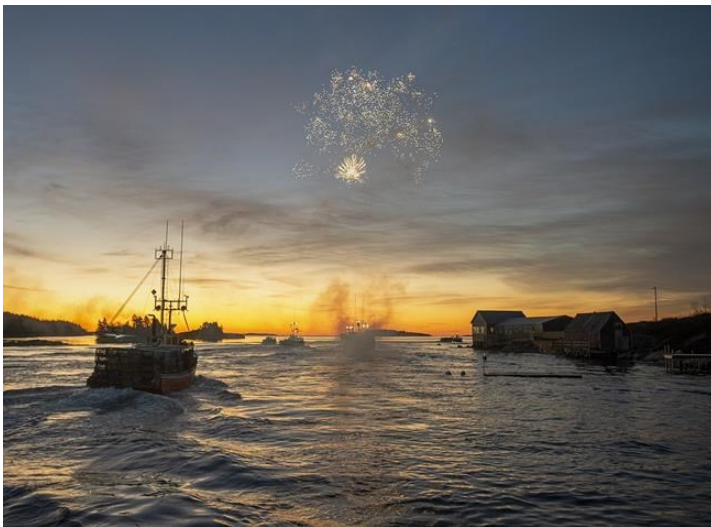




The **Lobster** *NEWSLETTER*

Editors' Note: The COVID-19 Issue



Nova Scotia's lobster season opens November 30th under celebratory fireworks under an uncertain sky. Photo by permission from The Canadian Press.

It is now cliché to say 2020 has been a year like no other, but it's true. The March issue of the *Lobster Newsletter* only just began to chronicle the effects of COVID-19 on lobster fisheries. As we close out the year, the full sobering impacts come into focus. In this issue we have eight reports from clawed and spiny lobster fisheries around the globe, from the US, Canada, the UK, Australia and New Zealand. They are stories of economic challenge, but also great resilience. We also bear the disappointing news that the *International Conference and Workshop on Lobster* has been postponed yet another year, to 2022. And very sadly, we report that the virus has taken one of our elder statesmen in lobster science, and co-founder of the *Newsletter*, Dr. J. Stanley Cobb. The shared

testimonials from his friends and colleagues speak volumes to his influence in our field. We also announce new edited books from Oxford University Press: fittingly for this issue, *Marine Disease Ecology*, as well as four new volumes, adding to five already published, in a planned ten-volume series on the *Natural History of the Crustacea*. Finally, not to be too down-trodden by this year's news, we've peppered the issue with a little pandemic humor in the form of cartoons submitted by our intrepid subscribers. So, we'll call this the *Lobster Newsletter's* COVID-19 issue. Here's wishing all our readers a healthy new year. We invite your updates and perspectives on your research and business for our next issue. Mask-up, get your vaccine, and keep up the good work!

Rick Wahle and Nick Caputi
Co-editors, *The Lobster Newsletter*

ANNOUNCEMENTS



Further Postponement of ICWL 2020

12th International Conference and Workshop on
Lobster Biology and Management (ICWL)
Fremantle, Western Australia



The Organising Committee of the 12th ICWL workshop have been reviewing the likelihood of the ICWL being able to go ahead 2021. Given the current status of Covid internationally we consider that it is unlikely that international travel will return to normal in 2021 that would allow the successful hosting of the workshop. Therefore the Organising Committee has again reluctantly decided to postpone workshop to **October 2022**. Please check the website <https://icwl2020.com.au/> for future updates.

We have considered hosting a web-based conference but are not supportive of this option because of the difficulties with the timing for people from different international times. Also one of the main benefits of the workshop is the face to face meetings.

The Department of Primary Industry and Regional Development (DPIRD) and the Western Rock Lobster (WRL) Council were looking forward to hosting scientists, managers and industry participants in Western Australia in 2021. However we are committed to having the conference in 2022. Don't hesitate to contact us or the conference organisers, Arinex, if you have any questions. Please stay safe and we look forward to seeing you in 2022.

Co-hosts of the workshop

Nick Caputi

Nic Sofoulis

DPIRD (nick.caputi@dpird.wa.gov.au)

WRL (sofs1@bigpond.com)

New Books: The Natural History of the Crustacea

Oxford University Press

Nine volumes published to date!

Nine volumes of the ten-volume series on *The Natural History of the Crustacea* have now been published. The year 2020 saw the release of volumes 6 to 9 of this multi-author book series by Oxford University Press.



In this series, all chapters have been written by leading experts in their field, are richly illustrated and contain informative synthesis tables providing essential data on these fascinating and valuable crustaceans. The topics covered in the published volumes include morphology, physiology, neurobiology, behavior, life histories, reproduction, development and larval ecology, evolution, biogeography, aquaculture and fisheries. The last volume, expected to be published in late 2021, includes chapters on the ecological role and conservation of crustaceans. The series will be of great value to students, scientists, biologists, ecologists, resource managers, and to everyone that have interests in the natural history of crustaceans.

Access the full series at this link: <https://global.oup.com/academic/content/series/n/natural-history-of-crustacea-nhc/?lang=en&cc=cl>

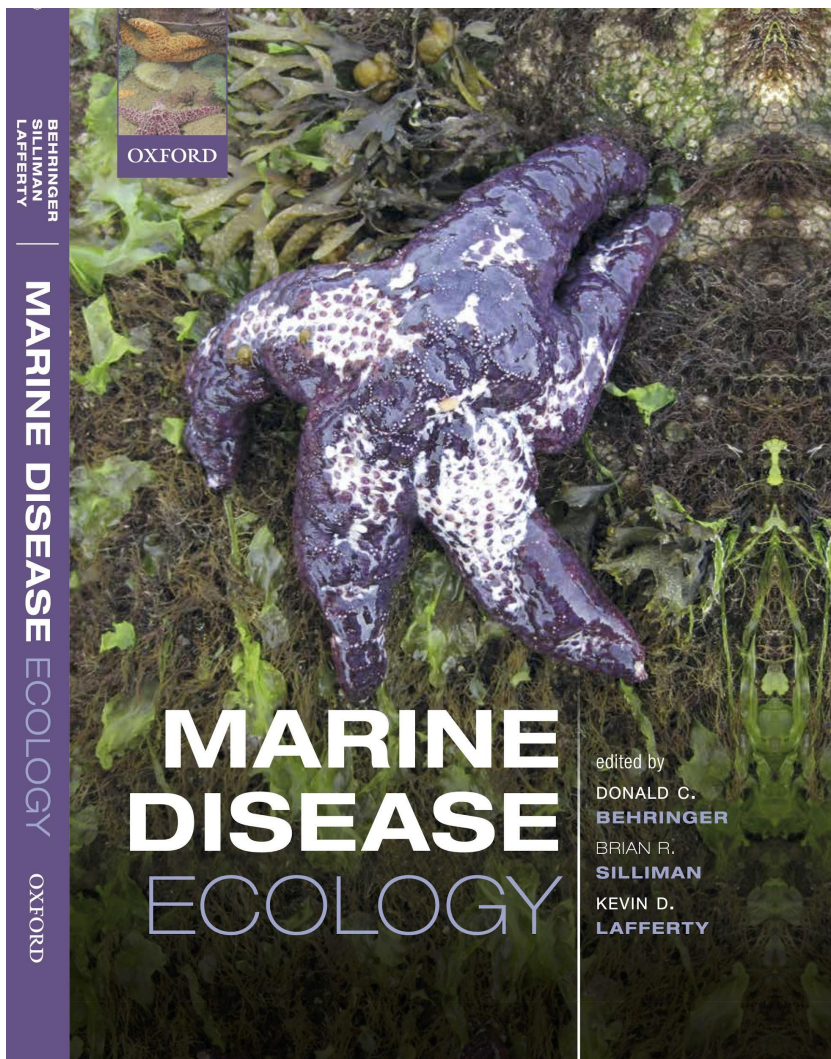
Special discounts for academic libraries and bulk orders.

Contact Bronwyn Greyer for more details (Bronwyn.Geyer@oup.com).

New Book: Marine Disease Ecology

Oxford University Press

Whether through loss of habitat or cascading community effects, diseases can shape the very nature of the marine environment. In recent decades global research focused on marine disease ecology has expanded at an accelerating rate. This is due in part to increases in disease emergence across many taxa, but can also be attributed to a broader realization that the parasites responsible for disease are themselves important members of marine communities. Understanding their ecological relationships with the environment and their hosts is critical to understanding, conserving, and managing natural and exploited populations, communities, and ecosystems.



