.1 *Dendrochirus zebra*

There have been reports (see email trail from Dr A. Hoggett, Director of Lizard Island Research Station) that the number of lionfish (*Dendrochirus zebra*) reported in two publications and one PhD Chapter (n=32 and n=36, respectively, see details under (a) and (b) below) do not match with the number recorded by the Lizard Island Research Station (n=12 recorded in the Lizard Island Field Guide). A. Hoggett suggests contacting Lonnstedt's research assistants (contact details on file) to clarify number of *D. zebra* caught.

- Lonnstedt OM and McCormick MI. 2013. Ultimate predators: lionfish have evolved to circumvent prey risk assessment abilities. PLoS ONE, 8 (10) ALSO PhD thesis Chapter 4

Data available of JCU's Tropical Data Hub (downloaded and in file) indicate 32 *D. zebra* were used.

- Lonnstedt OM, Ferrari MCO, Chivers DP. 2014. Lionfish predators use flared fin displays to initiate cooperative hunting. Biology Letters 10.

Data provided as supplementary data (downloaded and in file) indicate 36 *D. zebra* were used.

2.2.2 Pterois volitans

Lizard Island data records show that O. Lonnstedt reported 8 *P. volitans* (lionfish) from one site, ref 827 (Nov/Dec 2012) and ~5 *Pterois sp* from 3 sites, ref 799 (Aug/Sep 2012). Sample sizes for *P. volitans* reported in the data available on JCU's Tropical Data Hub for the publication below indicate n=32.

- Lonnstedt OM and McCormick MI. 2013. Ultimate predators: lionfish have evolved to circumvent prey risk assessment abilities. PLoS ONE, 8 (10) ALSO PhD thesis Chapter 4

2.2.3 *Pterois antennata*

Lizard Island records show that O. Lonnstedt reported 3 P. antennata from one site (ref 827). Supplementary data available online show n=6 (in text) and n=10 (in supplementary file 007) in the publication below.

- Lonnstedt OM, Ferrari MCO, Chivers DP. 2014. Lionfish predators use flared fin displays to initiate cooperative hunting. Biology Letters 10.

2.2 Species not recorded in Lizard Island records

Various species are mentioned in papers/Chapters but there are no records in the Lizard Island Research Station records that O. Lonnstedt has collected those species during one of her field trips. Email from Dr A. Hoggett mentions the following details:

"The original data is on forms submitted by Oona at the end of three of the four main field trips for her PhD, scans attached:
• 29 Sep 2010 to 3 Jan 2011 (ref 667)
• 25 Aug to 22 Sep 2012 (ref 799)
• 16 Nov to 20 Dec 2012 (ref 827)

We don't have a form from Oona's other PhD trip, 25 Oct 2011 to 6 Jan 2012.

Her trip in Jan-Mar 2013 was as an assistant to Ashley Frisch on a shark project. It's possible that she also did some of her own work on that trip but she didn't report any collecting to us.

Her trip in Jun-Jul 2013 was an odd one. She and Justin Rizzari were both coming to LIRS as interns for about 3 months when they would both work on their PhDs as well as helping us. Oona came for about two weeks but Justin did not come. Oona was not able to do any field work without a dive buddy so she left.

During the period of her PhD, Oona had two other trips on which she was nominally assisting other people (Mark McCormick, Yolly Bosiger). It's possible that she did

some of her own work on those trips but if she did we have no record of any collections she made."

In detail, the Lizard Island records do not show any of the following species ever being collected by O. Lonnstedt during the following field trips:

(a) 29/09/2010-03/01/2011

- ***Synodus dermatogenys*** (lizardfish) was used in Lonnstedt OM; McCormick MI; Meekan MG; Ferrari MCO and Chivers DP. 2012. Learn and live: predator experience and feeding history determines prey behaviour and survival. Proceedings of the Royal Society of London Series B, Biological Sciences, 279 (1736). ALSO PhD Chapter 2 as one of the two predators used in the experiments. Sample size is not specified.

- ***Amblygobius phalanea*** (herbivorous goby) was used in Lonnstedt OM; McCormick MI and Chivers DP. 2013. Predator-induced changes in the growth of eyes and false eyespots. Scientific Reports 3, 2259 ALSO PhD Chapter 3 AND in Lonnstedt OM; McCormick MI and Chivers DP. 2013. Degraded environments alter prey risk assessment. Ecology and Evolution 3 (1) ALSO Chapter 5 as a control. Sample size is not specified.

- ***Apogon doederleini*** (cardinalfish) was used in Lonnstedt OM; McCormick MI and Chivers DP. 2013. Degraded environments alter prey risk assessment. Ecology and Evolution 3 (1) ALSO Chapter 5 AND in Lonnstedt, O; McCormick, M; Chivers, D; Ferrari, M. 2014. Habitat degradation is threatening reef replenishment by making fish fearless. Journal of Animal Ecology, 83 (5) as a control. Sample size is not specified.

(b) 25/08/2012 - 22/09/2012, and 16/11/2012 - 20/12/2012

- ***Chromis viridis*** was used in Lonnstedt OM and McCormick MI. 2013. Ultimate predators: lionfish have evolved to circumvent prey risk assessment abilities. PLoS ONE, 8 (10) ALSO PhD thesis Chapter 4 as a prey species. Sample size unknown.
- ***Cephalopholis microprion*** (rock cod) was used in Lonnstedt OM, Ferrari MCO, Chivers DP. 2014. Lionfish predators use flared fin displays to initiate cooperative hunting. Biology Letters 10. Sample size n=10.

(c) 28/01/2013 - 1/03/2013; and 17/06/2013 - 2/07/2013

- ***Amphiprion akindynos*** (n=60-180) and ***Cephalophalis cyanostigma*** (sample size unknown) were used in Lonnstedt, OM., and Frisch, AJ. 2014. Habitat bleaching disrupts threat responses and persistence in anemonefish. Marine Ecology Progress Series, 517.

2.3 Dates of field work

(a) Lonnstedt, Oona M., and Frisch, Ashley J. 2014. Habitat bleaching disrupts threat responses and persistence in anemonefish. Marine Ecology Progress Series, 517.

Paper states that field work was conducted in April/May 2013. Lizard Island Research Station records show that Lonnstedt was not at the station in April/May 2013, but from 28/01/2013 - 1/03/2013; and 17/06/2013 - 2/07/2013.

(3) Data unavailable

Data for several papers and PhD Chapters are not available publicly, including for PhD Chapters 5 and 6 (there is an entry in the TDH for Chapter 6, but it is linked to the wrong data set).

