



The Inlet

Newsletter for Guardians of Pāuatahanui Inlet

AUGUST

2022

The Inlet is a newsletter that brings together local and regional news affecting the Pāuatahanui Inlet and its environs.

The Inlet comes out three times a year and current or back issues can be downloaded from our website.

The newsletter includes items of concern that affect the area as well as general interest topics for everyone.

Please contact us if you would like to contribute to The Inlet.

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FROM THE CHAIR

It is once again time for local authority elections. As we did three years ago, we are asking all candidates their views and responses on three questions:

- What are the challenges facing the harbour and its catchments?
- What are your priorities for protecting and enhancing the quality of the harbour and its catchments, particularly its streams, wetlands and contributing watercourses?
- What will you do about these challenges and priorities if you're elected?



This time, we are joining with Te Awarua-o-Porirua Harbour and Catchments Community Trust and The Friends of the Taupo Swamp & Catchment Inc. and will thus put these questions to all candidates for Porirua City and Greater Wellington Regional Councils including mayoral candidates for Porirua City. As these answers come in they will be posted on our website, so anyone interested can assess the responses of candidates to harbour and Inlet protection and enhancement. We will also have a link to the responses successful candidates posted three years ago.

In June we had our first webinar Annual General Meeting using the Zoom programme. As you'll see in the report on the AGM, it was successful and engendered interest in seagrass in the Inlet. Along with sea rush, seagrass is an important baseline contributor that fuels the Inlet ecosystem. The feature article in this edition covers interesting aspects of this important plant.

Our partnership with Porirua City and the Department of Conservation, and other groups, has led to many sea rush plantings around the Inlet. This project is starting to show noticeable benefits. Another GOPI planting day is planned, probably some time in October.

Later in the year in November we have two important events: the triennial Cockle Count and the Inlet Clean-Up. (See page 9). We will keep you posted on the dates for these events.

In June, Land and Water Aotearoa (LAWA) launched a part of their website covering estuary health. It is well worth visiting and covers key issues affecting all estuaries in New Zealand. It can be accessed via lawa.org.nz

The LAWA site currently has information on three indicators of estuary health:

- Mud: fine silt and clay particles that block healthy aerobic (oxygen-based) life;

- Contaminants: harmful metals such as copper, lead, zinc and mercury; and organic contaminants (mostly oil and emissions from vehicle exhausts and historic residual DDT);
- Levels of healthy estuary macrofauna such as worms, snails and cockles.

This information suite will be updated and possibly extended as more information comes in.

Mud incursion is the biggest problem facing the Inlet. Most monitoring sites show undesirable and increasing mud levels. DDT also shows up as a lower residual risk.

The Pāuatahanui Stream is the only one where monitored information is available on the LAWA site. It shows problems with nitrogen and phosphorus levels caused by rural land use.

As I have said previously, the best way to limit the sediment, contaminant and mud problems is to better manage what goes into the catchment through its watercourses and streams. Both urban and rural land use needs better knowledge, controls and practices about what we put on the land, what is allowed to run off it, and how run-off can be intercepted and treated. Porirua City's streamside planting programme is a good way of tackling the treatment end of this insidious problem. But we also need much more awareness, monitoring and enforcement about what goes into stormwater and general run-off.

ANNUAL GENERAL MEETING 2022

This year's AGM was held as planned on 30 June but, in contrast to all previous years, the 2022 event was conducted purely on-line as a Zoom meeting. While the committee itself has been conducting the business of the Guardians in this way for a year, the success of our AGM was going to depend on how our membership and guests would handle this new approach. In the end we need not have worried as the evening's proceedings took place without a hitch and the agenda was covered in the normal way.

Altogether, there were 21 attendees who took part, including the guest speaker. This was an excellent turnout under the circumstances as the number was typical of most years. We also recorded eight apologies from those who would like to have attended but were unable to at the time.

The Annual Report, summarised by our Chair, Lindsay Gow, emphasised the difficulties experienced during the year that in particular affected the photographic competition. Last year's contest had been under-subscribed and the decision was taken to cancel it this year due to the ongoing uncertainties associated with large gatherings of people in enclosed areas.