Research on lobsters around the globe has featured prominently in our growing understanding of marine diseases. Advances have come in fields of pathology, molecular biology, virology, fishery science, ecology, and ecosystem modeling. Lobsters are highlighted throughout *Marine Disease Ecology*, especially Chapter 10: Disease in Fisheries and Aquaculture.

Access this link for more information: <https://global.oup.com/academic/product/marine-disease-ecology-9780198821649?cc=us&lang=en&#>

COVID-19 IMPACTS TO GLOBAL LOBSTER FISHERIES

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Canadian lobster sector during the pandemic – 2020 better than we feared but not over yet

From: Geoff Irvine

It is hard to imagine any protein market in the world that has not been impacted by the COVID 19 pandemic and the Canadian lobster sector is no exception. When the first live lobster shipments to China were cancelled in late January and the news of the pandemic spread, we knew 2020 would be a

challenging year. We immediately set up a COVID 19 working group and got to work planning for the high-volume spring lobster harvesting, processing and live shipping season.

Given the fact that we supply high value protein to a world market, dealing with worldwide crises is nothing new to our sector. We have weathered the 9/11 attacks, H1N1, SARS and the Great Recession of 2007/2008. Shore and export prices have ebbed and flowed through 2020 but through it all most industry participants have survived, and achieved much better business results than we feared due to several factors:

Organization – in response to the Great Recession the Canadian lobster sector came together and established The Lobster Council of Canada (LCC), the only table that includes all parts of the lobster value chain and is focused on marketing and promotion, market access advocacy and sharing of market intelligence. There has also been strong capacity building within organizations representing the harvesting and shore-side sectors in every province.

Market Diversification – provincial and federal governments and the LCC have focused on expanding market presence beyond our typical reliance on the United States. Exporters now ship hundreds of processed products and live lobster to over 60 countries worldwide. We have also focused on product development that has allowed us to quickly adjust during the pandemic time from foodservice to retail and e-commerce channels.

Marketing and Promotion – harvesters, exporters, the LCC and governments in Canada are investing significantly in marketing and promotion of Canadian lobster and those investments are paying off as consumers and trade buyers worldwide choose our lobster products for their homes, restaurants and retail outlets. We focus on the positive image of Canada and our brand pillars that include our people, this place, sustainability and food safety.

Trade Agreements – as a trading nation with federal governments who, regardless of political persuasion, believe in free and open trade, our sector has strong and open access to most of our key markets. Trade agreements with the European Union, Pacific Rim, South Korea and the United States have opened up doors to free and open trade with our key export partners. For the last few years Canada has also benefited from trade disputes initiated by our major competitor right next door. American trade disputes with China and other parts of the world have benefitted the entire Canadian lobster value chain.

In response to the pandemic, the LCC convened a COVID 19 working group in early February. This group continues to meet twice per month and is made up of representatives of the lobster value chain from harvesters to live shippers/processors and exporters. Our principal concern, given the time of the year (when there is little harvesting due to the weather), was our Spring harvesting, processing and live shipping season that was right around the corner. As the pandemic spread from Asia to Europe and then to North America (our

three biggest markets), we were concerned about where we would sell our processed and live lobster products after the season was over in late June. Our committee set to work to share market information on a weekly basis and also to build a “Canadian Lobster Model” where we attempted to estimate the amount of “stranded lobster” that could be left without a home, if we did not make changes.

The model considered typical volumes of lobster harvested during the Spring fishing season (when 95 % of Canadian Lobster Fishing Areas are open) and estimated when we thought our key markets would recover. By using our best estimates, we came up with an amount of predicted “stranded lobster”, which was used by regulators and harvester organizations to discuss options to manage landings to attempt to fish to the market. Some organizations chose to shorten their season, adjust opening and closing dates and at the height of fishing there were volume limits put in place by the major buyers on the shore in some provinces. This information also provided governments with quantitative evidence of the challenges facing our harvesting and shoreside sectors which allowed them to tailor support programs accordingly.

The attached table shows that our estimates proved to be overly pessimistic as markets in Asia rebounded much faster than we expected followed by North American and Europe. Fortunately, consumers continue to want to enjoy Canadian lobster at home and our products are in a good position to benefit from the COVID trends including increased interest in frozen foods, premium seafood

and food that is healthy as people spend more time at home.

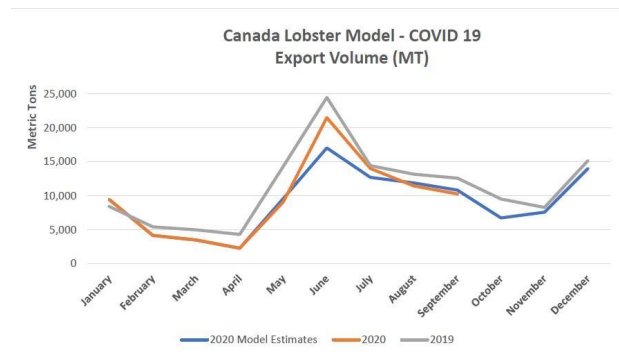
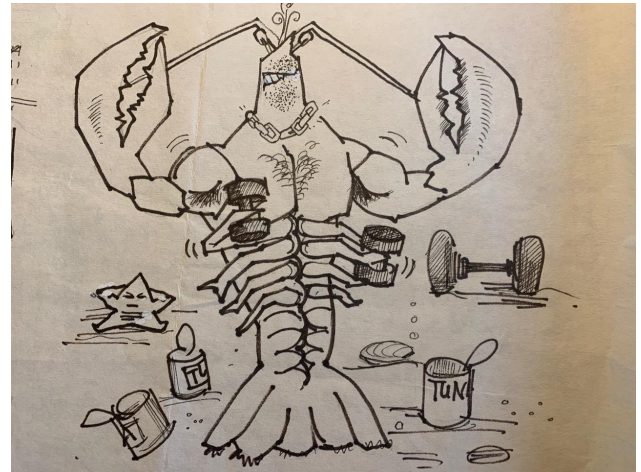


Figure 1. Comparison of observed 2019, 2020 and modeled 2020 Canadian lobster landings by month. Performance in 2020 was better than expected.

While shore and market prices went down in the Spring, the Canadian lobster sector came through the first part of 2020 in much better shape than we feared in those dark days of lockdown in March and April. As we approach the major production period of November and December, the Canadian lobster sector is facing second wave market impacts in Europe and North America. However, as a vaccine and new treatments become realities and major parts of Asia continue to be successful in keeping the virus at bay, we are hopeful that the balance of 2020 will once again perform better than our cautious modelling may predict.

Geoff Irvine
Executive Director
The Lobster Council of Canada
geoff.irvine@lobstercouncilcanada.ca



By Claire Watson Garcia. Submitted by Win Watson

In a rough year, US lobstermen make it through

From: Melissa Waterman

It was a familiar scene in late March and April this past year: a parking lot, trucks with tailgates down, and clumps of people standing around waiting their turn to buy lobsters directly from lobstermen. The fear then among lobstermen and seafood dealers was that with a pandemic closing



Photo: Maine Lobstermen's Assn.

regular markets for lobster, such as restaurants, resorts and other institutional buyers, and a drop-off in tourists to the region, the 2020 season would result in an overload of lobsters with no buyers. Selling from the back of a truck was well and good in the spring, when landings were low. But lobstermen were worried that when the season was in full swing and lobsters were landing in the thousands of pounds, there would be no buyers and the price per pound would plummet.

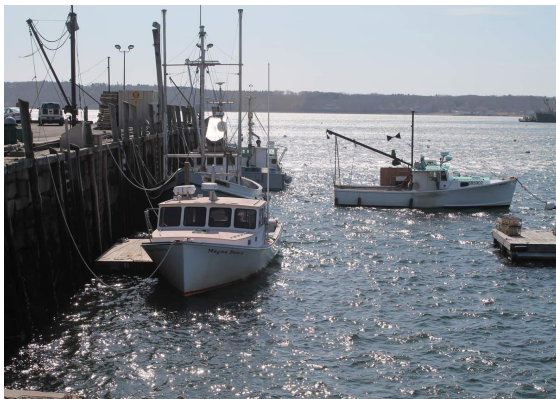


Photo: Maine Lobstermen's Assn.

One factor in lobstermen's favor, however, was the timing of the pandemic. The shutdown among restaurants and other businesses began in March, a time when many lobstermen had not yet set their traps. The spring and early summer months allowed New England lobstermen and, as importantly, lobster buyers to rethink how to approach the markets before they had large volumes of lobster to sell.

