

# ANNUAL REPORT

2016-2017



UNIVERSITY of  
TASMANIA



**IMAS**  
INSTITUTE FOR MARINE & ANTARCTIC STUDIES

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## Welcome and Introduction

We are pleased to present the 2016-17 annual report for the CSIRO-UTAS PhD Program in Quantitative Marine Science (QMS), now in its 2nd year under the renewed 5-year commitment that began 1 July 2015, and in its 12<sup>th</sup> year of operation overall.

The purpose of the QMS program is to enhance the quality and number of Australian PhD graduates in quantitative marine science, and to develop scientists with skills appropriate for potential employment by CSIRO and other organisations in the quantitative marine science field.

### Key Challenges, strategies and achievements

- UTAS funding for scholarships continues at adequate levels. All UTAS academic units have targets for research higher degree enrolments. These targets are becoming difficult to meet solely from traditional sources of funding such as Australian Postgraduate Awards. Full or partial funding of students by the QMS program, industry, Centres of Excellence, ARC Discovery Projects and the Centre for Marine Socioecology are all looked on favourably when admission decisions are made.
- Our enrolments around the highest number since the beginning of the program. The QMS program continues to attract a higher number of international students than domestic students.
- We continue to rejuvenate the project offerings on the QMS website to better reflect current supervision expertise, attracting better quality applicants and removing older, irrelevant project content.
- We are continually working to keep the course offerings relevant and have recently revamped the core vs electives structure to better suit the desired skill set of graduates.
- QMS conference funding continues to provide skilling and networking opportunities for our candidates, such as speaking at international symposiums and conferences enhancing the QMS brand.

The program is functioning well and has reached its target capacity for 2016-2017.

It is a great pleasure to be part of the program, and we are very proud of our students.

Sincerely



Peter Strutton, Director, QMS Program

## Current Steering Committee Membership

- Peter Strutton (IMAS, Director/Chair)
- Zanna Chase (IMAS)
- Klaas Hartmann (IMAS)
- Richard Matear (CSIRO)
- Peter Thompson (CSIRO)
- Simon Wotherspoon (IMAS, ex-officio)

## Statistics on Enrolments, Scholarships, Submissions and Graduations

### Summary of student enrolments

The QMS Program was launched in 2004. Since then a total of 62 students have graduated from the Program, approximately 6 graduations per year. The Enrolments numbers per year for the current and previous 5 year contract are shown below.

*Table 1: New Enrolled students by year (incl. comparison of numbers of international and domestic students)*

Financial Year	Number of Students	International	Domestic
2010-2011	3	2	1
2011-2012	9	6	3
2012-2013	6	4	2
2013-2014	3	3	0
2014-2015	10	6	4
2015-2016	15	11	4
<b>2016-2017</b>	<b>9</b>	<b>9</b>	<b>0</b>
Applications Accepted (not commenced)	5	3	2

### QMS Full Scholarships awarded 1 July 2016- 30 June 2017

None. The program is at 'steady state' in terms of offering scholarship funds, so new scholarships are made available when an existing student graduates.

### QMS Top-up Scholarships awarded 1 July 2016- 30 June 2017

Abhishek Abhishek Savita (International, IMAS)

Enrico Arena (International, IMAS)

Sandra Curin Osario (International, BECAS)

Floriaan Devloo-Delva (International, SET)

Emilio Echevarria (International, IMAS)

Freddie Heather (International, IMAS)

Jiale Lou (International, ARCCSS)

Kieran Murphy (International, IMAS)

Saurabh Rathore (International, IMAS)