Papers with no publicly -available data include:

- Lonnstedt, O; McCormick, M; Chivers, D; Ferrari, M. 2014. Habitat degradation is threatening reef replenishment by making fish fearless. Journal of Animal Ecology, 83 (5)
- Lonnstedt, Oona M., and Frisch, Ashley J. 2014. Habitat bleaching disrupts threat responses and persistence in anemonefish. Marine Ecology Progress Series, 517.
- Lonnstedt OM; Munday PL; McCormick MI; Ferrari MCO and Chivers DP. 2013. Ocean acidification and responses to predators: can sensory redundancy reduce the apparent impacts of elevated CO2 on fish? Ecology and Evolution 3 (10). ALSO Chapter 6
- Lonnstedt OM; McCormick MI and Chivers DP. 2013. Degraded environments alter prey risk assessment. Ecology and Evolution 3 (1) ALSO Chapter 5 of PhD thesis.

Professor Mark McCormick may have copies of these data sets. He has not been approached directly by the GRS.

Publications of concern - Oona M. Lönnstedt

PhD scholarship 7-Jun-10-6 Dec 2013
Research worker as per table below

24-Jan-11	6-May-11	Research Worker	Discipline of Marine Biology	Part-Time Fixed Term
01 Jul 2010	15-Oct-10	Research Worker	Discipline of Marine Biology	Part-Time Fixed Term
21-Jul-09	30 Jun 2010	Research Worker	Discipline of Marine Biology	Full Time Fixed Term

Paper	Timing of study	Data	OL Affiliation
University of Uppsala concern			
Damsel in distress: captured damselfish prey emit chemical cues that attract secondary predators and improve escape chances Oona M. Lönnstedt† and Mark I. McCormick Proc Biol Sci. 2015 Nov 7; 282(1818): 20152038. doi: 10.1098/rspb.2015.2038 PMCID: PMC4650161	Not part of her PhD, but done under permit A1593 and funded by ARC Centre of Excellence and Ian Potter Fellowship. The experimental study was conducted at Lizard Island Research Station (14°40′ S, 145°28′ E), on the northern Great Barrier Reef, Australia, during three months (October–December) in 2011 and 2012. Therefore fieldwork during PhD Paper received by journal 2015 Aug 23; Accepted 2015 Sep 28. Therefore paper completed post PhD	Some data available as supplementary data on journal webpage (saved in files on shared drive), some data recently made available on Tropical Data Hub	ARC Centre of Excellence for Coral Reef Studies and College of Marine and Environmental Sciences, James Cook University, Townsville, Queensland 4811, Australia Uppsala concern
Disrupted learning: habitat degradation impairs crucial antipredator responses in naive prey'.	Not part of OL PhD and not part of preliminary investigation conducted by GRS, since primary	Some data available on TDH (link to TDH on journal's webpage). TDH record created 13/07/2015; modified 18/01/2018..	ARC Centre of Excellence for Coral Reef Studies and College of Marine and Environmental Sciences, James Cook University, Townsville,

Mark I. McCormick and Oona M. Lönnstedt, Proc Roy Soc B DOI: 10.1098/rspb.2016.0441 (2016).	author is McCormick (not Lonnstedt). Date coverage 16/11/2014-10/12/2014, therefore not during OL PhD candidature or employment. Received: 26 February 2016 Accepted: 18 April 2016		Queensland, Australia. Department of Ecology and Genetics, Limnology, Uppsala University, Uppsala, Sweden Uppsala concern
Biology Letters (journal) Concern			
Lionfish predators use flared fin displays to initiate cooperative hunting Oona M. Lönnstedt, Maud C. O. Ferrari, Douglas P. Chivers Published 25 June 2014.DOI: 10.1098/rsbl.2014.0281	Not part of OL PhD. **Time of fieldwork:** Field work dates not mentioned in paper, but LIRS records show 25/08/2012 - 22/09/2012; 16/11/2012-20/12/2012, therefore during her PhD candidature. Paper received by journal April 2, 2014. Paper states Over the past 2 years, we have been studying the predator ecology of lionfish in the laboratory and reefs surrounding Lizard Island (14°40′ S, 145°28′ E), on the northern Great Barrier Reef (Australia) [12,14]. In both field and laboratory, we have observed lionfish feeding together in groups of up to four individuals. Received April 2, 2014 Accepted May 30, 2014	Some data available of journal's webpage (downloaded on shared drive). Anomalies between records at Lizard Island and in paper reported by Lizard Ialsnd Research Station – presumably also to Biol Letters	Oona M. Lönnstedt ARC Centre of Excellence for Coral Reef Studies and School of Marine and Tropical Biology, James Cook University, Townsville, Queensland 4811, Australia Biol Letters have issued an Expression of Concern and written to ARC CoE

	Published online June 25, 2014.		
Additional JCU concerns			
Lonnstedt OM and McCormick MI. 2013. Ultimate predators: lionfish have evolved to circumvent prey risk assessment abilities. PLoS ONE, 8 (10)	Chapter 4 of thesis	Data available of JCU's Tropical Data Hub (downloaded and in file) indicate 32 *D. zebra* were used. Anomalies between records at Lizard Island in # lionfish (n=12) and in paper (n=32) JCU concern	ARC Centre of Excellence for Coral Reef Studies and School of Marine and Tropical Biology, James Cook University, Townsville, Queensland 4811, Australia
Lonnstedt OM; McCormick MI; Meekan MG; Ferrari MCO and Chivers DP. 2012. Learn and live: predator experience and feeding history determines prey behaviour and survival. Proceedings of the Royal Society of London Series B, Biological Sciences, 279 (1736).	Chapter 2 of thesis	Synodus dermatogenys (lizardfish) was used in as one of the two predators used in the experiments. Sample size is not specified. No records of that species on LIRS records. JCU Concern	
Lonnstedt OM; McCormick MI and Chivers DP. 2013. Predator-induced changes in the growth of eyes and false eyespots. Scientific Reports 3, 2259	Chapter 3 of thesis	Ethics permits A1593 and A1720 are mentioned in the paper and Chapter 4 (none mentioned in Chapters 5 and 6). However, Amblygobius phalanea (which is a herbivorous goby, used as control does not seem to be covered by either approval. Apogon doederleini (used as a control also does not seem to be covered by either approval. Field work for this work was conducted between 29/09/2010 –	ARC Centre of Excellence for Coral Reef Studies and School of Marine and Tropical Biology, James Cook University, Townsville, Queensland 4811, Australia
Lonnstedt OM; McCormick MI and Chivers DP. 2013. Degraded environments alter prey risk assessment. Ecology and Evolution 3 (1)	Chapter 5 of thesis		ARC Centre of Excellence for Coral Reef Studies and School of Marine and Tropical Biology, James Cook University, Townsville, Queensland 4811, Australia

Lonnstedt OM; Munday PL; McCormick MI; Ferrari MCO and Chivers DP. 2013. Ocean acidification and responses to predators: can sensory redundancy reduce the apparent impacts of elevated CO2 on fish? Ecology and Evolution 3 (10).	Chapter 6 of thesis	03/01/2011 (see Lizard Island Research Station records). A1593 wasn't approved until 12/10/2010; A1720 wasn't approved until 10/10/2011. Lizard Island records do not show any Amblygobius phalanea or Apogon doederleini ever being collected by O. Lonnstedt during the field trip that data for these studies were collected (29/09/2010-03/01/2011).	ARC Centre of Excellence for Coral Reef Studies and School of Marine and Tropical Biology, James Cook University, Townsville, Queensland 4811, Australia

ATTACHMENT 2 TO APPENDIX 1

Code for the Responsible Conduct of Research

Intent

This Code has been adapted from the *Australian Code for the Responsible Conduct of Research* ["the National Code"], developed jointly by the National Health and Medical Research Council, Australian Research Council and Universities Australia, and published in 2007.

