

Te Pānui Kaitiaki o Ata Whenua

In this issue we shine a light on how technological developments are improving the way Fiordland's marine environment is understood, monitored and protected. We celebrate the launch of the new reporting app for charter fishing vessels that makes life easier for operators and improves our understanding of fishing activity. We take a closer look at a new mooring design that is lighter on the environment and takes up less of the limited seafloor real estate. We focus on two science projects that are using technology to help us better understand iconic species of Fiordland. And we finish with a ~~good~~ great (!) news story: the huge achievement of the agencies in clearing Taiari/Chalky Sound of the dreaded *Undaria*.

First up, we chat with Guardian John Cushen. John is relentlessly positive and brimming with enthusiasm about the deep south. We find out what makes him tick.

We wish you a safe, relaxing and fun summer and extend season greetings to you.



Meet the Guardians

John Cushen has a passion for Fiordland and has worked there as a tourism business advisor, nature guide, and boat skipper. He joined the Guardians in 2021.

Let's begin by hearing about your first visit to Fiordland.

I remember vividly going into Milford Sound with my Mum and Dad not long after the Homer Tunnel opened. Now that ages me! I was really into nature as a kid, and was fascinated by forests and weather and geography. It's fair to say Milford totally blew my mind.

How have you continued to explore the place over the years since?

When I turned 50 I decided it was time for a career change. I'd been a high school teacher until that point and was an Associate Principal. I saw a job advertised for a nature guide in Doubtful with Fiordland Travel (now RealNZ) on the *KD II* and it went for it. It was one of the best decisions I ever made. I ended up guiding on boats all through Fiordland and around Stewart Island for many years.

And in more recent times you've been an assessor of tourist businesses.

What's that all about?

Yes, I have worked for Tourism NZ Qualmark as an assessor and business advisor to adventure experiences all over the deep south including Fiordland. I found it very rewarding as it was all about relating to people and supporting them to do great things.

Have you noticed any changes in the way tourist businesses operate in the FMA?

Increasingly, businesses are looking for ways to give back to the place that they operate in. It has been really interesting to see this side of tourism businesses growing and becoming standard practice. I've also noticed improving attitudes to fishing by most charter boat operators. They have experienced declining fish stocks firsthand and so their behaviour is in response to their concerns about fisheries sustainability.

What changes have you noticed in the many years you've been visiting the place?

There has been a huge shift in the ease of access to the FMA. A lot of that is driven by increasing wealth – you can essentially get to any far corner of Fiordland if you can afford a helicopter flight or a big boat. The result is a lot more visitors to the place and that puts pressure on the environment. Visitors also change the character of the place in terms of wilderness. So that's tricky as we need to find a way to strike a balance between freedom of access and wilderness values.

Are there any Fiordland issues that are keeping you awake at night?

One of the biggies that is really worrying me is invasive species in the marine environment. Frequently in the news we hear stories of invasive species turning up in new places and as a country we seem to have very little control over the situation. It's a difficult thing to prevent as every boat movement presents a risk of carrying a pest and when incursions do happen, the costs required to respond adequately are daunting. We must keep these things out of Fiordland!

What compelled you to get involved with the Guardians?

I've been so fortunate to spend a big part of my life pottering around the southern coast, either working or in my own boats. Places like Fiordland are just so special and we simply must do a better job of looking after them. I was familiar with the *Undaria* challenge and was also experiencing declining fish stocks and so I thought, here's a way that I can be proactive and give back to this place.

What would you say you bring to the group?

I have a deep passion for education and believe that if you can help people to understand and appreciate our natural world they will be compelled to look



John Cushen

after it. Proper hearts and minds stuff. I bring the perspective of the tourism sector to the group and I also reckon I'm a pretty good communicator.

Is being a Guardian what you expected it would be?

It is far more satisfying than I expected. We are solutions focused and can effect change, which is challenging and also very rewarding. I feel very fortunate to be part of a team that is so open, supportive and well led.

What would you like people to know about the Guardians?

The Guardians come from very diverse backgrounds, and so we have very robust discussions and don't always agree with each other. But the thing we do have in common is wanting to do the very best for Fiordland. This diversity is such a great thing. I love the way the Guardians value communication – they are not afraid to get out there and chew the fat with others who are equally passionate about the place but may have different values.

Finally – what's your favourite kai moana?

Mussels. Prepared any way you like. It is simply impossible to make a mussel taste bad.