## Graduates 2016-2017

Name (Scholarship)	Supervisors	Research Project
<b>Eva Cougnon (QMS)</b>	Ben Galton-Fenzi (UTAS) Steve Rintoul (CSIRO)	Quantifying the Impact of Glacial Melt Water on Antarctic Bottom Water
<b>Felipe Briceno Jacques (BECAS)</b>	Gretta Pecl (UTAS) Caleb Gardner (UTAS) Jeff Dambacher (CSIRO) Stewart Frusher (UTAS) Jessica Andre (UTAS)	Understanding Predation Risk in Fisheries: Octopus depredation in the southern rock lobster ( <i>Jasus edwardsii</i> ) fishery in Australia
<b>Veronique Lago (QMS)</b>	Nathan Bindoff (UTAS) Susan Wijffels (CSIRO) Simon Marsland (UTAS) John Church (CSIRO)	Ocean Temperature and Salinity Responses to 50 Year Changes in Surface Conditions
<b>Cesar Penaherrera-Palma (SENECYT)</b>	Jayson Semmens (UTAS) Alistair Hobday (CSIRO)	Abundance, Distribution and Conservation Value of Sharks in the Galapagos Marine Reserve
<b>Nick Perkins (APA)</b>	Neville Barrett (UTAS) Scott Foster (CSIRO) Keith Hayes (CSIRO)	The Effect of Collection and Scoring Methods on Inferences for Analyses of AUV Data
<b>Nick Roden (APA)</b>	Patti Virtue (UTAS) Tom Trull (CSIRO) Bronte Tilbrook (CSIRO) Guy Williams (UTAS)	Acidification and Carbonate Chemistry of Shelf Waters in the Australian Antarctic Territory

## Submitted theses 2016-2017

Name (Scholarship)	Supervisors	Research Project
<b>Claudio Castillo Jordan (BECAS)</b>	Stewart Frusher (UTAS) Sean Tracey (UTAS) Geoff Tuck (CSIRO)	Disentangling the Climate Change Impacts on Productivity and Availability for <i>Macruronus</i> Species
<b>Ross Daley (APA)</b>	Jayson Semmens (UTAS) Alistair Hobday (CSIRO)	Spatial Management Strategies for Deep-sea Sharks
<b>Pam Michael (IMAS)</b>	Peter Strutton (UTAS) Chris Wilcox (CSIRO) Alistair Hobday (CSIRO) Geoff Tuck (CSIRO)	Pelagic Longlines and Albatross in the Southern Indian Ocean: Interactions of fleet dynamics, climate change, and albatross

## Summary of Graduates

The QMS Program was launched in 2004. Since then a total of 62 students have graduated from the Program, approximately 6 per year.

*Table 2: Graduations by year*

Year	Number of students
2007	4
2008	3
2009	10
2010	8
2011	5
2012	5
2013	9
2014	3
2015	5
2016	5
2017	6
Total	62