Scope

The Code consists of two parts:

- Part A describes the principles and practices for encouraging the responsible conduct of research, for the University and its researchers.

- Part B provides a framework for resolving allegations of breaches of this Code and research misconduct, addressing the responsibilities of both the University and its researchers.

This Code sets out obligations in respect of research integrity for all people engaged in research at the University, including staff, postgraduate research students and undergraduate students, and academic visitors.

The University must therefore make this Code and other guidelines and legislation relevant to the conduct of research, including procedures under the Code that are adopted at School level, readily available to its researchers.

Researchers in senior, supervisory or mentoring positions have a responsibility to ensure that all researchers, and particularly trainee researchers, within their sphere of influence are aware of, understand and comply with this Code.

Research Committee will require reporting, at University and School level, in respect of implementation of and adherence to the Code.

Departures from this Code are not made acceptable on the ground of claimed discipline-based practice. Any practice that is apparently inconsistent with this Code must be documented and submitted to the Senior Deputy Vice-Chancellor for consideration – and, if necessary, approval by the Vice-Chancellor – before it is undertaken.

Definitions

The meaning of 'research', as used in this Code, is original investigation undertaken to gain knowledge, understanding and insight.

'Responsible conduct' and 'research integrity' are treated synonymously within this Code. 'Research ethics' is used more narrowly, to describe obligations under the following (and any successor or associated documents):

- *National Statement on Ethical Conduct in Human Research* (NHMRC 2007),

- *Values and Ethics: Guidelines for Ethical Conduct in Aboriginal and Torres Strait Islander Health Research* (NHMRC 2003),

- *Australian Code of Practice for the Care and Use of Animals for Scientific Purposes* (NHMRC 2004).

Where research involves the participation of humans or the use of animals, research ethics obligations must be met in accordance with the University's policies and procedures.

Policy and Procedures

PART A

PRINCIPLES AND PRACTICES TO ENCOURAGE RESPONSIBLE RESEARCH CONDUCT

1. General Principles of Responsible Research

Responsible research is encouraged and guided by research culture. The University is committed to maintaining a strong research culture, which demonstrates:

- honesty and integrity;

- respect for human research participants, animals and the environment;

- good stewardship of public resources used to conduct research;

- appropriate acknowledgment of the role of others in research;

- responsible communication of research results.

The University therefore undertakes to:

- actively encourage mutual cooperation with open exchange of ideas between peers, and respect for freedom of expression and inquiry;

- maintain a climate in which responsible and ethical behavior in research is expected;

- ensure a safe working environment in which to conduct each research project;

- ensure that documents that guide good research governance, conduct and management, including this Code, are readily available to all researchers (including through the online Policy Library).

The University must provide training and promote effective mentoring and supervision of researchers and research trainees. This should include advising on research ethics, research design and methods, and the responsible conduct of research in accordance with this Code.

Researchers are expected to foster and maintain a research environment of intellectual honesty and integrity, and scholarly and scientific rigour. Accordingly researchers must:

- conduct their research with honesty and a respect for the truth;

- disseminate research findings responsibly;
- respect the rights of those affected by their research;
- conduct their research so as to minimise adverse effects on the wider community and environment;
- manage conflicts of interest so that ambition and personal advantage do not compromise ethical or scholarly considerations;
- adopt methods appropriate for achieving the aims of each research proposal;
- follow proper practices for safety and security;
- cite awards, degrees conferred and research publications accurately, including the status of any publication, such as under review or in press;
- promote adoption of this Code and avoid departures from the responsible conduct of research.

A staff member or student who considers that research misconduct may have occurred must act in a timely manner and in accordance with part B of this Code.

2. Management of Research Data and Primary Materials

2.1 Introduction

The responsible conduct of research includes the proper management and retention of the research data that represents the evidential basis for the research outcomes. Retaining the research data is important because it may be all that remains of the research work at the end of the project. While it may not be practical to keep all the primary material (such as ore, biological material, questionnaires or recordings), durable records derived from them (such as assays, test results, transcripts, and laboratory and field notes) must be retained and accessible.

The researcher must decide which data and materials should be retained, although in some cases this is determined by law, ethics code, funding agency, publisher or by convention in the discipline. The central aim is that sufficient materials and data are retained to provide evidence that justifies the outcomes of the research and can be used to defend them if they are challenged. The potential value of the material for further research should also be considered, particularly where the research would be difficult or impossible to repeat.

Research data should be made available for use by researchers other than those who generated it, unless this is prevented by ethical, privacy or confidential considerations.

2.2 Ownership of data and materials

As a general rule the materials and data retained at the end of a research project carried out under the auspices of the University are the property of the University. [To the extent that there is intellectual property in research data, this is consistent with the University's Intellectual Property Policy.]

This general rule may be subject to the contractual arrangements for a project. For any project that spans several institutions, an agreement should be developed at the outset covering the ownership, control and storage of research data and primary materials.

2.2.1 Students

A student's principal supervisor and Head of School have overall responsibility for the retention and storage of the student's research data and materials. They must also ensure that the student is aware of his/her obligations as a researcher in respect of research data and materials, in particular those set out in section 2.7.

The School retains its responsibility for the management of a student's data and primary materials after the student's departure.

Unless a student has executed a relevant intellectual property assignment to the University, s/he will own copyright in their data.

2.2.2 Departing staff

When researchers leave the University, they may take with them copies of any research data they have generated. However, unless the University and a researcher reach an agreement to the contrary, the University retains primary responsibility for the ongoing management of the research data and primary materials generated by the researcher whilst employed at the University.

Any agreements with other institutions covering the ownership and storage of research data and primary materials should be reviewed whenever there is movement or departure of relevant research staff.

2.3 Access to data

The University agrees with principles and goals of open access to research data, subject to matters of privacy and confidentiality, and of first use for publication by the researcher who creates the data, such as:

- the routine deposition of data into stable, accessible and sustained data management and preservation environments;
- the enhancement of researcher expertise in the creation, management and sharing of high-quality research data;
- the capacity for researchers to discover, exchange, reuse and combine data from other researchers and other domains within their research in new ways;
- the ability to share data easily and seamlessly to support multidisciplinary research teams.

