

## Jackson Wing Four Chu

Citizenship: Canadian  
Current city: St. John's, NL, Canada

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### POSITIONS

- 2018- NSERC Postdoctoral Fellow, Memorial University (MUN), Ocean Sciences  
*An ecophysiological framework for predicting the response of cold-water corals and sponges to multiple climate stressors.* Supervisor – Dr. Amanda Bates
- 2016-18 Postdoctoral Fellow, Institute of Ocean Sciences, Fisheries and Oceans Canada  
*Species distribution modeling of Vulnerable Marine Ecosystems in the Northeast Pacific Region of Canada.*

### EDUCATION

- 2016 PhD, University of Victoria, Department of Biology  
Thesis: *Influence of seasonally variable hypoxia on epibenthic communities in a coastal ecosystem, British Columbia, Canada*  
Supervisor – Dr. Verena Tunnicliffe
- 2010 MSc, University of Alberta, Department of Biological Sciences  
Thesis: *Biological patterns and processes of glass sponge reefs*  
Supervisor – Dr. Sally P. Leys
- 2006 BSc, Simon Fraser University, Department of Biological Sciences

### ADDITIONAL TRAINING AND RESEARCH EXPERIENCE

- 2007- At-sea cruise experience: 19 cruises (119 at-sea days)
- 7 ships: CCGS Vector, CCGS JP Tully, CCGS Neocaligus, RV Thompson, RV Falkor, RV Strickland, ASRV LM Gould, EV Nautilus
  - 100+ dives with 5 deep submergence platforms: ROV ROPOS, ROV Phantom HD2, ROV Oceanic Explorer, DFO 'BOOTS' tow-camera, ROV Hercules & ARGUS
  - Responsibilities included watch supervisor for ROV operations, tow-camera pilot, dive planning, specimen collection, water column sampling, benthic trawling, teaching ROV methods to students and other researchers
- 2016 NSF Antarctic Biology Training Course for Early Career Scientists  
*Palmer Station, Western Antarctic Peninsula*
- 2009 Biomechanics, Ecological Physiology, and Genetics of Intertidal Communities  
*Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO), Hopkins Marine Station*

### PRIMARY PUBLICATIONS: <sup>a</sup>published dataset

- 12) Chu JWF, Nephin J, Georgian S, Rooper C, Knudby A, Gale KSP. Modelling the environmental niche space and distributions of cold-water corals and sponges in the Canadian northeast Pacific Canada. (*in review*)
- 11) <sup>a</sup>Gasbarro R, Chu JWF, Tunnicliffe V. 2019. Disassembly of an epibenthic assemblage in a sustained severely hypoxic event in a northeast Pacific basin. (*in review*)