## Overview of current student projects

Student	Started	Citizenship	Scholarship	Topic	Primary Supervisor	CSIRO Supervisor
Abhishek Savita	5/06/2017	Int	IMAS	Global and regional sea level sensitivity to changing ocean water mass properties and circulation processes	Domingues, Catia;	Marsland, Simon
Arena Enrico	30/06/2017	Int	IMAS	Fingerprinting the Southern Hemisphere's ocean contribution to global changes in steric sea level	Domingues, Catia;	Rintoul, Stephen
Hugo Bastos de Oliveira	2/12/2013	Int	SWB	Study of the Southern Australia coastal upwelling through modelling and data assimilation	Coleman, Richard	Oke, Peter
Ana Berger	15/12/2014	Int	IMAS	Variability and dynamics of the Indonesian Throughflow	Nikurashin, Maxim	Wijffels, Susan; Sloyan, Bernadette
Bella Blanche	8/02/2016	Domestic	QMS	Detecting human influence in global ocean salinity patterns	Hobbs, Will	Wijffels, Susan
Pearse Buchanan	1/11/2014	Domestic	APA	Ocean Deoxygenation: A paleo-modelling perspective	Chase, Zanna	Matear, Richard
Curtis Champion	1/02/2016	Domestic	APA	Responses to Warming Waters: Range extension in marine fishes from South-East Australia	Tracey, Sean	Hobday, Alistair
Richard Cottrell	16/03/2016	Permanent Resident	IMAS	Bridging the Land-Sea Divide: Links, Interactions and Trade-Offs for Food Security and Biodiversity	Blanchard, Julia	Fulton, Beth
Andrea Cranenburgh	1/03/2016	Domestic	APA	How do Standing Meanders Brake the Antarctic Circumpolar Current?	Phillips, Helen	Rintoul, Stephen
Sandra Curin Osorio	20/04/2017	Int	BECAS	Identifying Fish Stocks Prone to Interdecadal Productivity Shifts Across Different Worldwide Marine Ecosystems	Frusher, Stewart	Seeking supervisor
Ajitha Cyriac	18/11/2015	Int	QMS	Eastward Flows, Ocean Mixing and Air-Sea Interaction in the Southeast Indian Ocean	Phillips, Helen	Feng, Ming
Florian Devloo-Delva	15/05/2017	Int	SET	From Rivers to Ocean Basins: Quantifying Sex-specific Connectivity in Sharks	Burridge, Chris	Feutry, Pierre
Fabio Dias	24/08/2015	Int	TGRS	Testing of Climate Models and Sea Level Rise Projections using Observations of Ocean Heat Uptake	Domingues, Catia;	Rintoul, Stephen
Emilio Echevarria	28/06/2017	Int	IMAS	Global to Coastal Implications of Surface Current Modulation of the Wind-Wave Field	Holbrook, Neil	Hemer, Mark
Jessica Ericson	15/10/2015	Domestic	APA	Mapping the lipid content and composition of Antarctic krill across space and time: A quantitative approach to estimating krill recruitment in the present and future Southern Ocean	Virtue, Patti	Nichols, Peter
Romain Forestier	1/04/2016	Int	QMS	Modelling biodiversity related ecosystem processes as a Complex Adaptive System	Blanchard, Julia	Fulton, Beth
Kirianne Goossen	18/01/2016	Int	QMS	Microbial oceanography of Australian Coastal Waters	Bowman, John	Bodrossy, Lev
Madeline Green	23/02/2015	Domestic	QMS	Population Connectivity of Sharks in the Western South Pacific	Tracey, Sean	Appleyard, Sharon; White, William

Vicki Hamilton	24/07/2012	Domestic	IMAS	Energetic Variability in Sperm Whales and Relationships with the Marine Environment	Hindell, Mark	Evans, Karen
Freddie Heather	21/06/2017	Int	IMAS	Development of a new class of size-structured ecological model for assessing human impacts on coastal food webs	Stuart-Smith, Rick	Bax, Nic
Thibaut Houitte de La Chesnais	27/11/2014	Int	QMS	The Role of Cephalopods in the Structure and Functioning of Marine Ecosystems	Pecl, Gretta	Fulton, Beth
Damien Libaros	28/08/2015	Int	IMAS	Untangling the Key Physical Processes Responsible for Ocean Warming Under Antarctic Ice Shelves	Klocker, Andreas	Legresy, Benoit
Jiale Lou	28/03/2017	Int	ARCCSS	Predictability of the Interdecadal Pacific Oscillation	Holbrook, Neil	Kane, Terence
Kieran Murphy	28/11/2016	Int	IMAS	Life in the fast lane: understanding individual to community level processes of squid in a changing climate	Blanchard, Julia	Richards, Shane
Amy Nau	2/06/2015	Permanent Resident	TGRS	Mapping the Middle: Analysis of the water column using acoustic and optical methodologies	Lucieer, Vanessa	Martin, Tara
Ram Patel	2/03/2016	Int	TGRS	The Physical and Bio-Optical Structure of Southern Ocean Eddies in Observations and Models	Phillips, Helen	Lenton, Andrew
Samantha Peel	27/01/2015	Domestic	TGRS	Statistical Issues for Mapping Biodiversity in the Southern Ocean	Hill, Nicole	Foster, Scott
Javier Porobic	26/11/2014	Int	TGRS	An ecosystem based management framework for the Juan Fernandez ridge fisheries	Frusher, Stewart	Fulton, Beth
Saurabh Rathore	31/10/2016	Int	IMAS	The impact of recent Indian Ocean warming on the circulation, watermass distribution and air-sea interaction in the Indian Ocean	Phillips, Helen	Feng, Ming
Asher Riaz	6/07/2015	Int	IMAS	Closing the Energy Cycle in Global Ocean Models	Klocker, Andreas	O'Kane, Terence
Lauren Roman	23/02/2015	Domestic	APA	Population Level Effects of the Ingestion of Marine Debris by Seabirds	Hindell, Mark	Hardesty, Denise; Wilcox, Chris
Yannick Rousseau	10/08/2015	Int	QMS	Predicting the future of global seafood production	Watson, Reg	Fulton, Beth
Serena Schroeter	30/03/2015	Domestic	QMS	The response of Antarctic sea ice to anthropogenic climate change, from model and satellite observations	Hobbs, William	Matear, Richard
Gabriela Semolini Pilo	15/12/2013	Int	CAPES/	Eddies Tridimensional Structure and their Role in Oceanic Mass and Heat Distribution	Coleman, Richard	Oke, Peter
Alessandro Silvano	29/09/2015	Int	APA	Observations of Ocean - Ice Shelf Interaction at the Totten Glacier	Williams, Guy	Rintoul, Stephen
Swan Li-San Sow	29/09/2015	Int	TGRS	Microbial Oceanography of the Different Water Masses of the Southern Ocean	Boyd, Philip	Trull, Tom
Samantha Twiname	27/10/2014	Domestic	APA	Mechanistic approaches to understanding climate driven range shifts: using thermal performance to predict the outcome of predator-prey and competitive	Pecl, Gretta	Hobday, Alistair
Roxana Vasile	9/12/2013	Int	QMS	Rock Lobster Larval Dispersal Modelling	Hartmann, Klaas	Hobday, Alistair
Luwei Yang	14/10/2015	Int	IMAS	Internal waves and mixing in the Southern Ocean	Nikurashin, Maxim	Sloyan, Bernadette