The University will therefore work towards the development and implementation of research data repository capacity at an institutional level. At least until such a repository is in place, the primary responsibility for data storage remains at School level.

2.4 Retention and storage of data and materials – School responsibilities

Each School must:

- establish procedures for the retention of research data;
- provide facilities for the safe and secure storage of research data;

- maintain records of where the research data are stored.

Wherever possible, original data should be retained in the School in which they were generated. Arrangements for material held in other locations must be documented and signed off by the researchers and their Heads of School. It is recommended that Schools hold more than one copy of data sets to safeguard against loss.

Individual researchers are permitted to hold copies of the data for their own use.

Subject to privacy and confidentiality provisions, procedures must permit research data to be accessible by persons other than the researcher.

Data (including electronic data) must be recorded in a durable and appropriately referenced form.

Computing systems must be secure, and information technology personnel must understand their responsibilities for network security and access control, particularly in respect of confidential data and materials.

2.5 Retention periods

Data must be held for a reasonable time to allow it to be accessed by potential users. For data that are published this may be for as long as interest and discussion persist following publication.

In general the minimum period for retention of data is 5 years from the end of the year of publication of the last refereed publication or other form of public release to an audience outside of the University that is based on the data.

However, in any particular case the period for which data should be retained should be determined by the specific type of research. For example:

- for short-term research projects that are for assessment purposes only, such as research projects completed by students, retaining research data for 12 months after the completion of the project will normally be sufficient;

- for areas such as gene therapy, research data must be retained permanently (e.g. patient records);

- if the work has community or heritage value, research data should be kept permanently, preferably within a national collection.

Rules in respect of the retention of specific types of materials and data include:

- signed consent forms for any research project cleared through the University's human ethics process must be retained for 15 years;

- records relating to the management, maintenance and care of animals (i.e. animal housing and welfare records, records of disposal) must be retained for 7 years;

- data in support of a patent application should be retained until 7 years after expiry of the patent (i.e. a minimum of 27 years);

- data from a clinical trial must be retained for 15 years from completion of the trial and 10 years after the last patient service provision or medico-legal action.

2.6 Data and confidentiality

Data management should comply with relevant privacy protocols and ethics obligations.

Project agreements may contain confidentiality provisions in respect of research data, or projects may be subject to confidentiality agreements. Any such agreement must be drafted or vetted by Research Services in consultation with the project leader and other researchers, and be executed in accordance with Council's Delegations.

It is the responsibility of the project leader to ensure that confidentiality obligations are met during the course of the project, and of the Head of School to ensure safe and secure storage of research data and materials.

For projects with the potential to generate commercialisable intellectual property, or subject to commercial arrangements, the Guidelines on Confidentiality in Commercial Projects should be adhered to.

2.7 Researcher responsibilities

Researchers must manage research data and primary materials in accordance with this Code and School procedures. To achieve this, researchers must:

- keep clear and accurate records of the research methods and data sources, including any approvals granted, during and after the research process;
- ensure that research data and primary materials are kept in safe and secure storage provided, even when not in current use;
- provide the same level of care and protection to primary research records, such as laboratory notebooks, as to the analysed research data;
- retain research data, including electronic data, in a durable, indexed and retrievable form;
- maintain a catalogue of research data in an accessible form;
- manage research data and primary materials according to ethical protocols and relevant legislation;
- comply with confidentiality or privacy obligations in respect of research data or primary materials.

3. Supervision of Research Trainees

3.1 Introduction

The primary safeguard against research misconduct is the example set by senior researchers. Researchers and supervisors must ensure that the role model they provide to junior colleagues is positive and conducive to a research culture of excellence, integrity, professionalism and mutual respect.

In return, research trainees must understand that in undertaking research they are joining an endeavour that requires dedication and accountability.

In this section, a ‘research trainee’ is: a higher degree by research student or an early career researcher.

3.2 University responsibilities

The University must ensure that each research trainee has an appropriately qualified and trained supervisor, and that the ratio of research trainees to supervisors is low enough for effective intellectual interaction.

The University must provide induction and training for all research trainees. This training should cover research ethics, this Code and other research policies of the University, occupational health and safety, environmental protection and the University’s mechanisms for dispute resolution, as well as technical matters appropriate to the trainee’s discipline.

This training should have high priority for completion early in research trainees’ studies and/or careers.

3.3 Supervisor responsibilities

Supervisors of research trainees should ensure that training starts as soon as possible in the career of a researcher. Training should encompass discipline-based research methods and other relevant skills, such as the ability to interact with industry and to work with diverse communities.

The research supervisor should guide the professional development of research trainees. This involves providing guidance in all matters relating to research conduct and overseeing all stages of the research process, including identifying the research objectives and approach, obtaining ethics and other approvals, obtaining funding, conducting the research, and reporting the research outcomes in appropriate forums and media.

Supervision includes oversight of the research outcomes from those under supervision. A supervisor must be satisfied that the research methods and outcomes of researchers and research trainees under their supervision are appropriate and valid.

Researchers and supervisors must ensure that research trainees receive appropriate credit for their work.

3.4 Trainee responsibilities

A research trainee must demonstrate a professional attitude towards the research. Frequent sessions with the supervisor are important, requiring the cooperation of both parties. The trainee should not wait until approached by the supervisor but should play an active part in maintaining an appropriate schedule of meetings.

A research trainee should complete all induction and training courses as soon as practical after starting research in the University.

4. Publication and Dissemination of Research Findings

4.1 Introduction

Dissemination of research findings is an important part of the research process, passing on the benefits to other researchers, professional practitioners and the wider community. There are many ways of disseminating research findings. Formal publication of the results of research will usually take place in academic journals or books, but this is not always the case. This section of the Code applies to all forms of dissemination, including non-refereed publications, such as web

pages, and other media such as exhibitions or films, as well as professional and institutional repositories.

4.2 Researcher responsibility to disseminate

Researchers have a responsibility to their colleagues and the wider community to disseminate a full account of their research as broadly as possible:

- the account should be complete, and, where applicable, include negative findings and results contrary to their hypotheses;
- publication activities must take account of any restrictions relating to intellectual property or culturally sensitive data;
- researchers must, where feasible, also provide research participants with an appropriate summary of the research results.

CONFIDENTIAL: Report of the Independent External Research Misconduct Inquiry June 2020

4.2.1 Accuracy in publication

Researchers must take all reasonable steps to ensure that their findings are accurate and properly reported. If they become aware of misleading or inaccurate statements about their work, they must correct the record as soon as possible.

Researchers must ensure that they cite other relevant work appropriately and accurately when disseminating research findings. Use of the work of other authors without acknowledgement is unethical.