New England lobstermen faced another problem, however, in addition to a pandemic. Due to the trade war with China, sales of U.S. lobster to that country sank like a stone in mid-2018 and had remained low since then, despite a thaw in trade relations

in January 2020. In addition, the Canadian-European Union trade agreement, signed in 2017, put U.S. lobster exports to European countries at a competitive disadvantage, curtailing sales to that large market [Note: the U.S. and the EU agreed in August to remove tariffs on lobsters through a specific trade agreement].

With significant market disadvantage in selling lobsters to China and the EU and fearing a collapse of traditional markets for U.S. lobsters, lobster buyers turned their focus to expanding business with existing customers and targeting new retail customers. Popular northern New England grocery chains such as Hannaford and Market Basket promoted lobster throughout the summer as an affordable and easy-to-prepare food item for those stuck at home.



Photo: Maine Lobstermen's Assn.

On-line companies saw an uptick in demand from homebound consumers for their lobster products as well. Companies such as GetMaineLobster and The Lobster Guy turned to lobster processors throughout New England to buy the tails and meat needed for their online offerings. Processors, in turn, purchased a steady volume of lobster from the region's lobstermen.

Price, according to many lobstermen, took a hit at the beginning of the season but finally rose with the arrival of fall. Lobstermen were further buoyed financially by several efforts at the federal level.



Photo: Maine Lobstermen's Assn.

The CARES Act, passed in March, offered options for small business loans through the U.S. Small Business Administration. Many lobstermen qualified for Paycheck Protection Program loans to cover basic operating expenses and pay crew; others benefited from low interest Economic Injury Disaster Loans. The CARES Act included \$300 million for the U.S. seafood sector to help the industry deal with the effects of the pandemic. Maine was allocated \$20 million for seafood industry members financially affected by COVID-19. Fishermen were required to certify that they had experienced a greater than 35% loss of revenue due to COVID-19 as compared to their previous five-year average. In Maine, the Department of Marine Resources (DMR) analyzed landing data to determine which license holders could qualify for CARES Act funds; the application period closed on November 9.

A brief visit to Maine by President Trump in July led to creation of the Seafood Trade Relief Program (STRP) within the U.S. Department of Agriculture. The Relief Program offers funds to commercial fishermen who have been harmed by retaliatory tariffs. Fishermen can receive up to \$250,000 individually; compensation is based on the species fishermen target. Lobstermen are eligible for relief based on 50 cents US per pound for 2019 lobster landings. As of early November, Maine lobstermen had received \$36 million from the program. The total amount available to lobstermen in the state, based on landings, could reach \$US 50 million.



Photo: Maine Lobstermen's Assn.

But hanging over the heads of lobstermen throughout this unusual year has been the impending release by the National Marine Fisheries Service (NMFS) of draft rules intended to protect the endangered North Atlantic right whale. The right whales have suffered a high rate of mortality since 2017, as well as a drop in births since 2010. In response to a court case brought by four national environmental organizations against the National Marine Fisheries

Service, a Washington, D.C. U.S. District Court judge ruled in August that the agency was required to implement new rules by May 31, 2021, and to release a new Biological Opinion under the Endangered Species Act to address lobster fishery entanglement risk to right whales.

How severe the changes and the long-term impact on the New England lobster fishery will be remains firmly on the minds of most lobstermen as a tumultuous 2020 draws to a close.

Melissa Waterman
Communications coordinator
Maine Lobstermen's Association
melissa@mainelobstermen.org



By Claire Watson Garcia. Enhanced and submitted by Win Watson.

The state of UK lobster fisheries in 2020

From: Charlotte E. Davies, Emma C. Wootton.

Prior to 2020, the UK shellfish industry had been on the rise. Over the past 25 years, the quantity and value of key shellfish species landed by the UK fleet has been steadily increasing, including the European lobster, *Homarus gammarus* (Fig 1). In 2019, the UK fleet landed 6 per cent more shellfish compared to 2018 and shellfish species now fetch a higher price on average than other sea fish. In 2019, the average price for shellfish species was £2,714 per tonne, compared to £2,166 for demersal species and £854 for pelagic species.

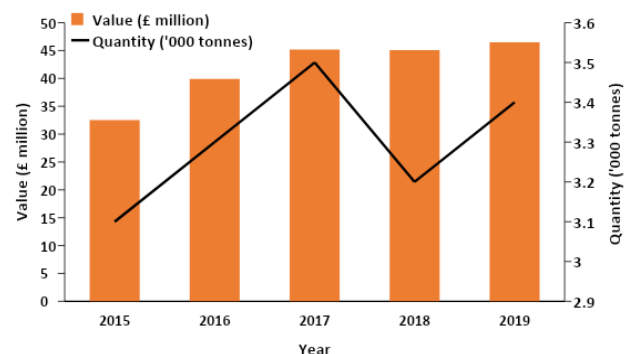


Figure 1. Landings of *Homarus gammarus* into the UK and abroad by UK vessels: 2015 to 2019 (data source: MMO UK Sea Fisheries 2019).

For the past 5 years (2015-2019), landings of the European lobster, *Homarus gammarus* has brought in £209.2 million alone to the UK economy, with an average of 3300 tonnes per year (Fig. 1). However, the scene was set with the bad weather and storms throughout the Winter months of late 2019-

early 2020, which restricted fishing opportunities, and hence lobster supply and sales. This meant that many fishers were already facing problems, prior to arrival of the 2020 Covid-19 pandemic and the UK's exit from the EU.

EU Exit

Initially, fisheries and its stakeholders had the looming deadline of the 'End of the Transition Period (ETP)' with the subsequent official exit from the EU on the 31st December 2020. Approximately 85% of UK-caught shellfish (including lobsters) are exported to the EU - with majority of the shellfish being shipped live. Exporting live lobsters (and other shellfish) to the EU (mainly destined for France, Spain and Italy) is a delicate process, and in order for the live product to arrive at its destination in prime condition (and hence be considered of high quality, and thus receive a high price), transportation and the market supply chain has to be effective, efficient and seamless. Therefore, any disruption to the route to market and the supply chain will incur detrimental consequences. UK lobster fisheries stakeholders are therefore justifiably concerned about both the tariff and non-tariff implications of leaving the EU, and the potentially damaging effect it may have on the UK lobster industry.

The financial implications (and burden) of tariffs on the UK lobster industry and fisheries are self-explanatory; but passing on this potential increase in cost to the EU purchaser may not be feasible, particularly when cheaper supplies of live lobster are available from elsewhere in the world.

Unfortunately, it is also unlikely that the domestic UK market for lobsters will be able to absorb, and hence compensate, for the potential reduction in EU markets - purely due to the sheer volume of lobster landed in the UK, and its high economic value (i.e. it is considered a luxury product). Therefore, there is a genuine possibility for economic downturn in the UK lobster fishing industry immediately following the UK's EU exit.

There is a belief, however, that the non-tariff implications of the EU-Exit may be of more concern to UK lobster fisheries than the tariff ones. Increased paperwork and administration, the required inspections of product prior to export, and other associated border controls (particularly at portside), are just a few of the obstacles that must be negotiated to export lobsters to the EU. The situation is far more nuanced than just described, but most non-tariff implications are likely to disrupt the supply chain, cause delays, and hence result in a less superior lobster product (live or processed) arriving in the EU. As a consequence, the buyers/importers of the lobster products may lower their price offers to the UK sellers. This may question the viability of some lobster exports to the EU.

Covid-19

Unfortunately, the stress on, and uncertainty of, UK lobster fisheries was further compounded by the arrival of the Covid-19 pandemic in early 2020. In brief, the UK lobster fisheries and associated markets collapsed during March 2020. Again, this was due to the fact that the key export markets for UK lobsters are in the EU, and

the counties they are destined for (i.e. France, Spain and Italy) were hit particularly hard by the pandemic, and therefore imposed strict lockdowns and trade restrictions. The UK entered its first national lockdown on 23rd March, which also impeded UK lobster fisheries via issues such as whether fishers were classified as 'key workers' (and hence allowed to continue working during lockdown), applying social distancing rules on fishing vessels, and furloughing of staff and closure of businesses (including shellfish merchants) which were pivotal in maintaining 'routes to market' for UK lobsters.

