

2022/2

2022 SUMMER ISSUE



# ASPAB

THE OFFICIAL NEWSLETTER OF  
THE AUSTRALASIAN SOCIETY FOR  
PHYCOLOGY AND AQUATIC BOTANY

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If not stated otherwise, all images used in this issue are owned by the editors.

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Cover image: *Asparagopsis armata*, captured at Cape Peron, WA sent by **John Huisman**

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# Letter from the editors



Dear ASPAB members,

Hi there, warm greetings from the editorial board for the Summer and the festive season!

We sincerely hope everyone is planning a holiday to unwind and connect with friends, relatives and families as the year 2022 comes to an end. ASPAB on the other hand had a memorable year with the first face to face conference meeting after nearly two years!. The 36th annual ASPAB conference that was held at the Keiran McNamara Conservation Science Centre, Western Australian Department of Biodiversity, Conservation and Attractions brought together scientists, government officials, students and guests from both New Zealand and Australia with over 45 excellent scientific presentations being presented in a span of two days.

The face-face conference allowed scientists and researchers to give physical presentations, exchange ideas and hold discussions; and for the students they experienced a chance to travel again and share their amazing research findings and results to the world. This newsletter highly recognizes the work done by the organizing committee members especially Drs. John Huisman, Diana Walker, Kieryn Kilminster, Frances D'Souza and Michaela Larson for ensuring that the 36th ASPAB conference was successful. Special thanks goes to the management of The Department of Biodiversity, Conservation and Attractions (DBCAs) for providing us with the venue, allowing us to use their facilities and facilitating a tour on the last day, led by John. Special thanks indeed goes to all the members and non-members who took part in making this years conference a success.

We are all delighted to celebrate a new committee that was elected during the AGM and congratulations to all the students who won the best presentation awards and an upcoming scientist award. Last but not least, I would like to welcome all the new members from Australia, New Zealand and other neighbouring regions that have joined this wonderful community and there is always room for more!. The editorial team would like to thank everyone in a special away, wishing you all a wonderful HAPPY NEW YEAR 2023!

Enjoy the festivities that this summer brings and see you again soon!

Joseph



# The Vice-President's report

Dr. John Huisman  
The Vice-President



To all ASPABIANS, a quick word from the vice-president.

Firstly, on behalf of the committee I send you warm wishes for the holidays and a wonderful New Year in 2023! I hope you all have time for a break from work and a chance to recharge the batteries, in readiness for what could be a busy year ahead!

2022 saw us hopefully 'post covid', allowing for travel and the chance for a face-to-face meeting for the first time in several years. The long-promised ASPAB meeting in Perth finally eventuated, and we were impressed by the enthusiasm with which this was greeted. 48 delegates attended, including many from eastern Australia and New Zealand, and were treated to two days of varied and interesting talks, plus an enjoyable ice-breaker and delicious conference dinner. Thanks to everyone that participated, and I hope that those of you that joined ASPAB for this meeting keep up your membership and remain active in the society. The location of 2023's meeting is yet to be decided, so keep an eye out for announcements.

Our society's field of research has probably never been as topical as it is currently, particularly with the interest in seaweeds as food and supplements (both human and livestock). I could never have imagined the media advertising that appeared prior to the federal election, showing animations of seaweeds being fed to cows! Whatever the outcome of this current interest in *Asparagopsis*, let's hope that the focus on seaweeds and aquatic plants doesn't abate. Maybe one day 'phycology' will enter the general lexicon and we will not have to keep explaining its meaning!

2023 is certainly shaping to be a busy year, kicking off with the 'International Seaweed Symposium' in Hobart in February. I hope to see many of the you there for what promises to be an enlightening and enjoyable week. And do remember, our society is only as good as the members allow it to be. Be active, contribute to the newsletter, even consider joining the executive committee. Some of us (yes, me) were around when ASPAB was first launched and it's heartening to see that it is still thriving decades later.

John Huisman (Vice-President).



# The Treasurer's report

Dr. Judy Sutherland  
The Treasurer



## **ASPAB NZ Treasurers Report**

1 July 2021 - 30 June 2022

During 2020-21, the New Zealand accounts (including the ASPAB PayPal account) showed a surplus for the year of \$1,100.23.

Our income consisted of membership fees. Since no student travel grants were awarded in New Zealand during the year, expenses consisted of the Student Prizes awarded at the conference to New Zealand members, which were paid from the New Zealand accounts, and PayPal fees. ASB no longer charge fees on not-for profit society accounts, saving us about \$5 per year.

This year I have again itemized income and expenditure on our PayPal account, since more people are using this to pay both memberships and conference fees. This facility allows people to pay by credit card, which is often easier for them, particularly where several fees are paid at once.

New Zealand funds are held in an ASB Society Cheque account, and two people are required to authorize any payment from the account. Funds are also received from time to time into our PayPal account and are transferred at irregular intervals (i.e. when the Treasurer thinks of it) to the ASB account.

The final balance in total in ASPAB NZ accounts on 30 June 2022 was \$6335.14, most of which is held in the ASB Society Cheque account. These funds give us the capacity to support ASPAB student travel grants and future conferences.