A publication must include information on all sources of financial and in-kind support for the research and any potential conflicts of interest. Researchers must acknowledge the host institution and funding sources of the research.

4.2.2 Multiple submissions and republishing

It is not acceptable to include substantially the same research findings in several publications, except in particular and clearly explained circumstances, such as review articles, anthologies, collections, or translations into another language. An author who submits substantially similar work to more than one publisher, or who submits work similar to work already published, must disclose this at the time of submission.

Researchers must take all reasonable steps to obtain permission from the original publisher before republishing research findings.

4.2.3 Public communication of research findings

Subject to the requirements of contractual arrangements, researchers should seek to communicate their research findings to a range of audiences, which may include the sponsor, professional organisations, peer researchers, policy makers and the community. Researchers may be interviewed by the media, invited to participate in debates, and approached by individuals for comment.

However, while it is straightforward to discuss research findings with peers, it is harder to do so effectively with other groups and the media, where the scope for misunderstanding is much greater and frequently there is no opportunity to review the report of discussions before it becomes public. Therefore:

(a) Discussing research findings in the public arena should not occur until the findings have been tested through peer review. (The public arena does not include professional conferences.)

(b) To minimise misunderstanding about research outcomes, researchers should undertake to promptly inform those directly impacted by the research, including interested parties, before informing the popular media.

(c) In discussing the outcomes of a research project, special care should be taken to explain the status of the project – for example, whether it is still in progress or has been finalised.

All public comment must be made in accordance with the University's Code of Conduct and the Code of Conduct Explanatory Statement.

4.2.4 Restrictions on publication – private reporting of research findings

The University will only seek to delay publication in extraordinary circumstances, such as to permit the lodgement of a patent application.

The responsibility to disseminate research findings may be subject to contractual obligations to a research sponsor. The University undertakes to make all reasonable efforts to negotiate terms that do not restrict a researcher's capacity to publish research findings.

In the event that contractual obligations prevent or delay peer review until after the research results are delivered to a sponsor, the researcher must explain to the sponsor that the work has not been subject to peer review.

Where there is private reporting of research that has not yet been exposed to peer-review, especially when it is reported to prospective financial supporters, researchers have an obligation to explain fully the unreviewed status of the work and the peer-review mechanisms to which it will be subjected.

4.3 Deposition of publications into the University's repository

Publicly available research and scholarly output of the University is located in the central digital institutional repository known as ResearchOnline@JCU at http://eprints.jcu.edu.au.

Mandatory deposit applies to HERDC recognised publications that are authored or co-authored by members of the JCU community including staff, students and adjunct staff; and to JCU higher degree research theses.

In addition to mandatory deposit, JCU staff and students are encouraged to also deposit refereed and un-refereed research literature.

Material to be commercialised, or which contains confidential materials, or of which the promulgation would infringe a legal commitment by the University and/or the author including copyright; or materials restricted due to cultural sensitivity should not be included in the repository.

Authors are encouraged to retain copyright in their work where possible, and where a publisher insists on a transfer of copyright, to assert their right to deposit their work in the JCU institutional depository.

It is recommended that the post-print version of a publication be deposited in the institutional repository where a publisher does not allow deposit of the published version but does allow deposit of the post-print version.

5. Authorship

5.1 Introduction – authorship criteria

The outcomes of research may be disseminated in a variety of ways but enduring forms, such as journal articles, are particularly important. To be named as an author, a researcher must have made a substantial scholarly contribution to the work and be able to take responsibility for at least part of the work they contributed.

Attribution of authorship depends to some extent on the discipline, but in all cases, authorship must be based on substantial contributions in a combination of:

- conception and design of the project;
- analysis and interpretation of research data;
- drafting significant parts of the work or critically revising it so as to contribute to the interpretation.

None of the following contributions, in and of themselves, justifies including a person as an author:

- being head of department or holding some other position of authority;
- general supervision of the research team;
- personal friendship with the authors;
- providing a technical contribution but no other intellectual input to the project or publication;
- providing routine assistance in some aspects of the project;
- being involved in the acquisition of funding for the project;
- providing data that has already been published or materials obtained from third parties, but with no other intellectual input.

The right to authorship is not tied to position or profession and does not depend on whether the contribution was paid for or voluntary. Substantial intellectual involvement is required.

Collaborating researchers should agree on authorship and authorship order for a publication at an early stage in the research project and should review their decisions periodically.

Authorship must be offered to all people, including research trainees, who meet the criteria for authorship listed above.

Where a work has several authors, one should be appointed executive author to record authorship and to manage communication about the work with the publisher.

Sometimes the editor of a significant collective work or anthology has responsibilities analogous to those listed above for authorship and, in such cases similar criteria apply to 'editor' as to 'author'. However, the term 'editor' should be applied only to a person who has played a significant role in the intellectual shaping of a publication.

5.2 Acceptance of authorship – writing requirement – School responsibility

A person who qualifies as an author must not be included or excluded as an author without their permission. This should be in writing, and include a brief description of the person's contribution to the work. This applies not only to journal articles but also to published conference abstracts and similar publications.

The School of a JCU executive author must retain the written acknowledgments of authorship in the form of an original hand-written signature, or faxed or emailed consent.

If an author is deceased or cannot be contacted following reasonable efforts, the publication may proceed provided that there are no grounds to believe that this person would have objected to being included as an author.

5.3 Acknowledgments of other contributions

Authors must ensure that all those who have contributed to the research, such as research students and assistants and technical officers, are properly acknowledged. Courtesy demands that individuals or organisations providing facilities or materials should also be acknowledged.

Where individuals are to be named, their written consent must be obtained (readers may infer their endorsement of data and conclusions).

5.4 Disputes over authorship

Disputes over authorship between or involving University researchers should in the first instance be mediated by the relevant Associate Dean(s) Research, with escalation to the Senior Deputy Vice-Chancellor. Such disputes would not normally involve research misconduct, however where they do, the procedures in Part B of the Code must be followed.

6. Peer Review

6.1 Introduction

The term 'peer review' describes impartial and independent assessment of research by others working in the same or a related field. Peer review has a number of important roles in research and research management, in the assessment of grant applications, in selecting material for publication, in the review of performance of researchers and teams, and in the selection of staff.

Participation in peer review processes should be encouraged. Peer review provides expert scrutiny of a project, and helps to maintain high standards and encourage accurate, thorough and credible research reporting.

Peer review may also draw attention to deviations from the principles of this Code, such as double publication, errors and misleading statements. Peer review has been important in the detection of fabrication and fraud in research. However, on its own, it cannot ensure research integrity.

6.2 Participation in peer review

Researchers in receipt of public funding have a responsibility to participate in peer review processes.

Supervising researchers have a responsibility to assist trainee researchers in developing the necessary skills for peer review and understanding their obligation to participate.