## QMS sponsored Conference Travel

QMS has funded \$16,400 in travel funding so far in 2016/2017. Students who have been awarded funds in the last round of 2016 and the first round of 2017 are listed below:

- **Pearse Buchanan**, American Geophysical Union – Fall meeting, San Francisco 2016, \$400
- **Serena Schroeter**, International Symposium on the Cryosphere in a Changing Climate in 2017 in Wellington, New Zealand, \$2,000
- **Kirianne Goossen**, The Federation of European Microbiological Societies (FEMS) 2017 in Valencia, Spain, \$2,000
- **Hugo Bastos de Oliveira**, Gordon Research Conference – Multi-scale Coastal Ocean Dynamics and Exchange Processes in 2017 in Maine, USA, \$2,000
- **Sam Twiname**, 11th International Conference and Workshop on Lobster Biology and Management in 2017 in Maine, USA, \$2,000
- **Alessandro Silvano**, The Summer School in fluid dynamics of sustainability and environment' in Paris in 2017, \$2,000
- **Ajitha Cyriac**, The International Association for Physical Sciences of the Oceans (IAPSO) conference: 'Good hope for earth sciences' in Cape Town 2017, \$2,000
- **Romain Forestier**, The 3rd international workshop on trait-based approaches to ocean life in Norway 2017, \$2,000
- **Luwei Yang**, 21st Conference on Atmospheric and Oceanic Fluid Dynamics, Portland Oregon 2017, \$2,000

## QMS supported Write-up scholarship

Table 3: QMS Write-Up Scholarship Recipients

Name	Date started	Amount Awarded
Nick Perkins	9/5/16-1/8/16	\$8,000
Eva Cougnon	28/6/16-20/9/16	\$8,000
Pam Michael	5/9/16- 28/11/16	\$8,000