**Judy Sutherland**  
**ASPAB NZ Treasurer**  
**7 November 2022**

# The Treasurer's report

Dr. Cecilia Biancacci  
Outgoing Treasurer (AUS)



## **ASPAB Australian Treasurer's Report**

**1 July 2021 - 30 June 2022**

Australian funds are held in two Bendigo Bank accounts (a transaction account and a term deposit), and two people are required to authorize any payment from the account. We currently have 3 signatories on the account but 2 of these will be changed over following the election of the 2022-2023 ASPAB Executive committee, with the third maintained for continuity.

During 2021-22, the Australian accounts showed a surplus for the year of \$1,017.15, lower compared to the previous year. However, our transaction account income this year consisted only of membership fees while the conference registration fees were directly paid to the NZ account. We only awarded one student travel grant (but this was not paid from the Australian account) and there were no bank fees or website fees paid. As such, expenses consisted solely of Science and Technology Australia membership and will include Student awards for conference presentations.

Our term deposit account income consisted of interest (0.25%pa) on 30 June 2022 of \$222.95. The current interest rate is 0.25%. Expenses for this account existed of resident withholding tax (\$104.35). There are currently no interests or taxes on the statement account.

The final balance in our accounts to date (16/11/2022) is \$73,143.34, with \$9161.59 in the transaction account and \$63,981.75 held in the term deposit. These funds will give us the capacity to support ASPAB student travel grants, as well as the potential to support other initiatives that advance the mission of ASPAB.

Annual renewal of memberships continues to be a challenge, however with a slow increase and new members subscribed this year. 7 new members (5 Full and 2 students) have paid directly the registration with the conference fees to the NZ account.

**Cecilia Biancacci**

**ASPAB Australian Treasurer  
16 November 2022**

# Conference Group Photo ASPAB 2022, Boorloo(Perth) WA



**Front row:** Anusuya Willis, Michael Borowitzka, Alecia Bellgrove, John Huisman.

**Second row:** Ellyn Erlania, Flora Lam Kim, Cecilia Biancacci, Barbara Labbe, Margie Rule.

**Third row:** Diana Walker, Gaby Keeler-May, Ulfat Jahan Lithi, Hajar Shayesteh, Sheilah Kwambai, Kierny Kilminster, Victor Mkpuma.

**Fourth row:** Thang Duong, Joanna Browne, Damian Laird, Ashiwin Vadiveloo, Giulia Ferretto, Caitlyn O'Dea.

**Fifth row:** Joseph Kihika, Danielle Halliday, Michaela Larsson, Sarah Grigo, Shanea Walford, Maren Preuss.

**Back row:** Frances D'Souza, Niki Travell, Houda Ennaceri, Elizabeth Sinclair, Maria Jung, Joe Zuccarello, Manuja Lekammudiyanse, Linda Kalnejais, Shaojun Lin, Amy Carmignani.

**Missing:** Celina Burkholz, Amanda Charles, Jeff Cosgrove, Ankje Frouws, Amie Gillies, Gary Kendrick, Kathryn McMahon, Antoine Minne, Rita Santos, Chanelle Webster.

# Gustaaf Hallegraeff

Emiritus Professor

Institute for Marine and Antarctic Studies  
(IMAS)



2022, catching up with my first PhD student, now Prof Martina Doblin, currently Director of the Sydney Institute of Marine Science (SIMS).

## Notable positions & awards

- University of Tasmania Research Medal (2018)
- Yasumoto Life-time achievement award by the International Society for the Study of Harmful Algae (2014)
- Vice-Chancellor's Award for Outstanding Research Training (2012)
- Elected Fellow Australian Academy Technological Sciences and Engineering (2005)
- Eureka Prize for Environmental Research (2004)
- Presidents Prize, International Institute for Marine Engineers (2003)
- Head of School of Plant Science, University of Tasmania (1998-2003)



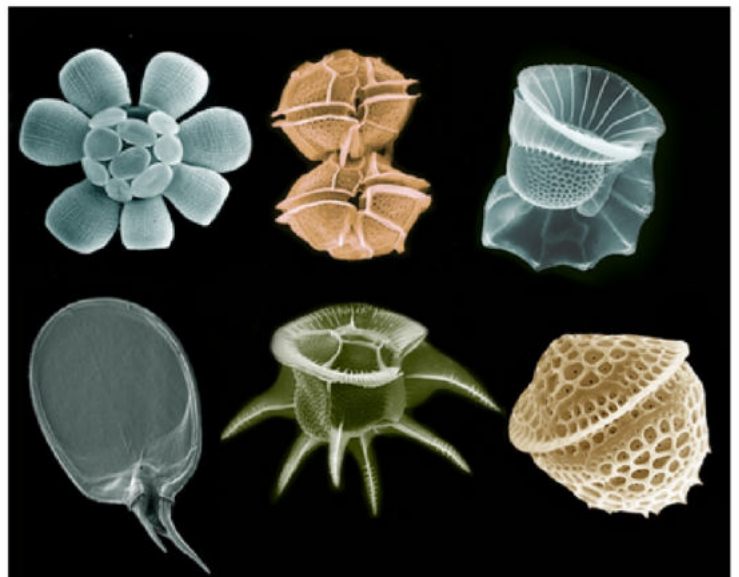
### Greatest Hits

- Perceived global increase in algal blooms is attributable to intensified monitoring and emerging bloom impacts. *Nature Communications Earth & Environment* 2021 (14,000 downloads)
- On the apparent global increase of harmful algal blooms. *Phycologia* 1993 (1800 citations)
- Editor in Chief of UNESCO Manual on Harmful Marine Microalgae (2003)
- Aquaculturists' Guide to Harmful Australian Microalgae (4 editions)
- Editor in Chief of *Algae of Australia: Phytoplankton of Temperate Coastal Waters* (ABRS 2010)
- Host of the 9th International Conference on Harmful Algal Blooms in 2000 in Hobart (562 participants)
- Graduated 36 PhD students (45% female; 25% international, including from Chile, Mexico, Japan, Korea, Malaysia, Italy).