New mooring design a win for area



Regular readers of this newsletter will be aware of the Guardians' ongoing work to advocate for safe and accessible mooring and anchoring facilities throughout Fiordland. We want to make sure that all vessels in the area can seek shelter during a storm, both now and in the future when we expect more visiting vessels of an increasingly larger size.

Sheltered embayments are at a premium, particularly in the northern fiords. Even rarer are 'all weather' anchorages, which provide shelter from storms whatever the direction they come from. Ideally, some of the space in these all-weather anchorages should be reserved for anchoring, to reduce the risk of anchoring gear getting tangled with mooring gear, or vessels colliding when in position.

The Southland Regional Coastal Plan is desperately in need of a review, as it is this plan that enables such holistic planning of anchorages and moorings. It is currently rather permissive – for example, it doesn't provide much direction about the kinds of mooring designs that are appropriate for Fiordland's environment.

The Guardians got involved in discussions with RealNZ about their multi-arm screw anchor mooring design (MASA). The design included a mooring buoy connecting to a central point, then spanning out via mid-water cables to several anchors that were screwed into the sea floor. The

span of the screw anchors varied among sites but resulted in a seafloor footprint of up to 280 m x 195 m (more than 5 hectares).

In 2021, RealNZ installed MASA moorings in Piopiotahi/Milford Sound, Patea/Doubtful Sound (First Arm), and Tamatea/Dusky Sound (Cascade Cove). The Guardians quickly started to field concerns from operators about the size of the seafloor footprint of these MASA moorings, and the unseen snag hazard they posed to vessels deploying anchors. The Guardians and other parties raised these concerns with RealNZ and the regional council. We regarded this mooring design to be an inefficient way to use limited seafloor space in Fiordland.

The Guardians acknowledge RealNZ for taking our feedback into consideration and are pleased that they have worked with a mooring engineer to produce a new design for use in Fiordland. The new design 'Te Umu Karoro' uses a single screw anchor to secure the vessel. Compared to the original MASA moorings, this is a far more efficient use of seafloor space, and compared to classic block and chain moorings, it causes far less seafloor disturbance as there is no chain dragging around the anchor. RealNZ have replaced the two MASA moorings in Harrison Cove, Piopiotahi/Milford Sound with the Umu Karoro design and we hope that in time the company will follow suit in First Arm and Cascade Cove.

Underwater video used to monitor fish stocks



Fish and crayfish are attracted to the BRUV by the smell of the bait.

Fiordland is a vast, remote and dynamic place, which is one of the things that makes it so special, but also, makes it incredibly difficult to monitor. The Guardians have found it challenging to manage the recreational fishery inside the fiords as there is a lack of robust scientific information about the state of fish stocks. We are optimistic about a new method that is being trialled in Fiordland that, all going well, will detect changes in the abundance of target species and support timely adaptive management.

The Department of Conservation and Fisheries New Zealand have supported the development of baited remote underwater video (BRUV) monitoring work in Tamatea/Dusky Sound to help understand the variety and abundance of fish, with the latest trial happening in February 2024. This work followed a successful pilot study in 2021, to determine the feasibility of this method within Fiordland.

The standard method for assessing fish stocks, such as blue cod, involves conducting a potting survey. This method is rigorous but expensive and results in the death of caught fish as they are dissected to determine if they are male or female. The Guardians have long advocated for a method that is non-destructive and cheaper to deploy, in the hope that surveys of sensitive parts of Fiordland could become more frequent.

The BRUV methodology is non-destructive and non-lethal, allowing it to be deployed throughout a variety of sensitive ecosystems and marine protected areas. BRUV deployments can also cover a depth of up to 100 metres.