## QMS Supervisors

Table 3: CSIRO and UTAS Supervisors involved in the QMS Program

UTAS Supervisor	Number of current students	CSIRO Supervisors	Number of current students	Supervisors from other institutions	Number of current students
Bindoff, Nathaniel	9	Appleyard, Sharon	1	Cirano, Mauro (FURD)	1
Blanchard, Julia	5	Bodrossy, Lev	1	Hogg, Andrew (ANU)	1
Bowman, John	1	Church, John	1	Massom, Rob (AAD)	1
Boyd, Phillip	1	Evans, Karen	1		
Burridge, Chris	1	Feng, Ming	2		
Chase, Zanna	1	Feutry, Pierre	1		
Coleman, Richard	2	Foster, Scott	1		
Domingues, Catia	3	Fulton, Beth	7		
Edgar, Graham	1	Hardesty, Denise	1		
Frusher, Stewart	3	Hemer, Mark	1		
Galton-Fenzi, Ben	1	Hobday, Alistair	5		
Gardner, Caleb	1	Legresy, Benoit	1		
Hartmann, Klaas	2	Lenton, Andrew	1		
Hill, Nicole	1	Marsland, Simon	2		
Hindell, Mark	4	Martin, Tara	1		
Hobbs, Will	3	Matear, Richard	1		
Holbrook, Neil	2	Nichols, Peter	1		
Johnson, Craig	1	O'Kane, Terence	2		
Klocker, Andreas	2	Oke, Peter	2		
Lucieer, Vanessa	1	Rintoul, Stephen	4		
Nikurashin, Max	4	Sloyan, Bernadette	2		
Oliver, Eric	1	Tilbrook, Bronte	1		
Pecl, Gretta	4	Trull, Thomas	2		

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Phillips, Helen	4	Tuck, Geoff	1
Phipps, Steven	1	Wijffels, Susan	1
Semmens, Jayson	2	Wilcox, Chris	1
Strutton, Peter	2		
Stuart-Smith, Rick	1		
Swadling, Kerrie	1		
Tracey, Sean	5		
Virtue, Patti	2		
Watson, Reg	2		
Williams, Guy	2		

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## Summary of QMS Teaching (Unit Breakdown)

Table 4: Units taught in 2<sup>nd</sup> half 2016

Unit	Teaching Staff UTAS	Other Teaching Staff
QMS514 Structure and Function of Marine and Antarctic Ecosystems	Julia Blanchard	Jessica Melbourne-Thomas Jeff Dambacher Rich Little
QMS515 Techniques in Marine Remote Sensing	Kelvin Michael, Pete Strutton, Vanessa Lucieer, Alex Fraser and Darren Turner	

Table 5: Units taught in 1<sup>st</sup> half 2017

Unit	Teaching Staff UTAS	Other Teaching Staff
QMS510 Introduction to Quantitative Marine Science: R and Matlab	Simon Wotherspoon	
QMS511 Physical Oceanography	Maxim Nikurashin	
QMS512 Marine Biogeochemistry	Zanna Chase, Pete Strutton Kristen Karsh	Andrew Lenton Tom Trull
QMS514 Structure and Function of Marine and Antarctic Ecosystems	Julia Blanchard	Jessica Melbourne-Thomas Jeff Dambacher Rich Little

## QMS Student publications – 2016-2017

QMS student authors are indicated in bold. Publications have been included until one year after graduation to allow for delays in the publication process.