1980 working at the Electron Microscope Unit of Sydney University

Electron micrograph images



## Early career

I grew up in a country village in the Netherlands 30 km from Delft where in 1673 my all time hero Anton Van Leeuwenhoek designed the first microscope. My career path was decided around age 7 by a childhood gift of a toy microscope and while peering at whirling green creatures in a drop of local pond water. Being a good artist neither my parents nor schoolmaster were able to interpret my drawings and tell me whether these were plants or animals (the word protist was not widely used then) or whether they were benign or dangerous. Diving into the local library I found only two relevant texts; Van Leeuwenhoek's drawings from pond water, as well a book indicating that these creatures were plankton, the food of the largest living animal on our planet, the 33m blue whale. I was hooked for life!

- At age 17 I moved to the University of Amsterdam with the singular goal to study plankton, and against the advice of uncles and opa's who rather wanted me to study law or medicine. I found a Professor in Zoology who worked on krill recovered from whale stomachs, and from this material I derived spectacularly beautiful Antarctic diatom specimens for my first scientific publication. Realising I needed to broaden my skill basis in 1976 I completed a Ph.D. thesis on chromatographic analysis of phytoplankton pigments of Dutch freshwater lakes. Subsequently, the lure of the blue ocean and a sunnier climate guided my move in 1978 to a postdoctoral position with the late Shirley Jeffrey ("Queen of chlorophylls") at the idyllic CSIRO Division of Fisheries and Oceanography laboratories in Cronulla, Australia. I had intended to come to Australia for only 10 months, but ended up staying 45 years. I had intended to work on pigments, but quickly recognise the skill gap in Australia in microalgal taxonomy. Attendance at a 1983 UNESCO plankton training course allowed me to build new skills which also ultimately led to an offer of permanent position as research scientist with CSIRO. It was at Sydney University that I enjoyed my first true close-up of microscopic algae using an electron microscope. My peaceful early years at CSIRO were largely spent at sea sampling phytoplankton from Sydney coastal waters (the continuing IMOS Port Hacking station), Coral Sea, North West Shelf, Gulf of Carpentaria, and collecting tens of thousands of micrographs that I still am working on today.

## Mid career

- A second life-changing moment occurred when CSIRO in 1984 decided to move to new laboratories in Hobart, Tasmania. It was in my very first plankton tow in the River Derwent that I encountered a massive toxic dinoflagellate bloom of *Gymnodinium catenatum* and confirmed dangerous levels of paralytic shellfish toxins in local oysters and mussels. My peaceful existence had ended. I accelerated my research to work with a team exploring dinoflagellate culturing and life cycle studies (with CSIRO Sue Blackburn), plankton and sediment cyst surveys, toxin chemistry (initially with Japanese collaborators), and mastering the political complexities of working with aquaculture industry and government regulators (now in the capable hands of IMAS Alison Turnbull). As I had never seen this dinoflagellate in any of my Australia-wide surveys I brazenly explored a possible ship ballast water origin seeking help from local AQIS officers to collect ballast tank sediment. This work of culturing toxic dinoflagellates derived from ballast tanks, genetic fingerprinting to track overseas origins (with CSIRO, now IMAS Chris Bolch), and sediment cyst core studies to date introductions (with IMAS Andrew McMinn, now Linda Armbricht), suddenly put me in a scientific as well as political hot seat.



1980, working for CSIRO Fisheries & Oceanography on the link between Sydney diatom spring blooms and migration of gemfish; 1995 Working on ballast water on board BHP vessel Iron Whyalla, with shipping engineer the late Geoff Rigby.

Working at CSIRO started to hold me back, and in 1992 I grabbed the opportunity to move to the School of Plant Science of the University of Tasmania. Soon dubbed in to also become Head of School forced me to learn to do administration but at the same time provided complete freedom of research and new funding opportunities working with shipping and aquaculture industries. Creating big teams of up to 12 PhD students has truly been one of the highlights of my career. I progressed solutions to the ballast water problem with BHP shipping engineers, the late Geoff Rigby and Alan Taylor (mid ocean exchange, heat treatment). At the London headquarters of the International Maritime Organisation (IMO) I helped draft of what since 2017 has become a ratified International Ballast water Convention. This work was honoured with the 2014 Eureka Prize and my election as a Fellow of the Australian Academy of Technological Sciences and Engineering.

In 1990 I was invited to UNESCO headquarters in Paris to become a founding member of the IOC-UNESCO Harmful Algal Bloom (HAB) program, for which I ultimately produced a HAB monograph (13 years of work, involving 42 co-authors). A key question raised has been whether HABs are increasing, and if so, whether humans through eutrophication, climate change or ballast water spreading play a role in this.