- 10) Archer SK, Halliday WD, Riera A, Mouy X, **Chu JWF**, Dunham A, Juanes F. 2018. The first description of a glass sponge reef soundscape reveals fish calls and elevated sound pressure levels. *Mar. Ecol. Prog. Ser.* 595: 245-252. doi: 10.3354/meps12572
- 9) <sup>a</sup>**Chu JWF** Curkan C, Tunnicliffe V. 2018. Drivers of temporal beta diversity of a benthic community in a seasonally hypoxic fjord. *Roy. Soc. Open Sci.* 5: 172284. doi: 10.1098/rsos.172284. (dryad doi: 10.5061/dryad.4p9v048)
- 8) <sup>a</sup>**Kahn AS, Chu JWF, Leys SP.** 2018. Trophic ecology of glass sponge reefs in the Strait of Georgia. *Scientific Reports.* 8: 756. (data doi: <https://doi.org/10.7939/R3NS0MB2K>)
- 7) <sup>a</sup>**Chu JWF, Gale KSP.** 2017. Ecophysiological limits to aerobic metabolism in hypoxia determine epibenthic distributions and energy sequestration in the northeast Pacific. *Limnol. Oceanogr.* 62: 59-74. (dryad doi:10.5061/dryad.d28j8.2)
- 6) <sup>a</sup>**Chu JWF, Tunnicliffe V.** 2015. Oxygen limitations on marine animal distributions and the collapse of epibenthic community structure during shoaling hypoxia. *Global Change Biol.* 21: 2989-3004. (dryad doi:10.5061/dryad.1p55v)
- 5) Kahn AS, Yahel G, **Chu JWF**, Tunnicliffe V, Leys SP. 2015. Benthic grazing and carbon sequestration by deep-water glass sponge reefs. *Limnol. Oceanogr.* 60:78-88.
- 4) **Chu JWF, Reiswig HM.** 2014. Mechanisms of propagule release in the carnivorous sponge *Asbestopluma occidentalis*. *Invertebr. Biol.* 133: 109-120.
- 3) <sup>a</sup>**Chu JWF, Leys SP.** 2012. The dorid nudibranchs *Peltodoris lentiginosa* and *Archidoris odhneri* as predators of glass sponges. *Invertebr. Biol.* 131: 75-81. (dryad doi:10.5061/dryad.3tc7s)
- 2) <sup>a</sup>**Chu JWF, Maldonado M, Yahel G, Leys SP.** 2011. Glass sponge reefs as a silicon sink. *Mar. Ecol. Prog. Ser.* 441: 1-14 (dryad doi: 10.5061/dryad.5j5r0)
- 1) <sup>a</sup>**Chu JWF, Leys SP.** 2010. High resolution mapping of community structure in three glass sponge reefs (Porifera, Hexactinellida). *Mar. Ecol. Prog. Ser.* 417: 97-113. (dryad doi:10.5061/dryad.j5925)

#### **TECHNICAL REPORTS & EDITORIALS**

- 5) **Chu JWF, Grupe B, Curtis J, Gasbarro R, Tunnicliffe V.** 2019. The Saanich Inlet transect 2018: Incomplete recovery of the epibenthic community after two years of sustained, severe hypoxia. In: *State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2018* (eds. PC Chandler, SA King, RI Perry). Canadian Technical Report of Fisheries and Aquatic Sciences (submitted)
- 4) **Chu JWF, Gasbarro R, Tunnicliffe V.** 2018. The Saanich Inlet ROV Transect 2017: Delayed recovery of the epibenthic community after a sustained period of hypoxia. In: *State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2017* (eds. PC Chandler, SA King, RI Perry). Canadian Technical Report of Fisheries and Aquatic Sciences. 3228:190-194.
- 3) DFO. 2018. Glass sponge aggregations in Howe Sound: locations, reef status, and ecological significance assessment. *DFO Can. Sci. Advis. Sec. Sci. Resp.* 2018/032.
- 2) Gasbarro R, **Chu JWF**, Tunnicliffe V. 2017. Epibenthic community structure along a dissolved oxygen gradient. In: *State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2016* (eds. PC Chandler, SA King, RI Perry). Canadian Technical Report of Fisheries and Aquatic Sciences 3225: 183-187.
- 1) Leys SP, **Chu JWF.** 2012. Glass sponge reefs. *Architectural Glass Concepts* 5:4-13.