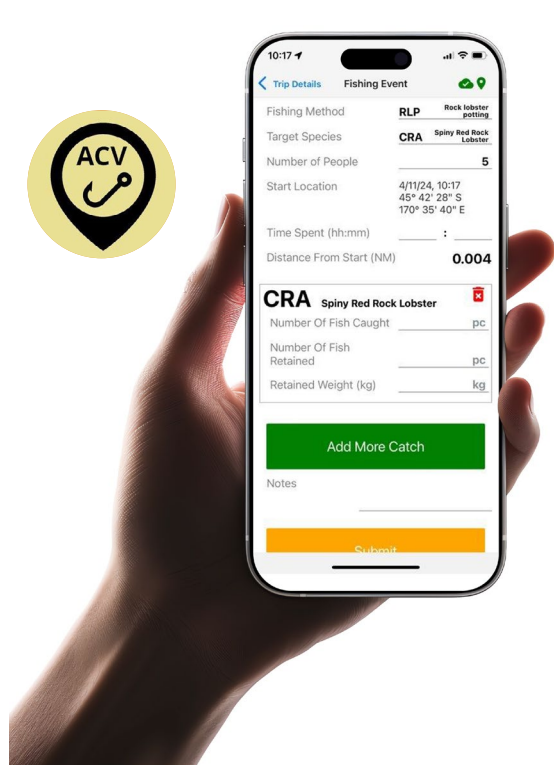
BRUV surveys also capture accurate size measurements, and a broad range of species and habitats which can be used to monitor key species as well as the fish community.

The priority for this work was to gather information on fish stocks of key species, such as blue cod and hāpuku/groper, due to the concerns of increasing recreational fishing pressure. A total of 135 BRUV deployments were undertaken throughout the Tamatea/Dusky Sound complex, at a range of depths.

The BRUV system is comprised of a stainless-steel frame which supports two video cameras in specialised housing, lights and a bait canister at the end of a pole. The structure is attached by rope to a buoy and deployed to the seafloor for at least 75 minutes. The videos are later annotated using specialist software to produce data in the form of counts and lengths of observed species and information on habitat.

Outputs so far are very promising and it is becoming apparent that the value of this approach will be highest if it is repeated regularly in the future. The video footage will remain in perpetuity and could be re-analysed for other means – such as getting a better understanding of underwater habitat or looking for changes in marine life that could be associated with changing ocean conditions.

The footage is absolutely mesmerising, and you can see it for yourself [here](#).



Electronic reporting for charter vessels now live

From 1 November, reporting of recreational fishing activity from registered charter vessels will be managed electronically. Charter vessels are required to report all fishing activity in accordance with the Fisheries Act, but until now this has been managed through a cumbersome paper-based system, which has frustrated operators and led to issues with accuracy and timeliness. Charter operators will now report their catch and fishing effort through the eCatch app.

Reports from charter operators have been positive so far. As one operator put it, "No more wet paper forms, lost forms overboard from the wind, nor returned forms for the most basic of errors."

The Guardians have been pushing for this change for many years, since committing to Fiordland's charter operators in 2018 that we would do so. We see it as a win-win-win situation: easier for operators, better data being available to inform management decisions, and ultimately a more sustainably managed recreational fishery for Fiordland. Better yet, the changes are nationwide, so other sensitive areas like Kaikoura, Rakiura/Stewart Island, and the Hauraki Gulf will also benefit.

Many people have been instrumental in getting this upgrade in place. Special mention goes to our representatives from Fisheries New Zealand, the team at eCatch that developed the app, and the operators who helped test the app on the water. Ka pai!



The secret life of Tawaki/Fiordland Crested Penguin

A new research project has begun in Fiordland to better understand the population dynamics of Tawaki in Patea/Doubtful and Tamatea/Dusky Sounds. The five-year project is a collaboration between the Tawaki Project, the Department of Conservation, and the NZ Nature Fund to fulfil a critical knowledge gap about Tawaki populations in Fiordland.

Penguins at two colonies will be microchipped and colony entrances will be set up with 'transponder gates' so that movements of birds can be tracked during the breeding season and adult survival can be monitored. Fledgling penguins will be microchipped annually to monitor chick survival at the colonies also.

Penguins are known around the world as marine sentinels (think canaries/penguins in the coalmine/sea), as their population dynamics reflect local oceanic conditions better than any other seabird group. As they forage locally during the breeding season their population trends will reflect changes in the coastal environment caused. Understanding more about population trends of New Zealand's penguins could help to unlock knowledge to demonstrate the immediate threats on Fiordland's coastal ecosystem.

The project is funded through private donations at the NZ Nature Fund project page. To read more or donate see [Fiordland Crested Penguin/Tawaki | New Zealand Nature Fund](#).



In a significant milestone for marine biosecurity, the invasive marine pest *Undaria pinnatifida*, commonly known as *Undaria*, has been eliminated from Taiari/Chalky Inlet in Fiordland. This achievement follows nearly five years of intensive surveillance, during which no mature plants were detected.