- Bonebrake, T C., C J. Brown, J. D. Bell, J. L. Blanchard, A. Chauvenet, **C. Champion**, I. C Chen, T. D. Clark, R.K. Colwell, F. Danielsen, A. I. Dell, J. M. Donelson, B. Evengård, S. Ferrier, S. Frusher, R. A. Garcia, R. B. Griffis, A. J. Hobday, M. A. Jarzyna, E. Lee, J. Lenoir, H. Linnetved, V. Y. Martin, P. C. McCormack, J. McDonald, E. McDonald-Madden, N. Mitchell, T. Mustonen, J. M. Pandolfi, N. Pettorelli, H. Possingham, P. Pulsifer, M. Reynolds, B. R. Scheffers, C. J. B. Sorte, J. M. Strugnell, M. Tuanmu, **S. Twiname**, A. Vergés, C. Villanueva, E. Wapstra, T. Wernberg, and G. T. Pecl. 2017. 'Managing consequences of climate-driven species redistribution requires integration of ecology, conservation and social science', *Biological Reviews*: In press.
- Briceño, F. F.**, R. Leon, C. Gardner, A. J. Hobday, J. Andre, S. D. Frusher, and G. T. Pecl. 2016. 'Spatial variation in mortality by in-pot predation in the Tasmanian rock lobster fishery', *Fisheries Oceanography*, 25: 6-18.
- Briceño, F.**, **R. León**, C. Gardner, A. J. Hobday, J. André, S. D. Frusher, and G. T. Pecl. 2016. 'Spatial variation in mortality by in-pot predation in the Tasmanian rock lobster fishery', *Fisheries Oceanography*, 25: 6-18.
- Buchanan, P. J.**, and L. E. Beckley. 2016. 'Chaetognaths of the Leeuwin Current system: oceanographic conditions drive epi-pelagic zoogeography in the south-east Indian Ocean', *Hydrobiologia*, 763: 81-96.
- Della Penna, A.**, P. Koubbi, C. Cotté, C. Bon, C. A. Bost, and F. d'Ovidio. 2017. 'Lagrangian analysis of multi-satellite data in support of open ocean Marine Protected Area design', *Deep-Sea Research Part II: Topical Studies in Oceanography*.
- Everett, J. D., M. E. Baird, **P. Buchanan**, C. Bulman, C. Davies, R. Downie, C. Griffiths, R. Heneghan, R. J. Kloser, L. Laiolo, A. Lara-Lopez, H. Lozano-Montes, R. J. Matear, F. McEnnulty, B. Robson, W. Rochester, J. Skerratt, J. A. Smith, J. Strzelecki, I. M. Suthers, K. M. Swadling, P. van Ruth, and A. J. Richardson. 2017. 'Modeling what we sample and sampling what we model: Challenges for zooplankton model assessment', *Frontiers in Marine Science*, 4.
- Fogwill, C. J., E. Van Sebille, E. A. **Cougnon**, C. S. M. Turney, S. R. Rintoul, B. K. Galton-Fenzi, G. F. Clark, E. M. Marzinelli, E. B. Rainsley, and L. Carter. 2016. 'Brief communication: Impacts of a developing polynya off Commonwealth Bay, East Antarctica, triggered by grounding of iceberg B09B', *Cryosphere*, 10: 2603-09.
- Gaitán-Espitia, J. D., D. Gómez, A. J. Hobday, **R. Daley**, J. Lamilla, and L. Cárdenas. 2017. 'Spatial overlap of shark nursery areas and the salmon farming industry influences the trophic ecology of *Squalus acanthias* on the southern coast of Chile', *Ecology and Evolution*.
- Green, M. E.**, S. A. Appleyard, W. White, S. Tracey, and J. Ovenden. 2017. 'Variability in multiple paternity rates for grey reef sharks (*Carcharhinus amblyrhynchos*) and scalloped hammerheads (*Sphyrna lewini*)', *Scientific Reports*, 7: 1528.
- Gwyther, D. E.**, **E. A. Cougnon**, B. K. Galton-Fenzi, J. L. Roberts, J. R. Hunter, and M. S. Dinniman. 2016. 'Modelling the response of ice shelf basal melting to different ocean cavity environmental regimes', *Annals of Glaciology*, 57: 131-41.