**SELECT PRESENTATIONS**

- 2019: 48<sup>th</sup> Benthic Ecology Meeting. *Contributed talk.*  
 2019: MUN Ocean Sciences Seminar Series. *Invited seminar*  
 2018: PICES meeting, Yokohama, Japan. *Contributed talk*  
 2018: World Marine Biodiversity Conference, Montreal, QC. *Contributed poster.*  
 2018: State of the Pacific Ocean Meeting. Sidney, BC. *Contributed talk.*  
 2017: Pacific Biological Station Seminar Series. Nanaimo, BC. *Invited seminar.*  
 2016: Institute of Ocean Sciences Seminar Series. Sidney, BC. *Invited seminar.*  
 2016: Saanich Inlet Symposium. Victoria, BC. *Contributed talk & poster.*  
 2015: 14<sup>th</sup> Deep-sea Biology Symposium. Aveiro, Portugal. *Contributed talk & 2 posters.*  
 2014: Ocean Sciences Meeting. Honolulu, Hawaii, USA. *Contributed poster.*  
 2014: 18<sup>th</sup> Western Groundfish Conference. Victoria, BC. *Contributed talk.*  
 2013: Canadian Parks and Wilderness Committee sponge reef campaign. *Invited talk.*  
 2012: CHONe 4th Annual Conference. Ottawa, ON. *Contributed poster.*  
 2012: Time-series Analysis in Marine Science. Brest, France. *Contributed poster.*  
 2012: Saanich Inlet Symposium. Sidney, BC. *Contributed poster.*  
 2012: Ocean Sciences Meeting. Salt Lake City, Utah, USA. *Contributed poster.*  
 2011-16: UVic Biology Graduate Student Symposium. *Contributed annual talk.*  
 2011: Pacific Ecology and Evolution Conference. Bamfield, BC. *Contributed poster.*  
 2010: 8<sup>th</sup> World Sponge Conference. Girona, Spain. *Contributed talk & 2 posters.*  
 2010: Canadian Society of Zoologists Meeting. Vancouver, BC. *Contributed talk.*  
 2010: Pacific Ecology and Evolution Conference. Bamfield, BC. *Contributed talk.*  
 2009: Pacific Ecology and Evolution Conference. Bamfield, BC. *Contributed poster.*  
 2008: Canadian Society for Ecology & Evolution. Vancouver, BC. *Contributed poster.*

**SELECT AWARDS & SCHOLARSHIPS**

2018: NSERC Postdoctoral Fellowship (2-yrs)	\$90,000
2016: NSERC Visiting Fellowship in Can. Gov. Labs (3-yrs, yr-3 declined)	\$159,231
2015: Bob Wright Graduate Scholarship – UVic	\$12,500
2015: Marine Technology Society Student Scholarship	\$2,000
2014: Dr. Arne H. Land Graduate Fellowship in Marine Science – UVic	\$18,000
2014: Commander Peters Chance MASC Graduate Fellowship – UVic	\$7,600
2011, 2013: W. Gordon Fields Memorial Fellowship – UVic	\$1,900
2011-13: President’s Research Scholarship – UVic	\$12,000
2011: NSERC Postgraduate Scholarship-D (3-yr) – NSERC	\$63,000
2010: ESRI Canada Scholarship Award & ArcGIS Software Suite – ESRI	\$2,000
2009: Bamfield Marine Science Centre Graduate Scholarship – BMSC	\$1,500
2009: Province of Alberta Graduate Student Scholarship – Province of Alberta	\$3,000
2008: Queen Elizabeth II Graduate Scholarship – University of Alberta	\$10,000
2008: Teaching commendation – Biological Sciences, University of Alberta	NA

**GRANTS**

2018: Postdoctoral Travel Award – Ocean Networks Canada	\$1,000
2015: Student Travel Award – Ocean Networks Canada	\$1,000
2015: Graduate Student Travel Award – University of Victoria	\$600
2014: Student Travel Grant – Canadian Healthy Oceans Network	\$2,200
2009: Course Grant – Partnership for Interdisciplinary Studies of Coastal Oceans	\$3,200

## **TEACHING**

2019: MUN, Department of Ocean Sciences

OCSC7200: Adaptations to the Marine Environment - *co-instr. for graduate course*

2015-16: UVic, Department of Biology

- BIOL470: Frontiers in Marine Biological Science – *guest lecturer*
- BIOL311: Biological Oceanography – *lab instructor*

2008-09: Bamfield Marine Sciences Centre, Bamfield, BC

- MASC403: Directed Studies – *teaching assistant*
- MASC410: Marine Invertebrate Zoology – *teaching assistant*