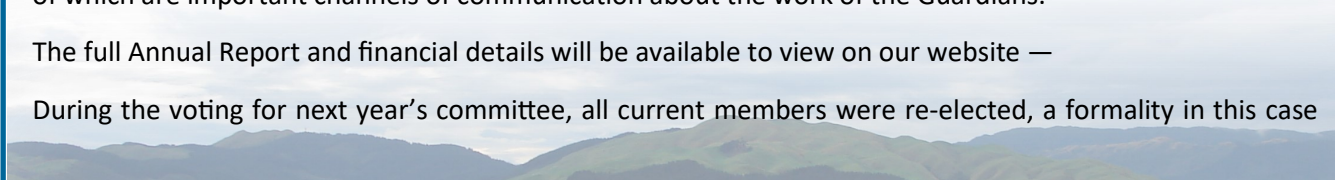
Other areas of concern have been issues with the now open and operational Transmission Gully Motorway. These concerns have to do with far too many sedimentation events impacting the catchment and Inlet and whether the extensive and complex stormwater systems will manage future events effectively.

Lindsay praised the contribution made by the Inlet Restoration Planting programme that has been managed by Andre van Halderen for the last two years. He also recognised the support of the Department of Conservation and Porirua City Council in this initiative. Significant numbers of sea rush, as well as other coastal plants, have been added to the shores of the Inlet at many locations and progress in this activity will continue into the future.

Lindsay also mentioned the contribution that Michael Waldron makes to the Website and Newsletter, both of which are important channels of communication about the work of the Guardians.

The full Annual Report and financial details will be available to view on our website —

During the voting for next year's committee, all current members were re-elected, a formality in this case



Annual General Meeting cont.....

as everyone had already expressed their wishes to continue in their roles. However, for the position of Secretary, it was necessary to vote on the new member, Jessica Taylor, who was seconded to the board earlier this year to fill the vacancy left by the departure of Marion Rosner. We welcome Jessica to the team.

Following the formal part of the evening, our guest speaker, Dr Inigo Zabarte-Maeztu, spoke to the AGM about his research on *Seagrass of Pāuahatanui Inlet* using a Powerpoint presentation that was streamed to the Zoom meeting for the purpose. Many found his presentation enlightening, with new research into the reproductive cycle of the plant. Some of the details presented in this talk have been expanded upon in the feature article of this month's newsletter, and this will be followed up by a subsequent item in the December issue taking an extended look at the research itself.

OUR NEW SECRETARY

Jessica Taylor joined the committee in April to fill the role of Secretary, left vacant when Marion Rosner had prematurely to step down. Jessica was seconded onto the Committee, in advance of our AGM, to begin working with the team as soon as possible. Voting at the AGM for the 2022-23 committee confirmed her position as Secretary for the coming year.

Jessica Taylor is our most recent arrival to the area having moved to Whitby with her husband Rob in 2021. She was motivated to join the Committee by the desire to make a contribution towards protecting and enhancing the Inlet and its surrounding waterways. In particular, Jessica loves to see the value of the Inlet as enhancing the whole community, and is herself a frequent kayaker, runner and walker around it.

Jessica explains that the Inlet has incredible value for Aotearoa/New Zealand's biodiversity, and is aiming to do her part by supporting the Committee's meetings, helping with restoration planting and taking part in the annual Cockle Count.



Welcome Aboard Jessica



INLET RESTORATION PLANTING

The restoration planting programme around the shores of Pāuatahanui Inlet is making good progress, even though two planned community events this year had to be cancelled due to unforeseen circumstances — including a passing depression!

However, on 2 July GOPI teamed up with Porirua City Council to host the annual Aspiring Leaders' Forum Community Event, and about 170 keen, ambitious young leaders spent an afternoon planting and clearing vegetation at various sites around the Pāuatahanui Inlet. GOPI oversaw the planting of jointed rushes at two sites — one along the Camborne walkway and one at Browns Bay. These young leaders are to be commended for their enthusiasm and great drive. Collectively their efforts saw a large number of rushes planted in the space of just a few hours.

The supply of rushes was funded from a DOC Community Grant that GOPI secured in 2020. This grant has enabled many shoreline sites to be revegetated over the past year, and the difference that these plantings have made can be seen at Motukaraka Point, beside the Camborne walkway and along the Inlet edge to Browns Bay.

It is hoped to have another planting event in October of this year and this will, as usual, be advertised on our website.

*Photos of the Browns Bay planting team
(Courtesy of Andre van Halderen)*



Inlet Restoration planting cont....