6.3 Conduct of peer review

It is important that participants in peer review:

- are fair and timely in their review;
- act in confidence and do not disclose the content or outcome of any process in which they are involved;
- do not permit personal prejudice to influence the peer review process, and do not introduce considerations that are not relevant to the review criteria;
- do not take undue or calculated advantage of knowledge obtained during the peer review process;
- ensure that they are informed about, and comply with, the criteria to be applied;
- do not agree to participate in peer review outside their area of expertise;
- give proper consideration to research that challenges or changes accepted ways of thinking.

Peer reviewers must declare all relevant conflicts of interest.

6.4 Non-interference in the peer review process

Researchers whose work is undergoing peer review must not seek to influence the process or outcomes.

7. Conflicts of Interest

7.1 Introduction

A conflict of interest exists where there is a divergence between the individual interests of a person and their professional responsibilities such that an independent observer might reasonably conclude that the professional actions of that person are unduly influenced by their own interests.

Conflicts of interest in research are common and it is important that they are disclosed and dealt with properly. Conflicts of interest have the potential to compromise judgments and decisions that should be made impartially. Such compromise could undermine community trust in research.

Financial conflicts of interest are foremost in the public mind but other conflicts of interest also occur in research, including personal, professional and institutional advantages.

7.2 General principles – University policy

Where circumstances constitute a conflict of interest, or may lead people to perceive a conflict of interest, the person concerned must:

(a) make a full disclosure of the circumstances, and

(b) not take part in decision-making processes.

Record must be kept of how the conflict is managed in the proceedings, even if confidential information must be omitted.

In accordance with *Principle 2: Act with Integrity* of the Code of Conduct, staff must "take reasonable steps to avoid, or disclose and manage, any conflict of interest (actual, potential or perceived) in the course of employment".

The Explanatory Statement for the Code of Conduct details what is required of staff in order to effect this.

7.3 Researcher responsibilities

Researchers frequently have a conflict of interest that cannot be avoided. Decision making processes in research often need expert advice, and the pool of experts in a field can be so small that all the experts have some link with the matter under decision. An individual researcher should therefore expect to be conflicted from time to time, and be ready to acknowledge the conflict and make disclosures as appropriate.

Researchers should use the following approach to manage conflicts of interest:

- maintain records of activities that may lead to conflicts, for example: consultancies; membership of committees, boards of directors, advisory groups, or selection committees; and financial delegation or in receipt of cash, services or equipment from outside bodies to support research activities;
- when invited to join a committee or equivalent, review current activities for actual or apparent conflicts and bring possible conflicts of interest to the attention of those running the process;
- disclose any actual or apparent conflict of interest as soon as it becomes apparent.

8. Collaborative Research Across Institutions

8.1 Introduction

Research can involve a wide range of collaborations within institutions, between institutions, and internationally. Collaborative research raises specific issues, such as sharing intellectual property, managing research findings, managing conflicts of interest, and commercialising research outcomes.

Compliance with this Code is required during all forms of collaboration, even when conducting research with overseas institutions.

8.2 Collaborative agreements

All major research collaborations should be governed by a written agreement that is drafted or vetted by Research Services, and researchers are encouraged to have a written agreement with collaborators in all circumstances.

The agreement should cover intellectual property, confidentiality and copyright issues; sharing commercial returns, responsibility for ethics and safety clearances; and reporting to appropriate agencies. It should address the protocols to be followed by the partners when disseminating the research outcomes, and the management of primary research materials and research data.

The agreement may take various forms, including a legal contract, an exchange of letters or emails, or a research management plan. Agreements involving the transfer of funds or restrictions on the use of or commercial dealings with intellectual property must be signed in accordance with Council's Delegations.

Researchers must ensure that they are familiar with and understand the agreement, seeking advice from Research Services as required.

PART B

BREACHES OF THE CODE, RESEARCH MISCONDUCT, AND THE FRAMEWORK FOR RESOLVING ALLEGATIONS

9. Principles and Responsibilities

9.1 Basic concepts

In this Part B, 'Breaches of the Code' are specific actions or omissions that lack the seriousness of consequence or wilfulness to constitute research misconduct.

Such breaches can be remedied by counselling or advice. Their repetition or continuation may, however, lead to more serious consequences and may constitute research misconduct.

'Research misconduct' involves serious breaches of the Code that are sufficiently substantial to warrant formal allegation, investigation and denial or admission.

If proven, such misconduct may lead the Vice-Chancellor to believe that disciplinary action is required. This action will be in accordance with the "Misconduct or Serious Misconduct" provisions of the Union Collective Agreement.

A complaint or allegation relates to research misconduct if it involves all of the following:

- an alleged breach of this Code;
- intent and deliberation, recklessness or gross and persistent negligence;
- serious consequences, such as false information on the public record, or adverse effects on research participants, animals or the environment.

Research misconduct includes fabrication, falsification, plagiarism or deception in proposing, carrying out or reporting the results of research, and failure to declare or manage a serious conflict of interest. It includes avoidable failure to follow research proposals as approved by a research ethics committee, particularly where this failure may result in unreasonable risk or harm to humans, animals or the environment. It also includes the wilful concealment or facilitation of research misconduct by others.

Repeated or continuing breaches of this Code may also constitute research misconduct, and do so where these have been the subject of previous counselling or specific direction.

Research misconduct does not include honest differences in judgment in management of the research project, and may not include honest errors that are minor or unintentional.

9.2 Relationship to other policies

9.2.1 Staff

The University has procedures that deal with misconduct by staff, most particularly its procedures on Misconduct and Serious Misconduct (which form part of the Enterprise Agreement). This Code introduces preliminary processes that are to be applied when research misconduct by a member of staff is alleged to have occurred.

The findings of fact and any determination of research misconduct reached through the processes in this Code must then be used if the University decides to progress with disciplinary action in accordance with the University's separate provisions regulating employment conditions, as noted above.

9.2.2 Students

Research misconduct alleged to have been perpetrated by a student is to be dealt with in accordance with the policies: Student Conduct Policy or Student Academic Misconduct Requirements, as appropriate.

9.3 Positions and responsibilities

9.3.1 Advisers in Research Integrity

The University, through the Research Committee, must appoint two senior staff members at each of the Cairns and Townsville campuses as advisers in research integrity.

Each adviser will be able to advise a staff member who is unsure about a research conduct issue and may be considering whether to make an allegation. Advisers should be people with research experience, wisdom, analytical skills, empathy, knowledge of the institution's policy and management structure, and familiarity with the accepted practices in research.

An adviser should not be involved in a case if he or she has a relevant conflict of interest.

The adviser in research integrity should explain the options open to the person considering, making, or having made an allegation. These options include:

- referring the matter directly to the person against whom the allegation is being made;
- not proceeding or withdrawing the allegation if discussion resolves the concerns;

- referring the allegation to a person in a supervisory capacity for resolution at the School level;

- making an allegation of research misconduct in writing to the Senior Deputy Vice-Chancellor.