In general, during the early stages of Covid-19, all UK seafood export markets were hindered by reduced transport and associated supply chain logistics - despite seafood production and provision being classed as an essential sector. UK seafood exporters (including those of lobster) were further compounded by bad debt, with invoices outstanding for products supplied before lockdown restrictions began. Although, seafood retail seafood sales in the UK surged during peak UK lockdown (March-May 2020), as shoppers stockpiled food, it was pre-packed, tinned, and frozen seafood which were most popular - not live or processed UK lobster.

A recent report by Seafish reviewing the impacts of Covid-19 on the UK seafood industry during January-June 2020 (Harvey and Witteveen, 2020), revealed that between January 2020 - June 2020, UK shellfish exports were on average, 40% and 35% lower (for value and volume, respectively) compared with the same time period in 2019.

To counteract this loss in revenue, UK fishers tried to stimulate the domestic UK market for shellfish by diversifying into direct sales to consumers. Some businesses opened online shops with postal deliveries and/or a 'click and collect' service for live and processed UK shellfish, including lobsters. These proved popular, as did other commercial and community initiatives aimed at promoting fresh UK seafood to the consumer. However, when compared to loss of export, foodservice or wholesale trade, the impact of this new direct sales market was minimal, and unfortunately, many businesses were unable to adapt and diversify. The UK government, and its devolved administrations, did provide financial support schemes at the onset of the UK national lockdown, including a scheme specific to the UK fishing industry. Although the scheme was welcomed by the fishing sector, the nuanced nature of the UK fishing industry - in particular that of the inshore small scale fishers - it meant that some of our lobster fishers fell through the 'criteria' gaps and were ineligible for the financial support.

Sadly, monthly statistics collected by the marine management organisation (MMO) reveal a huge decrease in both catch and value of catch when comparing 2019 to 2020 (Fig 2). At its worst during the first UK wide lockdown, from March-May, the decrease is an average of 47% in quantity and 51% in value for that period - half of that of the previous year. Whilst landings are now on the increase, they are yet to match that of previous years.

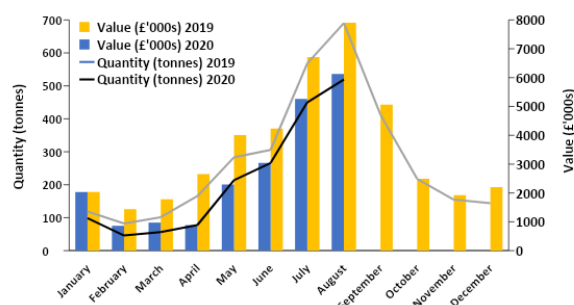


Figure 2. Comparison of European lobster *Homarus gammarus* landings into the UK and abroad by UK vessels in 2019 and 2020 thus far (data source: MMO Monthly UK sea fisheries statistics).

At the time of writing this article, the UK, and many other parts of the world, are amidst the second wave of the Covid-19 pandemic. With regards to the UK seafood industry, it remains fragile, volatile, and uncertain. The UK lobster fisheries are still impeded by the drastic reduction in export markets (despite a small resurgence during the summer months), with the domestic market for lobster still very unlikely to fill that void. Currently, it appears that the UK shellfish industry has now turned all its attention to EU Exit at the end of 2020. Should the routes to EU markets open up to UK lobsters in early 2021 the UK lobster fisheries would like to be ready to take advantage. However, in order to do so, the preparations, adaptations and logistics for the industry are vast, and hence time consuming. Investigating new global markets for UK lobster are also underway – should Plan B be required.

Despite the issues faced during 2020, lobster is the 5th highest-grossing shellfish landed by the UK fleet (out of 12, and following

whelks, crabs, scallops and *Nephrops*), valued at £21.5 million from January – August. In 2019, it was fourth, following crabs, scallops and *Nephrops*. Wherever our UK lobsters end up in the future, we just hope that they are valued and enjoyed as a great seafood product.

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Dr. Charlotte E. Davies
Department of Biosciences,
Swansea University
Swansea SA2 8PP, Wales UK
CEDavies72@gmail.com /
C.E.Davies@swansea.ac.uk

Dr. Emma C. Wootton
Consultant ecologist,
Pembrokeshire, Wales, UK
emma.wootton1973@gmail.com



By Claire Watson Garcia. Submitted by Win Watson.

Impact of Covid-19 on the Western Rock Lobster Fishery in Western Australia

From: Simon de Lestang

In many regards the western rock lobster (WRL, *Panulirus cygnus*) fishery was well placed to deal with the impacts of Covid-19. The fishery started its new quota year on 15 January 2020 with a TACC of 6,615 t and since lobsters are migrating at this time and Chinese new year demand was high, the fishery produced 625 t (almost 10% of the quota) in the first 10 days (Figure 1 top). On the 25th January however, processors advised fishers of “market issues” in China, with the largest processor reducing their average beach price from \$70 AUD to \$0 for

a few days. Subsequently, landings of lobster across the entire fishery declined from 72,500 kg to 2,650 kg from the 24th to 25th of January 2020 (Figure 1 top).

With so much of the season ahead and with many fishers having already made some initial income, there was plenty of time to strategically plan for the possible impacts of a reduced Chinese market in the short term. Through a collaborative process, the lobster industry and state government developed a package aimed at dealing with both the short and long-term impacts of the virus. These included:

- The season was extended; due to the reduced catches during the Chinese New Year (CNY) high demand period, it was deemed beneficial to extend the current fishing season for a further six months (from 14 January 2021 to 30 June 2021) to encompass the following CNY.
- The quota was increased slightly; since the season was extended and some fishers had almost caught their entire quota in the first 10 days of the season the quota was increased slightly from 6,615 to 9,000 t. This however represented an overall reduction (~1,500 t) in the quota that would have been landed during this time frame across two consecutive seasons with quotas of 6,615 t.
- Commercial fishing licenses for 2020 were reduced to \$1 AUD.
- The payment of commercial western rock lobster access fees were delayed.
- Costs associated with Marine Stewardship Certification (MSC) reviews were paid by the Government.
- A new process was developed to allow for commercial fishers to more easily sell commercially caught WRL to non-processors (e.g. public and restaurants),

thus increasing access of fishers direct to the domestic market.

When demand in China started to increase again the fishery had remained in a good position to start to increase production, and was further aided by two factors. Western Australia had no known 'un-quarantined' cases of Covid-19 and was therefore at reduced restrictions which allowed fishers, processors and logistics all to work normally.

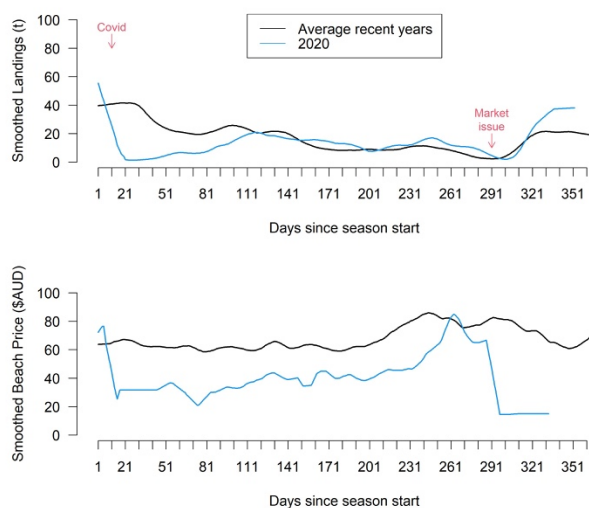


Figure 1. Landings (top) and price (bottom) of western rock lobster (*Panulirus cygnus*) in Western Australia during the 2020 fishing season compared to an average of recent years through to 2019.

Furthermore, the federal government had implemented a system to subsidise cargo flights between Australia and China, markedly reducing the costs associated with exporting. By mid-April (~ 110 days into the season) the fishery was back to full production, landing similar quantities to previous seasons and the beach price was progressively increasing from AUD\$20/kg up to \$85/kg by the start of October. The catch to October was about 4000 t compared to just over 5000 t at the same time last year.

Although not Covid-19 related, a second market related issue has recently occurred, just prior to the traditional ramp up of catches associated with the WRL white's migration period and increased demand in China. Increased testing for contaminants in lobsters imported from Australia has lengthened transport times making the shipping of live lobster unviable. A resultant second crash in beach price has occurred around season day 295 (Figure 1 bottom) and lobster landings have all but ceased. How long this will last and the long term impacts are anyone's guess. Season 2020 will certainly be remembered for a long time to come.