In 1996 a big fish kill event impacted the Port Lincoln tuna aquaculture industry (\$45M loss) which I associated with an algal bloom of *Chattonella marina*. This triggered me to work for 10 years to resolve the still incompletely known mechanism of how HABs can kill finfish, capitalising on the novel design in our lab of a new fish gill culture bioassay (with Juan Dorantes Aranda). This expertise was called upon in 2009 during a fish kill event in the Gulf of Oman which also clogged up desalination plants, and in 2015 by the Chilean Government (with Jorge Mardones) when HABs killed USD800M of salmon. A UNESCO white paper on this very topic is currently in progress.

COVID has affected all of us in different ways. After 28 years of face-to-face teaching a dedicated aquatic botany course unit but suddenly being faced with the edict to convert my lectures to Zoom videoclips, I decided to semi-retire to spend more time on finishing heaps of unfinished papers (including taxonomy which nobody pays you for).

## Lessons for students and postdocs

You enter the field of science for the sheer love of it, because only then can you give it your full 100%. Unfortunately in 2022 a solid PhD thesis and/ or successful postdoc no longer serve as a guaranteed job ticket. If you already have a paying job, try to get your employer to fund your further studies. Alternatively, use your PhD scholarship or postdoc salary to pass time while job hunting. Seek an inspirational mentor with a strong funding record, and learn to speak out, take risks and be different. Research in 2022 no longer is the privilege of brilliant individuals but is conducted by large multidisciplinary teams. Australian universities have been underfunded for many decades, as you soon will discover, wasting much time writing grants and being rejected again and again. Develop strong communication and people skills to effectively engage with industry and government to get them to fund the research you really want to do. ASPAB members all know the critical importance of aquatic plants to solve the wicked problems of our planet, but we simply need to work harder to spread the word !



Credits: Tasmanian Tuxedo

Images and content : Gustaaf Hallegraeff



# Toxic marine dinoflagellate research: The future of sea food safety from Lesley's research...



**Dr. Lesley Rhodes**

Research scientist: Cawthron Institute, New Zealand

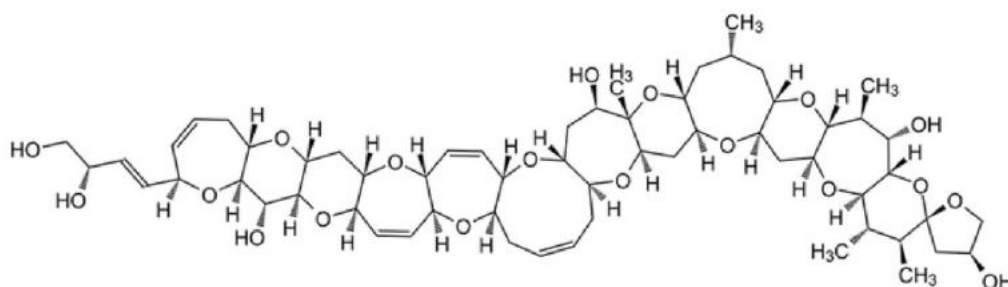
Lesley is a graduate of Lincoln University (MAppSci) and Massey University (PhD) and has carried out research into microalgae for four decades! ASPAB conferences have been great for meeting Australasian phycological researchers and some good collaborations have come out of that. In recent years her research has shifted from temperate planktonic microalgae, particularly those of concern to the seafood industry, to sub-tropical epiphytic and benthic dinoflagellates. The latter have the potential to cause serious illnesses in humans, for example ciguatera poisoning from eating fish that have accumulated ciguatoxins from *Gambierdiscus polynesiensis*. With Dr. Kirsty Smith, two new *Gambierdiscus* species have been described, *G. honu* and *G. cheloniae*. Another genus of interest is *Ostreopsis*, which forms massive blooms along the Hauraki Gulf north of Auckland. Lesley was absolutely delighted to have a species named after her in 2016 by Arjun Verma, Mona Hoppenrath and Shauna Murray, *O. rhodesiae*! Especially as it was a non-toxic species!

## Lesley's remarkable research

For those interested, Lesley and her co-researchers have compiled dinoflagellate 'lists' for Aotearoa New Zealand: Some selected references among many more!

Rhodes L, Smith K 2019. A checklist of the benthic and epiphytic marine dinoflagellates of New Zealand, including Rangitāhua/Kermadec Islands. NZ J Mar & Freshw Res 53: 258-277 and

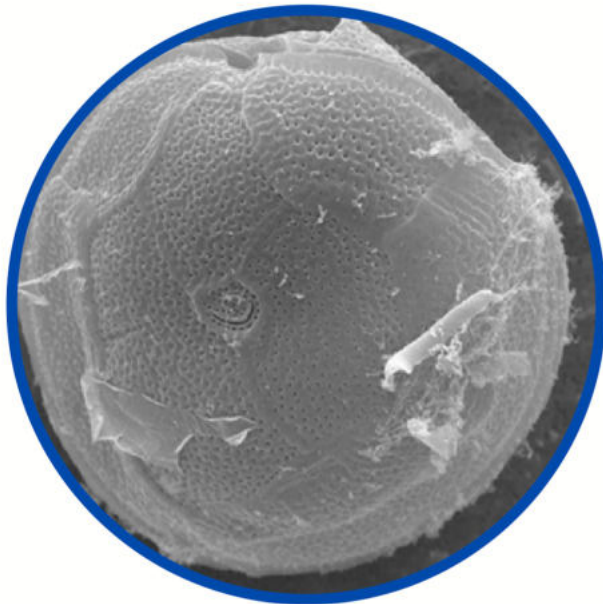
Rhodes L, Smith K, MacKenzie L, Moisan C 2019. Checklist of the planktonic marine dinoflagellates of New Zealand. NZ J Mar & Freshw Res 54: 86-101.