Planting sites along the Camborne Walkway (Photos by Alistair Webb)



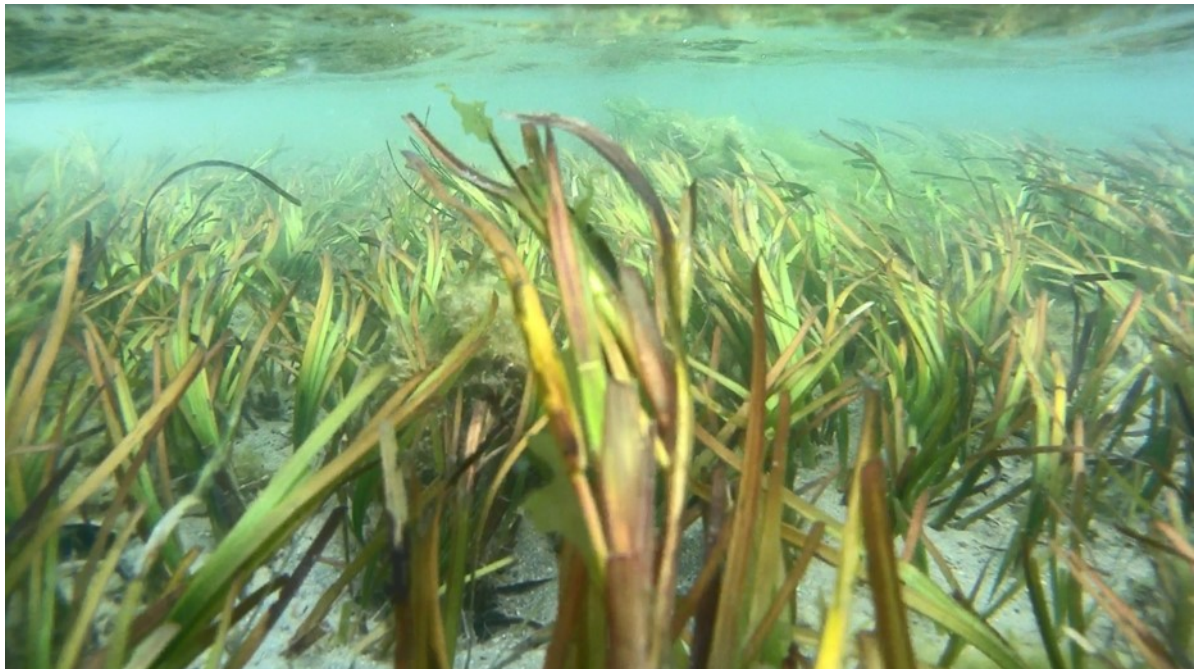
Motukaraka Point, one year on. (Andre van Halderen)



FEATURE ARTICLE

Seagrass is a vital component of estuarine habitats and therefore a species of great significance to Pāuatahanui Inlet. In the December 2013 newsletter, GOPI published a feature article about this plant, what it is, how it grows and reproduces, and its importance to the ecology of the Inlet. We called it 'eelgrass' at the time but these days that name is considered more appropriate for freshwater species with similar growth habits and life cycles. The name seagrass has now become the norm for marine species.

Seagrass meadows are on the decline in many places around the world and that includes New Zealand harbours and estuaries. Recently an intensive study¹ of the seagrass meadows in Pāuatahanui Inlet has attempted to quantify the various environmental drivers of this decline with a view to understanding how the decline might be halted, or even reversed. This month's feature article looks into the importance of seagrass in greater detail and a follow-up feature in December will examine the possible causes of decline and what attempts are being made to address the problem.



Seagrass—a habitat under threat

Seagrass in Pāuatahanui Inlet is represented by the species *Zostera muelleri* but this is only one of sixty species of flowering plant worldwide that exhibit a fully marine existence. Members of four separate plant groups exhibit this unusual lifestyle including various other species also known as seagrass, as well as Neptune grass and paddleweed. They have evolved to spend life underwater and are most often found in estuaries where they experience twice daily exposure to air at low tide, but are submerged for many hours at higher tide levels. Some have been found in depths up to 10m where there is just enough sunlight for photosynthesis — if the water is clear enough. Flowering and production of seed, by which the plant spreads, takes place in the marine environment but growth also occurs by a network of spreading seafloor rhizomes and root systems.