Simon de Lestang

Sustainability and Biosecurity

Department of Primary Industries and Regional Development

39 Northside Drive | Hillarys WA 6025

Simon.delestang@dpird.wa.gov.au

COVID19 impacts on southern rock lobster: insights on initial shocks

From: Steven Rust, Emily Ogier.

Southern rock lobster (SRL, *Jasus edwardsii*) is caught in Australia in three major jurisdictions, which are the States of Tasmania, South Australia and Victoria. Smaller quantities of SRL are caught in the Western Australian fisheries and the New South Wales fishery, although these volumes are much smaller in comparison to the three southern-most States. Aside from Australia, the other major producer of SRL

in the global marketplace is the country of New Zealand, which is located across the Tasman Sea and to the South East of Australia. The CRA8 zone off the southern part of the South Island of New Zealand is a particularly productive area of that fishery. The stock recruitment for SRL is reliant on the settlement of a late stage larval lobsters (*puerulus*) on local reef habit. The *puerulus* are mobile in the water column, and it is widely regarded that the major SRL fisheries are linked at least to some extent by this recruitment process, and which in turn is reliant on egg production in each of the major fisheries.

Since the 2017/18 financial year, the main export destination by value for Australian SRL has been mainland China. Lobsters are exported through hubs located in Shanghai, Beijing, Guangzhou, as well as through Hong Kong and Taiwan. A major source of value for the Australian fishery prior to this was through Vietnam.

Prior to the coronavirus pandemic, the landed price of SRL exhibited strong seasonality, with a peak in price from Jan to Feb each year coinciding with the Chinese Lunar New Year celebrations. Until very recently, it was common for the ex-vessel price of fish to reach levels above \$100 per kilogram over this period. The average price for the 2018/19 financial year for SRL landed from the Tasmanian fishery was \$88 per kilogram.

However, this trade ceased one day following the Chinese government announcement of a lockdown in Hubei province to contain the spread of the newly discovered SARS CoV-2 (CV-19), with the

cancellation of the 2020 Lunar New Year festivities on 24 January. In response to this, on 29 January the Tasmanian government announced the roll-over of uncaught fishing quota from 2019-20 year to the 2020-21 year, and this was followed by similar measures in Victoria on 31 Jan and South Australia on 23 Mar. The Tasmanian government also announced a broad-based fee relief package for its fishing industry on 17 Mar; and this was followed by similar measures in South Australia on 9 Apr.

The Australia-China seafood trade recommenced on 14 February, at similar prices to those before the pandemic but at a much lower volume. This trade continued such for several weeks, until 20 March when the Australian government closed its national borders and in short succession announced nation-wide physical distancing rules (23 Mar).

With the collapse of passenger transport due to the closure of many international borders (USA on 11 March; Australia on 20 March; China on 26 March), and the increased demand on airfreight services due to the movement of PPE and other medical supplies, the cost of airfreight generally was increasing over this period; and by late March, with the closure of Australian borders, the cargo space available for delivery of the live-export lobsters to China had all but disappeared.

In response to this situation, the Australian government created the International Freight Assistance Mechanism (IFAM) on 1 April 2020 to provide AU\$110 million in funding to keep Australian freight routes operating, and allow the domestic trade

with China to recommence. However even as the export trade recommenced, sluggishness was becoming evident in the Chinese consumption spending due to the impact of the CV19 pandemic on the global economy. In addition to supplying the domestic construction sector, Chinese manufacturing has traditionally been oriented towards supplying a large amount of consumer demand in Europe and the USA. By early April, both of those markets were in the grip of a first wave of CV19 infections, with shutdowns being implemented across many jurisdictions. In addition to this, the sentiment of Chinese consumers generally was affected by the widespread factory closures, and a shutdown of the services sector, as well as the risk of infection in public places like shopping malls.

Figure 1 illustrates the effect of the pandemic on the annual export value of SRL for the major Australian jurisdictions (South Australia, Victoria, and Tasmania) for the 2018/19 and 2019/20 financial years. Please note that in many cases seafood products are consolidated between States prior to export, and this can result in some export volumes being mis-allocated to the state of consolidation rather than the state of origin. Therefore, the numbers reported in Figure 2 may not be a completely accurate depiction of the Australia-China trade for SRL from these three states.

The future remains uncertain. Since the Australian government called for an independent inquiry into the CV-19 pandemic (19 Apr), geopolitical issues have persisted with Chinese buyers; and since 2

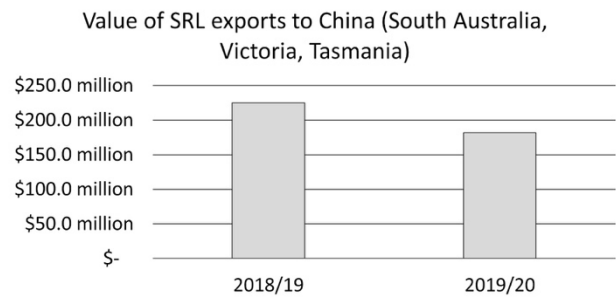


Figure 1. Annual export value of SRL for the major Australian jurisdictions for SRL for the 2018/19 and 2019/20 financial years. (source: <https://www.frdc.com.au/en/services/seafood-trade-data/seafood-import-and-export-by-volume-by-species> accessed 19 Nov 2020)

November a number of Australian exported products have experienced substantial difficulties in clearing customs, and this includes SRL production from the southern states. For the Tasmanian fishery, the 2020-2021 quota year will end on 28 Feb 2021 and over 50% of the total allowable catch remains to be caught

(<https://dpiwwe.tas.gov.au/sea-fishing-aquaculture/commercial-fishing/rock-lobster-fishery/rock-lobster-catch>, accessed on 19/1/2020). However, the markets for this catch are less robust than in past years, and the flow on effect for fish processors and lessee fishers in their being able to recoup their outlays for the fishery's harvest is unclear.

*Steven Rust, Postdoctoral Research Fellow
Institute for Marine and Antarctic Studies,
University of Tasmania, Australia
steven.rust@utas.edu.au*

*Emily Ogier, Research Fellow
Institute for Marine and Antarctic Studies,
University of Tasmania, Australia
emily.ogier@utas.edu.au*

South Australian southern rock lobster (*Jasus edwardsii*) fishery response to coronavirus impacts

*From: Adrian Linnane, Annabel Jones,
Nathan Kimber.*

The southern rock lobster (*Jasus edwardsii*) fishery in South Australia is divided into two zones: Northern and Southern with the fishing season extending from 1 October (or 1 November for Northern zone) to 31 May of the following year. Both fisheries are managed under Total Allowable Commercial Catches (TACCs), which for the 2019/20 fishing season were set at 296 t and 1,246 t for the Northern and Southern zones, respectively. Over 90% of the product is exported live, primarily into China.

Due to coronavirus, overseas markets closed on 24 January 2020, and commercial fishing operations ceased. At the time of closure, 1,060 t (85%) of the Southern zone TACC had been landed while 155 t (52%) of the Northern zone was taken. In response to the market closures, a Working Group was formed consisting of industry representatives, resource managers and fishery scientists. The aim of the group was to provide advice to the South Australian Rock Lobster Management Fishery Advisory Committee (SARLFMAC) in relation to possible temporary mitigation options as a result of the closure. These included: (i) TACC carry-over to the

following season and (ii) season extension options to allow for greater fishing flexibility.

Between March and the season closure in May 2020 there was a partial reopening of the markets which was largely assisted by the International Freight Assistance Mechanism (IFAM), a targeted emergency measure put in place by the Australian Government in response to COVID-19. IFAM succeeded in enabling key airfreight routes thereby allowing high-value and time-sensitive perishable products, such as lobsters, to continue to be exported to established overseas markets.



Photo: Adrian Linnane

In July 2020, the SARLFMAC convened and assessed proposed options from the Working Group. SARLFMAC recommendations included: (i) a carry-over of all uncaught quota in 2019/20 (approximately 120 t) to the 2020/21 season (the exception was the Outer region within the Northern zone where 50% of the uncaught TACC (approx. 32 t) would be

rolled over to 2020/21 with the remaining 50% allocated in 2021/22) in addition to the annual TACCs set for both zones for the 2020/21 season; and (ii) the removal of the closed season (June to October) within the Northern zone. The Southern zone later requested opening the fishing season on 15 September 2020, two weeks earlier than normal.