Ciguatoxin CTX1B. MedLink Neurology

An important collaboration with Tom Trnski at the Auckland War Memorial Museum (AWMM) has led to the finding of both new dinoflagellate species and known toxin producers from Rangitāhua Kermadec Islands. An expedition this November (the government funded programme is led by Ngati Kuri and AWMM) will provide both live samples for isolation, growth and toxin determination, and preserved samples for molecular studies. The results will allow for a better understanding of the risk of establishment of such potential threats as *Gambierdiscus* in mainland Aotearoa New Zealand, particularly as the seas around Northland continue to warm.

Typical habitat for *Gambierdiscus* in Rangitāhua Kermadec Islands



The first scanning electron micrograph taken of *Gambierdiscus honu* from Rangitāhua (width 53  $\mu\text{m}$ )

(Image credits Lesley Rhodes)

## ASPAB 2022 Conference: Student awards

### Antoine JP Minne, (First Prize)

University of Western Australia, Australia

Ontogenetic and genetic evidences of a warm-adapted ecotype in marginal offshore reef system for the kelp, *Ecklonia radiata* (Laminariales, Phaeophyceae), in Western Australia

#### ABSTRACT

Thermal tolerance resulting from local adaptation can result in populations having different levels of vulnerability to ocean warming. Marginal rear edge populations are good candidates for local adaptation in kelps due to their exposure to warmer ocean temperatures and the kelp low dispersal capacity fostering genetic isolation. In four populations around Western Australia, we experimentally exposed gametophytes from seven genotypes of *Ecklonia radiata* to temperatures ranging from 16°C to 28.5°C. The objective was to investigate the effects of temperature on early life stage development and reproductive success between populations from different thermal habitats. The jointed approach with population genetics was chosen to best assess the impact of genetic divergence on climatic vulnerability. Results reveal that the rear edge gametophytes can reproduce at a broader temperature range than low latitude ones, with first evidence of fertilisation at 26°C for *Ecklonia radiata* in the gametophytes from the Abrolhos Island. The low latitude population showed a delayed development with fertilisation occurring later than in other populations but ultimately leading to a significant higher sporophyte recruitment on a limited thermal range (18.5-21°C). The differences in reproductive strategies and thermal tolerance between the studied populations suggests intraspecific differences in climatic vulnerability, supported by genetic differentiation, which should be considered in future conservation actions of kelp forests.



Antoine Minne was awarded the "Big Pacific" by Rebecca Tansley for the best student presentation at the 2022 ASPAB Conference.

In picture  
Left Antoine Minne  
Right John Huisman



## ASPAB 2022 Conference: Student awards

### Gabrielle R. Keeler-May, (Second prize)

University of Otago, NZ

Removal and control of the invasive kelp, *Undaria pinnatifida* in high-value areas of southern New Zealand

#### ABSTRACT

Wakame (*Undaria pinnatifida*) is a Laminarian kelp originally from the Sea of Japan that continues to spread along temperate coastlines in both hemispheres. Due to its plasticity, fast growth rate, and high reproductive output, *U. pinnatifida* is considered one of the world's worst invasive species. However, large-scale control studies about marine invasive species are scarce, making management decisions opinionative rather than evidence based. For this study, we conducted large-scale removals at two different areas of southern New Zealand where *U. pinnatifida* has been well established (> 10 years) and newly introduced (< 1 year). At the established area, we used a before-after control-impact experiment to determine the wider impacts of *U. pinnatifida* removal over three years. At the newly introduced site, we determined the introduction vector and impact of removal by monitoring changes in the spatial distribution of *U. pinnatifida* during the rapid response operations. In total, over 19 tonnes of *U. pinnatifida* was removed during removal experiments at the well-established area and biomass of *U. pinnatifida* decreased by 80% after two years. Removal treatments also prevented a significant increase in *U. pinnatifida* density. At the newly introduced site, *U. pinnatifida* removal has appeared successful as well, with no visible sporophytes found following the rapid response. This could also reflect greater resilience against invasion in a pristine habitat. Overall, the effectiveness of control by diver removal in this study presents clear evidence that removal of *U. pinnatifida* in high-value areas can be beneficial.



Gaby Keeler-May, featured in  
New Zealand media (Image:  
Stuff.co.nz)



# ASPAB 2022 Conference: Student awards

## Shanea Walford, (Early career prize)

Victoria University of Wellington, New Zealand



City of Perth,WA  
Swan River

I would like to express my gratitude to the Australasian Society of Phycology and Aquatic Botany (ASPAB) for the Joanna Jones Student Travel grant. The grant allowed me to travel to Perth Australia for the 36th annual ASPAB conference. I presented results from my ongoing master's project, which investigates the mitochondrial genomes of red algal parasites. It involves the comparison of red algal parasite mitochondria to their red algal host, and examines mitochondrial genome architecture, phylogenetic placement of the parasites, and differential selection. For my presentation I was awarded the **'early career presenter'** prize from Dr Diana Walker. I saw presentations on a wide range of topics, such as, cyanobacteria, seagrass, applied phycology, and dinoflagellates. Several talks stood out to me, including a talk on *Ecklonia radiata* on the east coast of Australia, and a talk on the removal and control of *Undaria pinnatifida* in New Zealand.