Seagrasses are a very important group of plants that make vital contributions to the marine environment. Significant amongst the contributions they provide are as *Blue Carbon* absorbers, *Key Primary Producers*, contributors to the *Nutrient Cycle* and as *Nursery Habitats* for fish. They also have very important functions as *Sediment Sinks*, helping in the *Maintenance of Water Quality* and *Coastal Stability*. These functions are

Feature Article cont....

explained in greater detail below.

Blue Carbon refers to the carbon dioxide captured by ocean and coastal ecosystems, taken from the atmosphere, seawater and sediment. Being green plants, seagrass' photosynthetic processes take CO₂ from the atmosphere and water and build it into their millions of blades and rhizomes. They are more efficient than tropical forests in this function and therefore are crucial to the balance of atmospheric carbon, a factor of very significant concern these days.

Key Primary Production is the synthesis of complex organic molecules from atmospheric or aqueous carbon dioxide, and the conversion of energy from sunlight into energy stored in those organic compounds, subsequently to be used by other organisms. Seagrass meadows are highly active producers of organic compounds and, in the process, give off oxygen to the atmosphere.

A *Nutrient Cycle* is the movement of mineral nutrients such as nitrogen, sulphur and phosphorous, combined with carbon and oxygen, into complex organic matter which is then broken down and recycled into new matter. Seagrasses become involved with the nutrient cycle through photosynthesis and the uptake of minerals from the environment in which they live.

Nursery Habitats are a subset of aquatic habitats, where juveniles of a number of marine fish species are found. They have a greater level of productivity per unit area than other habitats. In Pāuatahanui Inlet, species such as the rig shark, kahawai and common sole famously use the seagrass meadows to protect and raise their young.

As a coastal *Sediment Sink*, seagrass meadows can trap much of the material washed off the land by rainstorms via rivers, coastal landslips and surface runoff. The masses of leaf blades slow the flow of water from river outlets and wave activity, allowing suspended particles to settle out, while the masses of rhizomes and roots bind the material into the seafloor sediment. Consequently, these meadows can help build underwater sandbanks that become habitats for a wide variety of invertebrate life living off the organic matter that is held in situ by these sediments.

An outcome of their function as a sediment sink is that seagrasses become vital to the *Maintenance of Water Quality*. As explained above seagrass slows the flow of water and shelters the underlying sediment, consequently enhancing deposition of fine sediment and reducing its susceptibility to re-suspension, both factors that increase the transparency of the water column. The filtering of the waters by these plants also removes nutrients from the water column and those associated with the sediment. Seagrasses are capable of increasing both the pH (lower acidity) and the concentration of dissolved oxygen in the water overlying the seagrass. Acknowledging that human influence is now so pervasive, and has had such a significant impact on rivers, lakes, wetlands and estuaries on every continent, maintenance of the seagrass meadows can go a long way to improving the quality of water before it flows out to sea.

Coastal Stability is the condition where the processes of deposition and erosion are balanced such that, from year to year, there is no permanent loss of shoreline material. Stability occurs if the various factors at the coast—the tide levels, tectonic activity, oceanographic and atmospheric factors—combine to give a state of dynamic equilibrium. Within sheltered estuarine conditions the seagrass meadows contribute to this stability by holding on to sedimentary particles with their extensive root and rhizome systems. Thus, they stabilise and accumulate the sediments, not only helping to clarify the waters themselves but also slowing down the erosion of the shallow sea bed.

So, seagrass meadows are one of the most important ecosystems on the planet, with several inter-related benefits that together result in many positive outcomes. They are also one of the most threatened. Around the world there are incidences where the local species is increasing in area but many, many more places where the meadows are in decline. On balance the world is losing these highly productive ecosystems and



Feature Article cont....

many researchers are trying to quantify the factors that are causing this to happen. Pāuatahanui Inlet is one of the locations where the areas of *Z. muelleri* are shrinking and a recent study¹ by a group of local scientists has attempted to measure the local factors in this loss.

This study, and other initiatives to reverse the decline of seagrasses worldwide, will be examined in detail in a feature article in our December newsletter.

1. "Zabarte-Maeztu, I., Matheson, F. E., Manley-Harris, M., Davies-Colley, R. J., Oliver, M., & Hawes, I. (2020). Effects of Fine Sediment on Seagrass Meadows: A Case Study of *Zostera muelleri* in Pāuatahanui Inlet, New Zealand. *Journal of Marine Science and Engineering*, 8(9), 645."