All the above recommendations were supported by the South Australian government and are currently in place for the 2020/21 rock lobster fishing season in South Australia. In addition, licence fee deferrals were implemented for the last financial quarter of 2019/20 and first two quarters of 2020/21.

Adrian Linnane
Sub-program Leader Crustaceans,
Department of Primary Industries and Regions
Adrian.Linnane@sa.gov.au

Annabel Jones
Program Leader Commercial Fisheries,
Department of Primary Industries and Regions
Annabel.Jones@sa.gov.au

Nathan Kimber
Executive Officer South Australian Rock
Lobster Advisory Council Inc.
nathan@kimberconsulting.com.au

COVID-19 A Southern New Zealand Perspective

From: Malcolm Lawson

Like the rest of the lobster world that exports to China, New Zealand was affected by the events of earlier this year. This is the story from the southern area of New Zealand.

First some context: the CRA8 quota management area (QMA) is the southernmost in New Zealand. It is economically the most valuable with approximately 40% of New Zealand's *Jasus edwardsii* exports harvested from the CRA8 area. The fishing year in New Zealand runs from the 1st of April in any year to the following 31st March. Quota is expressed in terms of shares and these shares generate a weight equivalent Annual Catch Entitlement (ACE) that is expressed in kilogrammes. This is bought and sold on an annual basis. Fishers need to hold ACE to go fishing. The trading price for ACE for 2019/20 was \$NZ60/kg with almost all paid up front at the start of the fishing year. The total ACE in any QMA produces the Total Allowable Commercial Catch (TACC). ACE expires at the end of the fishing year and is regenerated for the new fishing year subject to any changes to the TACC that the Minister of Fisheries may make. CRA8 exports 97% of its TACC as live product to China. Other markets, including the domestic market are small by comparison and value.

January to March are busy months in any fishing year for the CRA8 industry (and for most of New Zealand). This period encompasses the Chinese New Year which traditionally produces some of the highest beach prices of the year for fishers. This year was no different: fishers were fishing as hard as they could and the export companies were moving large quantities of rock lobster to the Chinese market in anticipation of the Chinese New Year festivities. On January 23rd everything changed. Instead of exporters receiving phone calls for orders they began to receive phone calls to cancel existing orders.



Photo: Malcolm Lawson

While Wuhan is not an export destination for New Zealand lobsters, it did not matter. The Chinese government had ordered seafood markets to close throughout the country due to the situation in Wuhan and neighbouring areas. Literally overnight the CRA8 (and New Zealand) lobster industry was on hold. It would be another two months before the New Zealand government ordered the country into

lockdown but the issues for the lobster industry were immediate: exporting premises were full; fisher's holding pots were full (at-sea holding pots are vital to the functioning of the CRA industry due to the isolation of the fishing grounds); and the end of the fishing year was on the horizon.



Photo: Malcolm Lawson

New Zealand fisheries laws prescribe that lobsters held on board a vessel or in holding pots are deemed to have been taken for the purposes of sale. From that point they cannot be returned to the sea and must be counted against a fisher's ACE. There is no presumptive right to carry forward uncaught ACE to the next fishing year. Fishers were facing the prospect of having no income for the foreseeable future - that would at least allow them to recoup the payments they had made for their ACE - and exporters had tonnes of lobsters on their premises for which they had paid around \$NZ90/kg that had only a limited shelf life.

Representatives of the New Zealand Rock Lobster Industry Council immediately took

the situation to the government department in charge of fisheries in New Zealand: the Ministry for Primary Industries (MPI). In true governmental style, when faced with an unfamiliar situation nothing happened fast. Eventually through some creative interpretation of the laws fishers were allowed to release lobsters from their at-sea holding pots without having to count those lobsters against ACE. Unfortunately, the exporters were not treated so benevolently and with lobsters beginning to deteriorate they were forced to tail and freeze most of their stock in an effort to maintain quality and to gain time to find alternative markets. The result of this prevarication by Ministry for Primary Industries meant that most stock was sold at about one third of the price it had been purchased for, resulting in losses in the \$NZ millions.

With little prospect of much fishing resuming before the end of the fishing year the focus was then on how to avoid hundreds of tonnes of ACE simply expiring. After a public consultation round the Minister of Fisheries agreed that the uncaught portion of a fisher's ACE up to a maximum of 10% of their ACE holding, could be carried forward to the 2020/21 fishing year. For example: a fisher holding 20 tonnes of ACE, of which 16 tonnes was already caught, was then able to carry forward 2 tonnes. But if the same fisher had already caught 19 tonnes then only the remaining one tonne could be carried forward.

In late March orders from China began to trickle in. About this time New Zealand was in lockdown however fishing was deemed an essential industry, so under strict conditions relating to the safety of individuals, it was able to resume. The exporting companies were able to focus on their most vulnerable fishers and those with excess uncaught ACE that could not be carried forward and send them fishing. The result in CRA8 was that less than 2 tonnes of ACE simply expired on 31st March.

Most lobsters are flown as cargo on passenger planes from New Zealand to China. With this service almost completely closed down the government recognised that the cost of perishable products on planes carrying freight only was a major hurdle. So as part of their COVID -19 recovery plan an initial \$330 million was allocated as an air freight support package. This scheme has recently been extended until 21st March 2021.

Fishing of any substantial volumes did not resume until the last third of April, but by May the demand was high resulting in extremely good prices and a record amount being exported for that month from CRA8.

Except for a short period in June when markets were again shut due to traces of the virus being detected in seafood markets the interaction between fishing and markets has been smooth for the CRA8 industry. But we need it to be. In addition to 111 tonnes carried forward from 2019/20 the TACC was also increased for 2020/21. This means

there is a total of 1,302 tonnes to catch. This is more than in any other year since the live trade began. Challenging times indeed.

Malcolm Lawson

CRA8 Rock Lobster Industry Association Inc.

New Zealand

cra8@xtra.co.nz

Impact of COVID on the fishery for eastern rock lobster in New South Wales, Australia

From: Geoff Liggins

The fishery for eastern rock lobster, *Sagmariasus verreauxi*, in New South Wales (NSW) Australia is 1 to 2 orders of magnitude smaller in scale than the Australian fisheries for southern rock lobster (*Jasus edwardsii*), western rock lobster (*Panulirus cygnus*) and tropical rock lobster (*Panulirus ornatus*). In contrast to the dependence of these other fisheries on the export market to China, the majority of the catch of *S. verreauxi* is sold into the local NSW market. Consequently, compared to many other Australian and international lobster fisheries, the Covid pandemic has had lesser impact on the NSW lobster fishery during 2020.

The 2019-20 TAC of 170 t was taken by the fishery. Catch during the first 3 months (August – October) of the 2020-21 fishing season is on-track for the fishery to take the increased TAC of 180 t. Market prices for domestic sales were 10-15% lower during

February – May this year, compared to corresponding months in 2019. Under the NSW government's response to Covid, sit-down-dining in Sydney restaurants was banned between late March and mid May and this surely contributed to reduced local demand for NSW lobsters. There was also a 2-month hiatus in the export market to China between late January and March. In the following months, prices paid by exporters to fishing businesses that chose to export into China were reduced by up to 35% compared to prices paid pre-Covid. Consequently, the impact of Covid on individual NSW lobster fishing businesses during the 2019-20 season depended very much on whether these businesses were dependent on disposal of large quantities of product during the February – April period.

Given the effective suppression of the Covid virus in NSW at present and the importance of the local market for the NSW fishery, prospects for the remainder of the 2020-21 fishing season appear promising. However, if there are further significant interruptions to the export market into China for the other Australian lobster fisheries, then any consequent increase in supply of southern and western rock lobster into the NSW domestic market will likely result in reduced prices for sales of locally caught lobsters in NSW.

Geoff Liggins

New South Wales Dept of Primary Industries

geoff.liggins@industry.nsw.gov.au



Digging in for the long haul. Photo: Win Watson.

J. Stanley Cobb 1942 - 2020

It seems fitting to close this issue with a memorial tribute to the co-founder of the *Lobster Newsletter*, and more importantly, one of the central figures of lobster science over the past half century, who succumbed to COVID-19 at the end of a long bout with Parkinson's disease.

The compilation on the following pages includes a selection of testimonials and stories contributed by Stan's scientific family. Some may be found on the Stan Cobb memorial website lovingly created by his wife Laurel, and children Lisa and Nathan. Others I received by email. After 15 pages of material, I had to distill. Here I share only some of them. I hope they give a sense of what Stan meant to many who were lucky enough to know and work with him. Visit the web link at the end of this section to see for yourself. It's not too late add a thought of your own.