Undaria was first identified in April 2019 on lines adjacent to the Stella wreck in North Port, Taiari/Chalky Inlet, during a joint patrol by Environment Southland, Biosecurity New Zealand, and the Department of Conservation. Recognising the severe threat posed by this invasive species, the three organisations initiated a joint elimination project, deploying divers to remove *Undaria* from North Port.

Kathryn McLachlan, Environment Southland's team leader for marine biosecurity emphasised the importance of this accomplishment. "*Declaring a site free from Undaria demonstrates that local elimination is achievable through prompt and regular dive search and removal operations,*" she said.

The technical advisory group had advised that five years without mature plants were required before a site could be declared *Undaria*-free.

The last sighting of immature *Undaria* in the area was in October 2019. Ongoing surveillance has found no further mature plants since the original detection.

This marks the first successful elimination of *Undaria* in Fiordland, setting a critical precedent for future biosecurity efforts. The inter-agency group remains dedicated to containing *Undaria* in other areas, including Tamatea/Dusky Sound and Te Puitaha/Breaksea Sound. Teams of divers

continue to conduct thorough searches and removal in these areas. Although the work is labour-intensive and resource-demanding, it is essential for mitigating the impact of this invasive species in the fiords.

Environment Southland is also calling on the public to help prevent the spread of *Undaria*. "*We want people to take steps not to transport Undaria when moving within and leaving the Dusky/Breaksea complex and to follow the Fiordland Marine Regional Pathway Management Plan rules to keep a clean hull, clean gear, and maintain residual seawater standards.*"

Additionally, the public is encouraged to report any sightings of *Undaria* outside the Dusky/Breaksea complex to Environment Southland through the Southland Pest Hub website. Reports should include GPS coordinates, photographs, and detailed descriptions of the sightings.

"*The successful removal of Undaria from Taiari/Chalky Inlet highlights the effectiveness of early detection and prompt action in eradicating invasive species. This achievement in Taiari/Chalky Inlet serves as an example for future biosecurity initiatives aimed at protecting New Zealand's unique marine environments,*" Kathryn said.

The Guardians acknowledge the enormous effort that the agencies, led by Environment Southland, have put into this campaign. There are few examples worldwide where marine pest incursions have been successfully eradicated – it is no easy feat. We ask boaties to ensure they have clean hulls and gear before travelling to Fiordland.

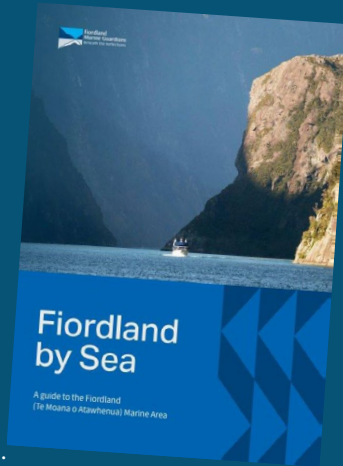
Heading to Fiordland this summer?

Be prepared

Hold a clean vessel pass

Applying for a clean vessel pass is a simple process that can be completed online at www.es.govt.nz/fmpp or by calling Environment Southland on **0800 76 88 45** to receive a hard copy form.

Your clean vessel pass comes with a copy of our new book *Fiordland by Sea*. The must have guide for boaties.



Download the Mainland Catch app

Do your bit to help the rebuilding of Fiordland's fisheries. Mainland Catch is anonymous, easy to use, and gives you a record of your catches so you can show off to your mates.



FMG-Agency meetings 2024/2025

Tuesday 26 November 2024,
Environment Southland,
Invercargill

Tuesday 25 February 2025,
Environment Southland,
Invercargill

Thursday 22 May 2025,
Te Anau

For more information visit
www.fmg.org.nz

All welcome

Our quarterly FMG agency meetings are open to the public and agenda items for discussion at these meetings can be sent to the Guardians. The agenda is set three weeks in advance of a meeting.

Keeping in touch

The Guardians work hard to facilitate community-led, proactive approaches that are informed by the best scientific information and knowledge available. We place a high value on the experiences and understanding of the Fiordland community and encourage you to share your thoughts with us. Please let us know if there is anything you would like us to cover in our next issue.

For more information visit fmg.org.nz or email info@fmg.org.nz.

Thank you

Thanks to the following individuals and organisations for the photographs used in this issue: [Department of Conservation](#), Adam Smith, Environment Southland, Gavin Tayles, The Tawaki Project.