Perth is a lovely city when the heat isn't driving everyone inside to the relief of air conditioning. On the days that I was free and that weren't blisteringly hot, I explored the Kings Park Botanic Gardens, and some national parks in the hills surrounding Perth. I enjoyed seeing the flora and fauna of Western Australia.

Again, I would like to thank ASPAB for the Joanna Jones Student Travel grant, which provided me with this amazing opportunity to present my master's project in person and to visit Western Australia.



Awards ceremony



Perth's vegetation



# ASPAB Committee 2023



AUSTRALASIAN SOCIETY FOR PHYCOLOGY AND AQUATIC BOTANY



## The president

Dr Manoj Kumar  
Climate Change Cluster, Faculty of Science  
University of Technology Sydney (UTS)

*I'm a marine biologist and a research fellow at University of Technology Sydney (UTS). I am leading seaweed research group at UTS with primary interest in seaweeds aquaculture, ecophysiology, micropropagation, and algal biorefinery prospects. I first attended ASPAB meeting in 2010 as a PhD student and have been associated with ASPAB as a general member, newsletter editor and Vice president over the last couple of years. I am excited to be a president for ASPAB and looking forward to work with new ASPAB committee to promote ASPAB's vision, mission and overall direction.*



## Vice -president

Dr John Huisman  
Curator  
Western Australian Herbarium

*I'm an algal (seaweed) taxonomist and currently the curator of the Western Australian Herbarium. My primary interest is in the red algae, but I dabble in most groups. I first joined ASPAB in 1980 (gulp!) and was president from 1994-97.*

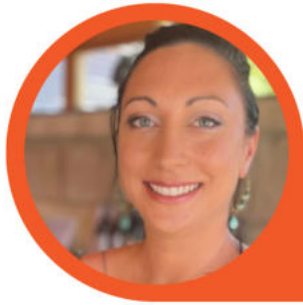


## Secretary

Prof. Joe Zuccarello, School of Biological  
Sciences, Victoria University of Wellington.

*I am interested in the evolution and diversity of seaweeds, mostly red algae. I have been an ASPAB member for over 14 years and was once president. I believe in promoting phycology, and feel this society is a welcoming and hospitable place for students and ECRs.*

## Committee...



### **Treasurer & Membership Secretary (AUS Chapter) & Social Media Manager**

Nicki Travell

*Niki Travell Phytoplankton taxonomist, Perth Western Australia.*

*Phytoplankton taxonomist with a long-term professional history working for the UK and Western Australian Government. Special interest in identification of dinoflagellates and HAB species and inspiring others to pursue a career in phytoplankton. ASPAB Committee Treasurer 2023.*



### **Treasurer (NZ Chapter)**

Dr Judy Sutherland  
Regional Manager – Wellington  
National Institute of Water & Atmospheric Research Ltd (NIWA)

*I'm a molecular biologist and regional manager at NIWA in Wellington. My field of interest is molecular systematics of NZ macroalgae. I've been NZ treasurer for a few years now, and am grateful Dan has taken over NZ memberships.*



### **Website Manager and NZ Membership Secretary**

Dr Daniel Pritchard  
Senior Research Fellow  
University of Otago

*I am with the University of Otago as a senior research fellow, with a climate-change focused coastal research group (Coastal People Southern Skies). I am a seaweed ecophysiologicalist (and I guess hydrodynamic modeller) by training, though in recent years I have also been working more widely in coastal fisheries and environmental monitoring.*

## Committee...



### **General member (AUS)**

Anusuya Willis  
Australian National Algae Culture Collection  
National Research Collections Australia  
CSIRO National Collections and Marine  
Infrastructure, Hobart, Tasmania

*Anusuya is a modern phycologist, combining molecular biology and physiology of algae to understand their diversity. Her research encompasses phylogenetics, comparative genomics, physiology and ecology. To understand the links between functional genomics, physiology and ecology; environmental adaptation under changing conditions; and diversity within and between species.*

*Dr Willis obtained her PhD in 2009 jointly from the University of Melbourne and the Université de Paris XI, with Professor Rick Wetherbee and Professor Chris Bowler. This was followed by postdoc positions at Georgia Institute of Technology, USA, with Dr Nils Kroger, and at the Australian Rivers Institute, Griffith University, Australia, with Professor Michele Burford. In 2018, Dr Willis joined the Australian National Algae Culture Collection, CSIRO, as a research scientist.*



### **Student Representative (AUS)**

Flora Lam Kim  
PhD Candidate  
Deakin University



### **General member (AUS)**

Francis D'Souza  
Senior Environmental Officer  
Department of Water and Environmental Regulation, WA

## Committee...



### **General member (AUS) & Social Media Manager**

Danielle Halliday  
Phytoplankton Ecology Unit, Aquatic Science Branch,  
Department of Water and Environmental Regulation, Western  
Australia (DWER).