2007-10: University of Alberta, Biological Sciences

- BIOL107: Intro to Cell Biology – *teaching assistant*

## **STUDENTS MENTORED**

2016: Ryan Gasbarro (MSc student) – *collaborator & mentor*

2015: Jessica Qualley (BSc, NSERC USRA Award) – *mentor*

2014: Nicole Soderberg (BSc, Honors student) – *mentor*

2013: Curtis Curkan (BSc, NSERC USRA Award) – *supervisor*

2009: Jennifer Matal Sol (BSc, NSERC USRA Award, Honors) – *co-supervisor*

2008: Danielle Ludeman (BSc, Undergraduate volunteer) – *co-supervisor*

## **PUBLIC OUTREACH**

2017: DFO – Pacific Offshore Seamounts [#LOMP2017](#) *social media campaign*

2017: Ocean Networks Canada – *planned live dive* (blogpost, science)

2016: Ocean Networks Canada – [blogpost](#)

2016: Ocean Networks Canada – [blogpost](#)

2016: Ocean Networks Canada – *monthly newsletter contribution*

2015: University of Victoria Donor Impact Report – *featured interview, media content*

2015: Ocean Networks Canada – Wiring the Abyss 2015 – *online videos*

2015: Ocean Networks Canada – *interview & [YouTube video](#)*

2015: Ocean Networks Canada – *outreach interview, online media content, blog, visuals*

2015: EarthTouch News Network – [online blog content & multimedia](#)

2015: CBC Quirks and Quarks – *provided web content*

2014: Oceans Network Canada – Wiring the Abyss 2014 – [blogpost & multimedia](#)

2014: Oceans Network Canada Lecture Series, Brentwood Bay, BC, Sep 12 – *public lecture*

2013: Schmidt Ocean Institute outreach - <https://vimeo.com/74259638> – *content & science*

2013: CPAWS sponge reef outreach campaign – *consultant, media contributions*

2012: Canadian Healthy Oceans Network outreach – *podcast*

2012: Daily Planet Nov 21 – *contributed video segment*

2012: New Scientist Oct 22 – *contributed viral video to article*

2012: Vancouver Sun newspaper Oct 05 – *contributions to imagery and online article content*

2012: Ocean Networks Canada – [viral video](#)

2011-15: Vancouver Island Regional Science Fair – *volunteer judge*

2011: “Secrets of the Emerald Sea”, Parks Canada film – *video consultant*

2011: Highland Secondary School, Comox, BC – *invited high school lecture via teleconference*

2009: Bamfield Marine Station Waves & Current Newsletter – *writer & photographer*

2008: Bamfield Marine Station Public Education Program Youth Forum – *invited lecturer*

## **OTHER PROFESSIONAL ACTIVITIES**

- Conference organizer for:
  - 2019 – 49<sup>th</sup> Benthic Ecology Meeting, St. John's NL – *co-chair of program, judging, and awards committee.*
  - 2013 – 5<sup>th</sup> chemosynthesis-based ecosystem symposium, Victoria, BC – *volunteer organizer*
  - 2013 – Aquatic Ecosystem Health and Management Society (AEHMS 11) conference, Victoria, BC – *volunteer organizer*
  - 2012 – 24<sup>th</sup> Uvic biology graduate symposium, Victoria, BC – *volunteer organizer*

- Invited peer reviewer for:

### Journals:

*Aquatic Conservation, Biological Conservation, Estuaries & Coasts, Deep-sea Research I, Ecology, Marine Ecology Progress Series, Marine Environmental Research, Nature Climate Change, Philosophical Transactions of the Royal Society B, PLoS ONE*

### Funding Agencies:

*NOAA CSOR*

- Consultations on deep-water science with scientists and educators across Canada (Ocean Networks Canada, University of Victoria, University of Alberta, Memorial University), government (Fisheries and Oceans Canada), and non-profit organizations (CPAWS)