- Hamilton, V.**, K. Evans, and M. A. Hindell. 2017. 'From the forests to teeth: Visual crossdating to refine age estimates in marine mammals', *Marine Mammal Science*.
- Hinojosa, I. A., C. Gardner, B. S. Green, A. Jeffs, **R. Leon**, and A. Linnane. 2017. 'Differing environmental drivers of settlement across the range of southern rock lobster (*Jasus edwardsii*) suggest resilience of the fishery to climate change', *Fisheries Oceanography*, 26: 49-64.
- Lago, V.**, S. E. Wijffels, P. J. Durack, J. A. Church, N. L. Bindoff, and S. J. Marsland. 2016. 'Simulating the role of surface forcing on observed multidecadal upper-ocean salinity changes', *Journal of Climate*, 29: 5575-88.
- Michael, P. E.**, J. Jahncke, and K. D. Hyrenbach. 2016. 'Placing local aggregations in a larger-scale context: Hierarchical modeling of black-footed albatross dispersion', *Plos One*, 11.
- Michael, P. E.**, C. Wilcox, G. N. Tuck, A. J. Hobday, and P. G. Strutton. 2017. 'Japanese and Taiwanese pelagic longline fleet dynamics and the impacts of climate change in the southern Indian Ocean', *Deep-Sea Research Part II: Topical Studies in Oceanography*, 140: 242-50.
- Novaglio, C.**, F. Ferretti, A. D. M. Smith, and S. Frusher. 2016. 'Species–area relationships as indicators of human impacts on demersal fish communities', *Diversity and Distributions*, 22: 1186-98.
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- Perkins, N. R.**, S. D. Foster, N. A. Hill, M. P. Marzloff, and N. S. Barrett. 2017. 'Temporal and spatial variability in the cover of deep reef species: Implications for monitoring', *Ecological Indicators*, 77: 337-47.
- Rigby, C. L., **R. K. Daley**, and C. A. Simpfendorfer. 2016. 'Comparison of life histories of two deep-water sharks from eastern Australia: the piked spurdog and the Philippine spurdog', *Marine and Freshwater Research*, 67: 1546-61.
- Rintoul, S. R., **A. Silvano**, B. Pena-Molino, E. van Wijk, M. Rosenberg, J. Stevens Greenbaum, and D. D. Blankenship. 2016. 'Ocean heat drives rapid basal melt of the Totten Ice Shelf', *Science Advances*, 2.
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- Schroeter, S.**, W. Hobbs, and N. L. Bindoff. 2017. 'Interactions between Antarctic sea ice and large-scale atmospheric modes in CMIP5 models', *The Cryosphere*, 11: 789-803.
- Silvano, A.**, S. R. Rintoul, and L. Herraiz-Borreguero. 2016. 'Ocean-ice shelf interaction in East Antarctica', *Oceanography*, 29: 130-43.
- Silvano, A.**, S. R. Rintoul, B. Peña-Molino, and G. D. Williams. 2017. 'Distribution of water masses and meltwater on the continental shelf near the Totten and Moscow University ice shelves', *Journal of Geophysical Research: Oceans*, 122: 2050-68.
- Soler, G. A.**, G. J. Edgar, R. D. Stuart-Smith, A. D. M. Smith, and R. J. Thomson. 2016. 'Predicting the diet of coastal fishes at a continental scale based on taxonomy and body size', *Journal of Experimental Marine Biology and Ecology*, 480: 1-7.
- Soler, G. A.**, R. J. Thomson, R. D. Stuart-Smith, A. D. M. Smith, and G. J. Edgar. 2016. 'Contributions of body size, habitat and taxonomy to predictions of temperate Australian fish diets', *Marine Ecology Progress Series*, 545: 239-49.

- Sun, S., S. L. Cornford, **D. E. Gwyther**, R. M. Gladstone, B. K. Galton-Fenzi, L. Zhao, and J. C. Moore. 2016. 'Impact of ocean forcing on the Aurora Basin in the 21st and 22nd centuries', *Annals of Glaciology*, 57: 79-86.
- van der Sleen, P., M. P. Dzaugis, C. Gentry, W. P. Hall, **V. Hamilton**, T. E. Helser, M. E. Matta, C. A. Underwood, R. Zuercher, and B. A. Black. 2016. 'Long-term Bering Sea environmental variability revealed by a centennial-length biochronology of Pacific ocean perch *Sebastes alutus*', *Climate Research*, 71: 33-45.
- Wallis, J. R., K. M. Swadling, J. D. Everett, I. M. Suthers, H. J. Jones, **P. J. Buchanan**, C. M. Crawford, L. C. James, R. Johnson, K. M. Meiners, P. Virtue, K. Westwood, and S. Kawaguchi. 2016. 'Zooplankton abundance and biomass size spectra in the East Antarctic sea-ice zone during the winter–spring transition', *Deep Sea Research Part II: Topical Studies in Oceanography*, 131: 170-81.
- Williams, G. D., A. D. Fraser, A. Lucieer, D. Turner, **E. Cougnon**, P. Kimball, T. Toyota, T. Maksym, H. Singh, F. Nitsche, and M. Paget. 2016. 'Drones in a cold climate', *Eos*, 97: 16-21.