I'm a microalgal taxonomist in the Phytoplankton Ecology Unit (PEU) at the Department of Water and Environmental Regulation (DWER). Where I analyse microalgal samples from Western Australian estuarine monitoring programs and ad hoc bloom samples. I'm relatively new to working with microalgae, where I have been working in the PEU for approximately 3 years. Before this, I focussed my career on aquatic invertebrate taxonomy. 2022 was my first ASPAB conference, where I enjoyed the broad knowledge-base and supportive, collegial approach.



### **Newsletter co - editor (AUS)**

Thiruchenduran Somasundaram  
Ph.D. Candidate  
[NuSea.Lab](#)  
Deakin Queenscliff Marine Science Centre  
Deakin University

*I am a Ph.D candidate at the Nutrition and Sea food laboratory of Deakin Queenscliff Marine Science Centre. I am working under the scope of the applications of bio processing technologies in algal postharvest handling for enhancing their nutritive value aiming to increase their cultural (agri, aqua and micro) utilization.*



### **Newsletter co-editor (NZ)**

Joseph Kanyi Kihika  
PhD Candidate  
School of Biological Sciences  
University of Victoria Wellington

*I am a third year PhD candidate with the School of Biological Sciences, Uni of Victoria Wellington and Cawthron institute, New Zealand. My research focus is on Cryopreservation of marine microalgae; assessment of their molecular integrity. I am really excited to be the ASPAB co-editor representing New Zealand.*

# Remembering Alan Miller

**Vale Dr Alan James Kenneth Millar (21 August 1957–01 October 2022)**

The ASPAB community was saddened to hear of the passing of Alan Millar after a long illness. Alan was the phycologist at the Sydney Herbarium for many years and was a regular at ASPAB meetings. He will be remembered for many things, in particular his enthusiasm for all things phycology. Ask Alan about seaweed and you'd be sure for an entertaining and enlightening couple of hours! Alan worked with both of us at Melbourne University, as PhD supervisor (Gerry) and contemporary student (John). Our field work was often shared, and we spent many enjoyable times at Coffs Harbour, Alan's primary study site. After graduating Alan moved to Sydney and John to Perth, but we all kept in touch and collaborated frequently. In memory of Alan, we have compiled his bibliography, which highlights his productivity over his lifetime. Sincere condolences to the Millar clan and in particular Alan's children Lauren and Hugh.

John Huisman and Gerry Kraft



Caption: Jim Norris, Alan (squatting) and Bernabe Santelices, collecting algae in Hawaii.



# New Opportunities, 2023

PhD opportunity – “Hearing and sound communication in crustaceans”

Crustaceans use sound for many different life history strategies. Over the last decade many different crustaceans, such as paddle crabs and lobsters, have been described to produce sounds. However, these sounds are typically outside what is known about their hearing capabilities. Underwater there are two sound transmission channels, through the water or the substrate. Recently, the substrate sound transmission channel was highlighted as important for animals that are in contact with the seafloor, such as crustaceans. Using three model organisms, paddle crab, spiny lobster, and snapping shrimp, and novel physics-based techniques, this study will provide a comprehensive investigation into the physics, structure, function and behaviour of crustacean hearing. To achieve this, we will: 1) measure sounds produced in both the water and substrate simultaneously; 2) characterise the morphology of the three known sound receptors in a diverse range of crustaceans; and 3) provide functional and behavioural evidence for sound reception in both sound transmission channels. Our results will directly contribute to the growing body of evidence that the sound sensory channel is an important and widely used sense by marine animals and provide a physiological and behavioural basis for sound communication in crustaceans.

This project is funded by a Marsden Grant and involves researchers from the University of Auckland's Physics Department (Vanholsbeeck and Shepherd) and the Institute of Marine Science (Radford). We have TWO PhD scholarships available and they consist of a stipend \$35,000 per annum tax-free and University of Auckland PhD tuition fees. The duration of the scholarship is three years.

This project will investigate sound production in crustaceans and in particular assess the signal characteristics between the water propagated and sediment propagated signals. The project will require extensive use of vector sensor technology and laser vibrometry and imaging techniques. Therefore, an ideal student should be familiar with some of these techniques, or have the ability to learn quickly, as training will be provided.

Applicants should hold a first-class MSc or BSc honours degree, or equivalent. Applications should include evidence of qualifications (official academic transcript) and research experience, together with a curriculum vitae and contact details of two academic referees. Applications should be supported by a cover letter that states which project the candidate is interested in, why they are interested in the position and how their qualifications are suited to the proposed project. Please email [c.radford@auckland.ac.nz](mailto:c.radford@auckland.ac.nz) with completed applications as well as any additional inquiries.

Closing date for applications is 28 February 2023, with the expectation of commencement before June 2023



# New Opportunities, 2023

## PhD project

Aquaculture methods for the seaweed *Lessonia variegata* for NZ open ocean conditions

This multidisciplinary PhD project will determine the effects of growth conditions on natural and farmed stock of the kelp *Lessonia variegata* and consists of a blend of field and laboratory work. The project includes broad sampling of seaweed in the field, aquaculture methods for early life history stages in the hatchery, and field and laboratory work to quantify effects of growth conditions (novel open-ocean structures) on the productivity and biochemistry of the seaweed, with a focus on polysaccharides and bioactives.