The adviser's role does not extend to investigation or assessment of the allegation.

The adviser must not make contact with the person who is the subject of the allegation, and he or she must not be involved in any subsequent inquiry.

9.3.2 Senior Deputy Vice-Chancellor

In the terms of the National Code, the Senior Deputy Vice-Chancellor is the University's 'designated person'.

The role of the designated person is to receive a written allegation, conduct a preliminary investigation, and advise the Vice-Chancellor whether allegations appear to be justified and whether a prima facie case exists. The designated person must maintain full records of all matters that relate to allegations of research misconduct.

When undertaking a preliminary assessment of allegations, the designated person should take into account the requirements of this Code. He or she should also consider whether any immediate action should be taken, such as referral of allegations not related to research to other institutional disciplinary processes. Where necessary, the designated person must ensure that arrangements in the local workplace are fair to all parties until the allegations are resolved. The designated person must have authority to secure all relevant documents and evidence so that they are available if it is decided that the allegations are to be investigated.

The designated person must advise the Vice-Chancellor whether the allegations should be dismissed, dealt with under misconduct provisions unrelated to research misconduct, referred back to the departmental level with instructions as to how they are to be handled, or investigated further through a research misconduct inquiry. If the advice is to investigate the matter further, the designated person should also advise how the inquiry should be constituted. After providing advice to the Vice-Chancellor, the designated person should not play any further role in the matter, except that he or she may be called to give evidence or expert opinion.

9.4 Procedural fairness

A person who is the subject of an allegation must be treated fairly and provided with opportunities to respond to allegations in writing. The allegation of research misconduct must be stated clearly in writing, the person facing the allegation has a right to be heard, and the persons inquiring into the allegation (including the members of any inquiry panel) must be free from bias or preconception and must conduct themselves in a manner that demonstrates this.

A person who makes an allegation must also be treated fairly and according to any legislative provisions for whistleblowers during and following investigation of the allegation.

10. The Framework for Resolving Allegations

Section 10 must be read and implemented in conjunction with relevant university industrial instruments and policies.

10.1 The framework

The framework for receiving and investigating allegations of research misconduct is set out in the National Code as follows:

(1) The University has appointed a number of senior staff to act as advisers in research integrity. An adviser can be approached in confidence to discuss the issue of concern. The adviser will discuss the matter, the Code and the University's policies, and explain the options for taking action.

(2) It is preferable that, in the first instance at least, complaints and allegations are dealt with at the School level. However, if circumstances make this difficult or not possible, the adviser will suggest other approaches.

(3) If the complaint cannot be handled to everyone's satisfaction at the School level, a formal complaint or allegation must be made in writing to the Senior Deputy Vice-Chancellor, either directly by the original complainant or by the Head of School.

(4) The Senior Deputy Vice-Chancellor must advise the Vice-Chancellor whether a prima facie case exists, and how to proceed. Options include:

- dismissing the allegations;
- instructing the School on how to deal with the allegations where no formal misconduct process is required;
- dealing with the complaint under provisions unrelated to research misconduct;
- investigating the matter further through a research misconduct inquiry.

If the Vice-Chancellor decides that a research misconduct inquiry is needed, he or she must decide whether to use an internal institutional research misconduct inquiry or an independent external research misconduct inquiry.

(5) Upon completion of its tasks, the research misconduct inquiry must advise the Vice-Chancellor of its findings of fact and what, if any, research misconduct has occurred.

(6) The Vice-Chancellor must then determine the actions to be followed, according to the Union Collective Agreement and University policy.

(7) Subsequent actions may, as appropriate, include informing relevant parties of the outcome and correcting the public record of the research.

10.2 The Research Misconduct Inquiry

10.2.1 Decision by the Vice-Chancellor

The decision taken by the Vice-Chancellor on the advice of the Senior Deputy Vice-Chancellor must be notified in writing to those making the allegation, the person who is the subject of the allegation, the Senior Deputy Vice-Chancellor and any other parties as required under any relevant agreement (for example a funding, collaborative or industrial agreement).

In making the decision to proceed to an inquiry, and if so, whether the inquiry should be conducted internally or externally, the Vice-Chancellor should consider the gravity of the allegation, the potential consequences of the allegation being upheld, and the need to maintain public confidence in research. In the event that these are likely to be serious, the Vice-Chancellor should establish an external research misconduct inquiry.

10.2.2 Internal research misconduct inquiry

The panel that conducts an internal institutional research misconduct inquiry should include at least one member with knowledge and experience in the relevant field of research and at least one member who is familiar with the responsible conduct of research. Members may be drawn from external sources. All members must be free from bias or conflicts of interest.

Legal representation of parties should not be allowed, but a person appearing before the research misconduct inquiry may be accompanied by a support person.

Additional criteria for panel membership and conduct of business should be drawn from the Enterprise Agreement.

10.2.3 Independent external research misconduct inquiry

Panel members who conduct an independent external research misconduct inquiry must not be employed by the University, have other current or recent dealings with the University, or otherwise be subject to a reasonable perception of bias.

The panel should normally be constituted with a minimum membership of three people. At least one member should be legally qualified or have extensive experience as a member of a tribunal or similar body. At least one member should have knowledge and research experience in a relevant, related field of research, but not directly in the research area of the allegations. Procedural fairness demands that the person subject to the inquiry be able to hear and respond to any and all material to be used by the panel in its decision-making process.

Therefore, it is preferable that any expert knowledge that may be required is provided to the inquiry by witnesses rather than members of the panel. This will allow the witnesses to be questioned by both the panel and the person subject to the inquiry. If a panel member has relevant expert knowledge, it must be put to the defendant.

To be consistent with the general practice of tribunals, there are standard practices that should be followed. The panel should normally be assisted by a legally qualified person acting as ‘counsel assisting’, whose role it is to prepare the material to be put to the tribunal and to examine (question) witnesses on behalf of the panel. This person is not a member of the inquiry panel but may provide the panel with legal advice during the hearing. The person facing the allegations should be entitled to legal representation. The inquiry is not bound by the rules of evidence but its procedures must be consistent with the principles of natural justice and due process. In making findings, the inquiry should apply the civil standard of proof, although the standard of proof in serious cases will be higher than the mere balance of probabilities. Counsel assisting the inquiry will normally advise on this issue, as there is long-standing legal precedent.

Whether an external research misconduct inquiry by people external to the University is open to the public or conducted in private should be determined by the panel itself on the basis of public interest. The panel has the responsibility to hear the views of all parties on this matter before such a decision is made.

When conducting an independent external research misconduct inquiry, the person subject to the inquiry may have an entitlement to appeal to a higher authority, most usually the courts.