I first met Stan around 1986 when I was on his doctoral committee. Those early two decades of collaboration that shaped my career. After completing my PhD, year postdoc at the University of Rhode Island, just as I was getting my investigator. I found that I had family of current and former colleagues that reached around the globe, many of whom have become long-standing friends and the privilege of team-teaching and we began research projects and publications, mostly all he encouraged me to pursue my larval settlement monitoring I had blossomed to a US-Canada Rhode Island to Newfoundland.



invited him to serve on my beginnings evolved into nearly formed a cornerstone of my it was my honor to spend a two-Rhode Island as one of the Cobb footing as an independent joined not only a wonderful students, but a network of globe, many of whom have collaborators. While at URI I had courses and seminars with Stan, collaborations on numerous on larval lobster ecology. Most of interest in expanding the lobster just begun and that eventually collaborative extending from

Soon after his retirement, in July 2005, Stan's colleagues honored him with a gathering at URI's Graduate School of Oceanography. The proceedings can be found in a special section of the *Journal of Crustacean Biology* vol. 26, issue 4, Oct 2006. Stan was honored with the Crustacean Society's *Excellence In Research Award*. And Dr. Bruce Phillips, Stan's counterpart down-under, even flew in from Australia to deliver an in-person overview of Stan's career. Stan and Bruce, the two bookends of global lobster science, can claim some important firsts. Chief among them were initiating the *International Conference and Workshop on Lobster Biology and Management (ICWL)* in 1977 in Perth, and co-editing the two volume *Biology and Management of Lobsters* (Cobb and Phillips 1980, and Phillips and Cobb 1980), the first edited compendium of worldwide information on lobster biology and fisheries.

Stan was the quintessential gentleman scientist, a perceptive mentor and teacher. He had a quiet way of encouraging students to challenge the conventional wisdom while acknowledging we stand on the shoulders of many before us. ICWL2020 may be postponed to 2022, but we will gather again *in person* to reconnect and carry on that tradition.

Rick Wahle, Co-editor *The Lobster Newsletter*

Posted by **Bruce Phillips**, Curtin University of Technology, Western Australia, May 17, 2020

I first met Stan and Laurie about 1974 on a CSIRO funded visit to the US to talk to lobster researchers. It was my first visit to the US and I was unsure what sort of reception to expect but I knew Stan from the literature and he invited me to visit him for hamburgers at their home. We were then going to meet the next day but it turned out Stan had forgotten that they had an important event to attend. I offered to look after their children. They took me up on this offer and we became firm friends.

Over the many years that followed, we had numerous discussions and attended conferences on lobsters together all over the world; however, the most important thing we were able to achieve professionally was that in 1977 his whole family came out to stay in Australia for a year under the US Australia Science Agreement. We had all sorts of field trips and research activities during this stay in Perth, and Stan in his soft-spoken way pointed out the flaws in our animal behaviour interpretations of field experiments, which was helpful in putting us on the right path. Most importantly, during this time we organised the Workshop on Lobster and Rock Lobster Ecology and Physiology in Perth, Australia. The workshop was extremely successful and led to the publication of our well-known two volume series *The Biology and Management of Lobsters Vol I and II* in 1980. In the years that followed, we continued to correspond and support the continued series of International Conferences and Workshops on Lobster Biology and Management, which grew from our 1977 Workshop. A special morning of the 12th ICWL ...will be dedicated to Stan and his contributions to lobster research.

Over the years, our friendship developed and we felt like brothers - this was particularly significant for me as I had never had a brother. The last time I saw Stan was when he retired and I had the honour of attending his retirement party and presenting a suitable review of his achievements.

Posted by **Bill Herrnkind**, Professor Emeritus, Florida State University, USA, April 27, 2020

Stan and I were close contemporaries in lobsterology for half a century. I admired his research and contributions to our field - even if the lobsters he studied were ugly and had goofy claws! More so, he was a truly great colleague, friend and role model. I know our relationship was mutual. I treasure that.

"Lobsters are remarkable beasts. They are large, ecologically important, and tasty."
- Stan Cobb

Posted by **Ehud Spanier**, Professor Emeritus, University of Haifa, Israel, April 27, 2020.

He was a mentor and inspiration for me. Doing research and teaching with him during my sabbatical at the University of Rhode Island in 1991-2 enriched my scientific life and gave me new scientific tools that enable my advance in research. We will always remember his healthy approach to science, his great knowledge and his friendly sense of humor.

Posted by **Colin Bannister**, Emeritus fisheries scientist, CEFAS Lowestoft Laboratory, UK, May 10, 2020

Stan's recent passing... meant the loss of a towering yet unassuming colleague and friend who touched so many scientific lives. But in our current turbulent times it is also reassuring to reflect that in a world that has changed so much, there has been, and can still be, such a life as the one he led so graciously, and shared with so many of us, as depicted by the litany of emails that responded to the news. For me personally it is very humbling to have been included in that circle because when I started out in Lowestoft in 1964 as a graduate student I was an aspiring Beverton & Holt fisheries assessment type of guy, and only moved into the shellfish world in mid-career in 1982, at a time when I knew virtually nothing about lobster science. ...More at the ForeverMissed link below.

Posted by **Mark Butler**, Professor, Old Dominion University, Virginia, USA, on April 27, 2020

Stan found the narrow path between being a gracious and kind person, while being a demanding and vigilantly skeptical scientist. His retirement gala several years ago was epic. It was there where I learned that I was among several of our colleagues who Stan didn't accept into his graduate program! We all had a great belly-laugh at that. Fortunately, Bill Herrnkind had lower standards than Stan (just kidding, Bill!) and accepted me into his lab for my Ph.D. So as fate would have it, I nonetheless slipped into the circle of what was then considered "The Big 3"

in lobster biology: Stan Cobb, Bruce Phillips, and Bill Herrnkind. Stan had an enormous impact on lobster science and a lasting effect on so many lives. I think he must have known that.

*Posted by **Rom Lipcius**, Professor, Virginia Institute of Marine Science, USA, April 27, 2020*

Stan inspired me to jump into lobster ecology when I was an undergraduate at URI looking for grad school. At the time he had no room in his lab so I went to study with Bill Herrnkind, and feel so lucky that I knew two of the biggest names in lobster ecology. I have nothing but fond memories of Stan and wish the family well during this difficult time.

*Posted by **Bob Steneck**, Professor, University of Maine, USA on April 27, 2020*

However, one moment with Stan has always stayed with me. Years ago (1980s?) I invited Stan to give a talk at the Darling Center. Afterwards Rick Wahle, Stan and I decided to go out on a boat and look for larval lobsters. LOOK for larval lobsters?... in the field?? I thought. However, he knew right where to look. We motored up to a ribbon of flat calm water streaming just south of Damariscove Island ... a convergence zone. Looking across the glassy surface, we saw the micro-ripples of a larval lobster enjoying the warm surface waters. It is an amazing sight to see a larval lobster about a cm long swimming in the wild looking to all the world like a micro-Superman with its two out-stretched claws. I had never seen that before or since (and I do look). It shows you what is possible when you are with a scientist who knows the craft of science. None of us can ever hope for anything more than that. Stan was an inspiration.

*Posted by **Gro Van der Meeren**, Senior Scientist, Institute of Marine Research, Bergen, Norway*

Stan was such a great discussion partner ... What he and his generation did in their science and in establishing the ICWL have been shaping my scientific life.

*Posted by **Caleb Gardner**, Professor, University of Tasmania, Australia, April 27, 2020*

I first met Stan about 25 years ago ... he was the nicest bloke. He's left a wonderful legacy and has set candles burning all around the world today.

*Posted by **Michael Childress**, Professor, Clemson University, South Carolina, April 27, 2020*

Stan Cobb was one of my academic heroes. He wrote one of the first reviews of lobster social behavior that had a profound influence on the research I would spend most of [my] career pursuing. Stan was exceptionally gifted in his role as a reviewer and mentor. He would always take time to listen [to] your project ideas or read your draft proposals and then make the most astute suggestions for improvement. His kindness toward students and his love of all things lobster left an indelible mark on me and how I wanted to be when I became a professor. Thank you Stan.