While based at UoW in Tauranga, the project includes frequent travel to Nelson and surrounds for on-water work with Cawthron and collaborating aquaculture farmers.

Please contact: Marie.Magnusson@waikato.ac.nz,

Applicants will be independent and highly motivated with:

- An Honours or MSc degree in a relevant subject (biology, biochemistry, chemistry)
- Experience with relevant laboratory and/or field experiments
- Sound skills in analysing data
- Excellent communication skills in English (spoken and written)

Annual stipend for 3 years: \$32,000 (plus annual fees)

Closing date 31st Jan 2023. The position will start between February and May 2023.

Applicants, please send a letter of motivation and CV (including contact information for 2 referees) to the relevant contact(s) above. Your letter of motivation should describe why you are interested in the specific project.

# New Opportunities, 2023

PhD project

PhD position – Using stable isotopes to track Aotearoa New Zealand eels across the Pacific Ocean

Multidisciplinary research opportunity for a PhD student in New Zealand – stable isotope ecology and biogeochemistry

Applications are invited for a PhD student to work on a Marsden-funded project under the supervision of Dr Amandine Sabadel (University of Otago), Assoc. Prof Xavier Pochon (Cawthron and University of Auckland) and Dr Moira Décima (Scripps Institution of Oceanography, San Diego).

Project Background:

The spawning sites and larval dispersal routes of Aotearoa New Zealand's taonga longfin (*Anguilla dieffenbachii*) and shortfin (*A. australis schmidtii*) eels remain unclear, making the life cycles of these eels one of the great unsolved mysteries among migratory species. To resolve this mystery, our team has proposed to use a combination of cutting-edge techniques based on biochemical and molecular markers. As one of two PhD students to join our team, you will carry out all the stable isotope aspects of this project. This will involve 1) method development for eye lenses and vertebrae stable isotope analyses, 2) collection of particulate organic matter and zooplankton samples during a research cruise to the South Pacific Ocean, and 3) generation of isoscapes (isotope maps) and animal assignment models.

You will be working alongside another PhD student who will be responsible for the environmental DNA and RNA aspects.

# New Opportunities, 2023

## PHD EMPLOYMENT EVENT PUBLICATION

PhD project .....continuation

The ideal candidate will have:

- An interest in multidisciplinary marine research and an appropriate undergraduate degree (environmental science, analytical chemistry, marine biology, or any other relevant discipline).
  - Experience in stable isotope ecology and/or biogeochemistry.
  - Knowledge of R is indispensable.
  - Experience with processing large datasets.
- Excellent people and communication skills.
- You will be able to work as a member of a large multi-disciplinary team but will also be able to work independently (having received instruction) for periods of time.

The research environment:

Our team is based across New Zealand (Nelson and Dunedin) and in the United States (San Diego). You will be based at the University of Otago, Dunedin Campus: <https://www.otago.ac.nz/why-otago/> but there will be opportunities to work in all locations during the PhD.

The University of Otago is one of New Zealand's largest and most research-intensive universities, currently in the top 1% in the QS World University Rankings. It is a leader across all fields of academic endeavor, regularly topping the New Zealand Tertiary Education Commission's performance indicators. Our campus is ranked as one of the top 15 most beautiful in the world. The University is located in the vibrant southern city of Dunedin, which is a gateway to the beautiful Otago region of New Zealand.

Scholarship stipend (living expenses) and fees:

This position comes with a 3-year PhD tax-free stipend of NZ\$35,000 per year and additionally fees covering university registration.

How to apply:

Please send a letter of application outlining your suitability for the research project, a copy of your academic transcript and your CV, as well as the contact details of two academic referees to [amandine.sabadel@otago.ac.nz](mailto:amandine.sabadel@otago.ac.nz). By sending us the details of your two academic referees you agree that we may contact these people to enquire about your suitability for this PhD position.

Closing date for applications – Applications close 31 December 2022, for an ideal start date on 1 March 2023.

For more information please contact: [amandine.sabadel@otago.ac.nz](mailto:amandine.sabadel@otago.ac.nz)

# New Opportunities, 2023

## MASTERS

**Sugars of the sea – internal distribution and chemometric model validation of polysaccharides in *Lessonia variegata***

### **Overview**

MSc project (180pt)

Sugars of the sea – internal distribution and chemometric model validation of polysaccharides in *Lessonia variegata*

This project builds on research previously conducted by the UoW team and will firstly quantify the distribution of specific polysaccharides within *Lessonia* plants, and secondly test the applicability of a chemometric model developed for another species of kelp to *Lessonia*. This project is laboratory based at the University of Waikato Coastal Marine Field Station in Tauranga and suitable for a student with an interest in (bio)chemistry and modelling. Undergraduate studies in chemistry is a pre-requisite.

Please contact: [Christopher.Glasson@waikato.ac.nz](mailto:Christopher.Glasson@waikato.ac.nz)

Annual stipend for 18 months (pro rata): \$22,000 (plus annual fees)

Closing date. The position is available until filled but needs to commence before the end of 2023 .

Applicants, please send a letter of motivation and CV (including contact information for 2 referees) to the relevant contact(s) above. Your letter of motivation should describe why you are interested in the specific project.