10.3 Subsequent actions

Where the University believes that disciplinary action is required, the Vice-Chancellor must act on the findings of a research misconduct inquiry in accordance with the Enterprise Agreement.

The Vice-Chancellor must inform all relevant parties of the research misconduct inquiry findings and the actions taken by the University. Relevant parties may include affected staff, research collaborators including those at other institutions, funding organisations, journal editors, and professional registration bodies. The public record, including publications, may need to be corrected if research misconduct has affected the research findings and their dissemination.

The findings of an independent, external research misconduct inquiry should be made available to the public.

If the allegations are shown to be unfounded, the University should make every effort to reinstate the good reputation of the accused researcher and their associates. Persons making mischievous complaints in regard to research conduct should face disciplinary action.

Related documents, legislation or JCU Statutes

Enterprise Agreement 2010

Student Conduct Policy

Student Academic Misconduct Requirements

Code of Conduct

Code of Conduct Explanatory Statement

Guidelines on Confidentiality in Commercial Projects

Intellectual Property Policy

National Statement on Ethical Conduct in Human Research (NHMRC 2007)

Values and Ethics: Guidelines for Ethical Conduct in Aboriginal and Torres Strait Islander Health Research (NHMRC 2003)

Australian Code of Practice for the Care and Use of Animals for Scientific Purposes (NHMRC 2004)

Approval Details

Policy sponsor:	Senior Deputy Vice-Chancellor
Approval authority:	Academic Board
Version no:	09-1

Date for next review:	31/08/2014

Modification History

Version no.	Approval date	Implementation date	Details
09-1	31/08/2009	01/09/2009	

APPENDIX 2: OONA LÖNNSTEDT THESES AND RELEVANT PUBLISHED PAPERS

No.	Paper details	Further info
1	Oona Lönnstedt 2009. Predator-prey interactions and the importance of chemical alarm cue in coral reef fish. B.Sc. Honours thesis, JCU	
2	Lönnstedt OM and McCormick MI 2011. Growth history and intrinsic factors influence risk assessment at a critical life transition for a fish. Coral Reefs, 30	Honours thesis Chapter 2
3	Lönnstedt OM, McCormick MI, Meekan MG, Ferrari MCO and Chivers DP 2011. Learn and Live: predator experience and feeding history determines prey behaviour and survival. Proceedings of the Royal Society B, 279	Chapter 2 of PhD thesis
4	Lönnstedt OM, McCormick MI and Chivers DP. 2013a. Degraded environments alter prey risk assessment. Ecology and Evolution 3 (1)	Chapter 5 of PhD thesis
5	Lönnstedt OM, McCormick MI and Chivers DP. 2013b. Predator-induced changes in the growth of eyes and false eyespots. Scientific Reports 3: 2259	Chapter 3 of PhD thesis
6	Lönnstedt OM, Munday PL, McCormick MI, Ferrari MCO and Chivers DP. 2013. Ocean acidification and responses to predators: can sensory redundancy reduce the apparent impacts of elevated CO2 on fish? Ecology and Evolution 3 (10)	Chapter 6 of PhD thesis
7	Lönnstedt OM and McCormick MI. 2013. Ultimate predators: lionfish have evolved to circumvent prey risk assessment abilities. PLoS ONE, 8 (10).	Chapter 4 of PhD thesis
8	Lönnstedt OM, McCormick MI, Chivers D and Ferrari M 2014. Habitat degradation is threatening reef replenishment by making fish fearless. Journal of Animal Ecology, 83 (5)	Not part of PhD. Fieldwork conducted at LIRS during PhD candidature
9	Lönnstedt OM, Ferrari MCO and Chivers DP. 2014. Lionfish predators use flared fin displays to initiate cooperative hunting. Biology Letters 10.	Not part of PhD. Fieldwork conducted at LIRS during PhD candidature
10	Lönnstedt OM and McCormick MI 2015. Damsel in distress: captured damselfish prey emit chemical cues that attract secondary predators and improve escape chances. Proceedings of the Royal Society B, 282	Not part of PhD. Fieldwork conducted at LIRS during PhD candidature

11	Lönnstedt OM and Frisch AJ 2014. Habitat bleaching disrupts threat responses and persistence in anemonefish. Marine Ecology Progress Series, 517.	Not part of PhD. Fieldwork was conducted at North West Island, April-May 2013, during PhD candidature
12	Rizzari JR and Lönnstedt OM 2014. Cooperative hunting and gregarious behaviour in the zebra lionfish, *Dendrochirus zebra.* Marine Biodiversity, 44 (4)	Not part of PhD. Fieldwork conducted Sept-Dec 2012 at LIRS during PhD candidature
13	Oona Lönnstedt 2013. Predator-prey interactions and the importance of sensory cues in a changing world. PhD thesis, JCU	

APPENDIX 3: LIST OF WITNESSES INTERVIEWED BY THE PANEL

Professor Phil Munday, 28 January 2020
Professor Michael Kingsford, 28 January 2020
Professor Chris Cocklin, 28 January 2020
Ms Vanessa Cannon, 28 January 2020
Emeritus Professor Helene Marsh, 29 January 2020

APPENDIX 4: LIST OF PERSONS FROM WHOM DOCUMENTARY EVIDENCE WAS SOUGHT AND OBTAINED BY THE PANEL

Dr Oona Lönnstedt
Dr Michael McCormick
Dr Anne Hoggett AM, Director, Lizard Island Research Station, Australian Museum
Graduate Research School, James Cook University
Dr Ashley Frisch, Great Barrier Reef Marine Park Authority

APPENDIX 5: DOCUMENTARY EVIDENCE AVAILABLE TO THE PANEL

JCU, assisted by Clayton Utz, solicitors for JCU in relation to this matter, collated a large volume of documentation in relation to this Inquiry. It was available to the Panel, to Counsel and to Dr Lönnstedt, and included the following:

- Dr Lönnstedt's *curriculum vitae*, statement of service, position description;
- Dr Lönnstedt's honours and PhD theses;
- Ten (10) of Dr Lönnstedt's published papers and (where available) related supplementary information and datasets. The Panel also considered Paper 12 listed in Appendix 2 above, and the Finn *et al* paper referred to in footnote 29 above;
- Documents relating to Dr Lönnstedt's PhD enrolment, proposal, candidature, confirmation and examination;
- Documentation for a number of Animal Ethics approvals;
- some Lizard Island Research station reports;
- Inquiry Terms of Reference and associated formal documents that led to or provide context to the Inquiry;
- JCU Submission, 13 January 2020;
- Witness statements (11 documents);
- Exhibits (7 documents, including Dr Lönnstedt's letter and statement to the Panel);
- Transcripts (2 interview transcripts and 5 recordings);
- Panel requests for information (11 documents). The Panel also considered one further email from a co-author.