*Posted by **Jason Goldstein**, Research Director, Wells National Estuarine Research Reserve, Maine, USA on April 28, 2020*

I first met Stan back in 1998 when I was cutting my teeth in the lobster world, working as a lobster hatchery tech at the New England Aquarium in Boston. Stan came to visit the facility (I think he really wanted to dive with the giant sea turtle), and I was so nervous I wrote up a script for myself and brushed up on the Cobb-Philips book (volumes 1 and 2, of course, what else would you do?!). Turns out, none of those props were needed since Stan treated me as an equal and we had an amazing conversation about lobsters -- A gentleman, incredible scientist, and a "mensch" (Yiddish word for good or righteous soul).

*Posted by **Kevin Hovel**, Professor, San Diego State University, California, USA, April 28, 2020*

I was a new assistant professor from San Diego and had just begun a project on American lobsters with Rick Wahle that had taken me across the country for a few field seasons. I was trying to figure out what the heck I was doing and where to go to find lobsters and good study sites, and Stan generously gave me advice and guidance. But much more than that, he treated me and my students and interns like old friends even though we had just met. We had some great dinners at the Cobb household, and some sailing trips on Narragansett Bay. Though I learned about lobsters and behavioral ecology from Stan, I value even more the lessons he taught just by being who he was, a generous and welcoming person.

*Posted by **M. Beverly Swan**, Provost and Vice President for Academic Affairs, Emerita, University of Rhode Island, USA, May 4, 2020*

Stan was a wonderful teacher, mentor, scholar and friend. ... He had the ability to cut through issues to reach solutions to problems that others gave up on. And he did so with a twinkle in his eye and a smile on his face. He will be missed.

*Posted by **Dave Bengtson**, Professor Emeritus, University of Rhode Island, USA, May 4, 2020*

Stan was one of my first professors when I arrived at URI as a grad student in 1971, a member of my master's committee, a co-PI on my first grant, a co-author, and my department chair as I returned to the old Zoology, then Biological Sciences, Department as a research faculty member. As I developed an academic career, it was an easy choice to use Stan as my guiding star, my role model, because of his ability to juggle teaching, scholarship, and administration, all while being an outstanding mentor to his students and a wonderful humanitarian. He is one of the best that URI ever produced.

*Posted by **Anne Richards**, Research Fishery Biologist, National Marine Fisheries Service, USA, May 19, 2020*

Stan always saw so clearly, whether about science or about life. He recognized the core of the matter while you were still floundering in the weeds, and in the kindest fashion drew you out of the muck. I remember his single comment after patiently listening to my plans for summer research: "Anne...it takes longer". Oh. Well, of course it did, and I can't count the number of times I have played those (and other) wise words back to myself. He was always there for us, guiding but not constraining, nudging but not pushing, open to our ideas but keeping us from going over the edge. And having a lot of fun along the way. What a wonderful man, the finest of mentors, and the kindest of friends. He lives on.

*Posted by **Annette Juinio-Menez**, Professor, University of the Philippines, on May 5, 2020*

I joined Stan's lab as a PhD student in 1987. I could not have been more fortunate to have him as adviser and mentor. He was a kind and wonderful person. While he challenged us to achieve our academic goals, he was also my best model for a happy work-life balance. Thank you Stan for the inspiration and privilege of having known you.

*Posted by **Peter Lawton**, Research Scientist, Fisheries and Oceans Canada, April 27, 2020*

I am sure we are all reflecting on our interactions with Stan and will contribute to his memorial page. Here are some early memories comforting me this morning. I first read Stan in 1976, through his research papers on American lobster ecology while I was an undergrad in the UK. I first met Stan in 1983 while he was on sabbatical at Saint Andrews when I arrived there to work as a PDF with Alan Campbell (who has also passed) and Bob Elner. My first review by Stan was on my proposed 2 yr PDF research proposal, which Stan "respectfully" estimated would take from 5 years to a decade to complete. My first conference with Stan was the 1985 lobster conference here in Saint Andrews.

*Posted by **Mark Bertness**, Professor Emeritus, Brown University, Providence, Rhode Island, USA, April 27, 2020.*

Stan was a class act, inspiring teacher and researcher, but above all a kind, humble friend to so many. He had an infectious enthusiasm for lobsters and his friends.

*Posted by **Jeremy Collie**, Professor, University of Rhode Island, USA, April 27, 2020*

It is heartening to hear the outpouring of sympathy and admiration from his colleagues and former students. Stan was a consummate naturalist and gentleman scholar. I was honored to be his colleague.

*Posted by **Emily Carrington**, Professor, University of Washington, USA on April 25, 2020*

Stan was my boss when I started my first 'real' job as an assistant professor at URI in 1995 and he skillfully poked, prodded and praised my cohort along the path to successful careers in research and education. One of the many things Stan and I did together was co-teach Marine Biology. Stan was a world expert in crustaceans, and our most popular lab by far was on lobster behavior.

Posted by **Mary-Jane (MJ) James**, Research Scientist, Rhode Island Department of State, USA, on April 26, 2020

Stan was more than a mentor. He was a gentleman, a teacher, a great scientist, and personally to me a second father-figure. I have fond memories of the "Cobb Lab", waking up at the crack of dawn to go sampling & towing nets for larval lobsters, journal club, and pot luck night. His kindness and depth of knowledge will be missed.

Posted by **Win Watson**, Professor Emeritus, University of New Hampshire, USA, April 27, 2020

OK, now for something to help replace the sad tears with happier tears: Several years ago at a lobster conference I'm being a fool and doing the Lobster Records Poster thing. I see Stan sitting by himself and I decide to take a chance. While we all appreciate his kindness, he was also a Professional with high standards. "So, Stan, I'm creating a book of Lobster Records and I was wondering if you have anything to contribute". Stan looks at me....I'm getting worried....then he says: "Most lobsters eaten by Rats!" and bursts into laughter. "Say what?" I say. And he spends the next 20 minutes telling this story about rats diving into the aquarium where he was keeping his lobsters and then partially eating them and then bringing the rest back to his office and hiding them in one of the drawers. That is how he discovered the criminals.

More testimonials can be found at the ForeverMissed website: <https://www.forevermissed.com/jstanley-cobb/about>

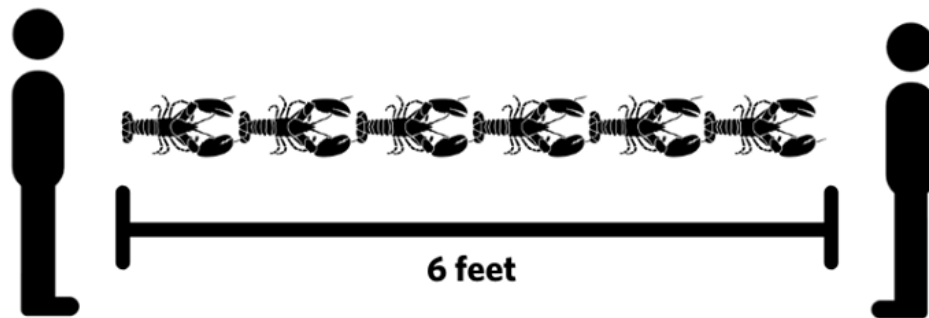
Obituary: <https://www.legacy.com/obituaries/providence/obituary.aspx?n=j-stanley-cobb&pid=196088172>

Donations in Stan's memory may be given to the *Stan Cobb Endowment for Marine Biology* at the University of Rhode Island to support experiential education in marine biology at URI. Go to: <https://web.uri.edu/marbio/stan-cobb-field-courses/>



Remember!

Always keep at least six lobsters of space between you and others



This Maine physical distancing reminder brought to you by The Nature Conservancy
Maine

Submitted by Steve Jury.

Editors:

Nick Caputi

Western Australian Fisheries and Marine Research
Laboratories, Department of Primary Industries and
Regional Development
PO Box 20
North Beach WA 6920 AUSTRALIA
Nick.Caputi@dpird.wa.gov.au

Richard A. Wahle

University of Maine
School of Marine Sciences & Lobster Institute
Darling Marine Center
Walpole, Maine 04573 USA
Richard.Wahle@maine.edu



Assistant Editors – This Issue:

Jenny Moore

Western Australian Fisheries and Marine Research
Laboratories, Department of Primary Industries and
Regional Development
PO Box 20
North Beach WA 6920 AUSTRALIA
jenny.Moore@dpird.wa.gov.au

Nicole Orminski

University of Maine
School of Marine Sciences
Darling Marine Center
Walpole, Maine 04573 USA
Nicole.Orminski@maine.edu

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Wahle (northern hemisphere) about article
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