THE PHOTO COMPETITION GETS BIGGER

We are advising, well in advance, that the Porirua Harbour Trust (PHT) is working with GOPI on developing an expanded Photographic Competition for 2023. Focussing on all of Porirua harbour (both Onepoto Arm and Pāuatahanui Inlet) and its catchment streams running into the harbour, the competition will be conducted in conjunction with the Porirua Photography Club (formerly Kapiti Camera Club). The plan is to have an exhibition of competition winners displayed at Bottle Creek Gallery at Pataka in October/November of next year.

GOPI and PHT have a similar focus for Porirua. This includes raising awareness of the values of the harbour and its catchments, advocating for, facilitating and promoting positive actions towards enhancement of the environment, and monitoring of programmes so as to achieve the best possible outcomes for the whole catchment.

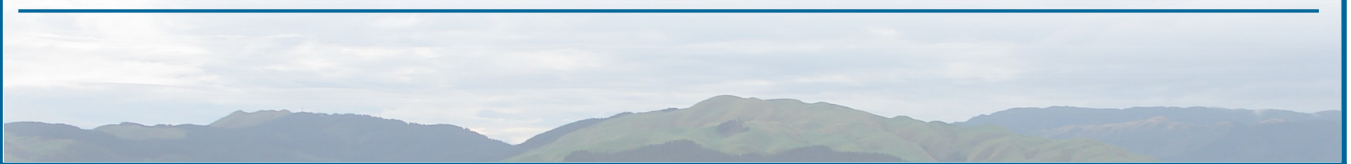
Along with the recent change in name, PPC would like to raise the profile of the club in the Porirua area and with this initiative, promote the appreciation of photography as an art form for all levels of photographer.

The plan is to replace GOPI's long-running annual competition, at least for one year, with one run by both organisations that would focus on the whole of the harbour and catchment instead of just Pāuatahanui Inlet alone.

The competition rules and objectives are likely to include many of the guidelines that the GOPI competition has included in the past, together with some new aspects that will broaden the appeal of the contest to as many people as possible.

Particulars of the competition are being worked through now and we will update you next year when the planning has been completed and the new format is introduced.

We look forward to this exciting new initiative with anticipation of tremendous participation from all keen photographers in the region.



ON THE HORIZON

Cockle Count 2022

The 11th triennial survey of the cockle population of the Pāuatahanui Inlet takes place later this year and is in the planning stages.



The late Neil Bellingham, during 2004

The date for this event has been confirmed

Sunday 6 November 2022

The start time will be 1:30pm

A back-up date of 20 November in the event of inclement weather.

The GOPI cockle count is one of the longest running citizen science projects in New Zealand, and it is exciting to be able to get another event under way this year.

Cockles form a large part of the Inlet marine fauna and monitoring the strength of the population is an important tool for assessing the ecological health of the Inlet. This programme is recognised as a prime scientific activity, both for the information it provides and for the opportunity it offers the community to be actively involved in such a long-running environmental study.

We hope this date allows for your participation in this event, and we look forward to seeing you on the day.

If you are interested in being involved please send an email to pauainlet@gmail.com with the subject "Cockle Count" to register your interest.

We will be in touch with you closer to the time to finalise the details.

Inlet Clean-up

The annual Inlet Clean-up this year is set for **Sunday 27 November** starting at 10.30am.

Registrations will be at Browns Bay.

Please mark this morning in your diary. Your participation in helping to keep the Inlet clean is much appreciated.



Last year's Clean-up registration at Browns Bay

PLEASE SIGN UP A FRIEND OR NEIGHBOUR

Sign up a neighbour, friend, or another family member. Just explain to them that membership numbers really count in giving us a strong voice to argue for what we all value about the Inlet. Membership forms can be downloaded from our website <http://www.gopi.org.nz/assets/membersForm/Membership-new.doc> or copied from the one at the back of this newsletter. Better still, if you've received this newsletter by email, just forward it to others with a note encouraging them to join.

EMERGENCY NUMBERS FOR THE PĀUATAHANUI INLET

Pollution: Discharges of contaminants to air, land, storm-water drains, streams, rivers or sea and for after hours consent enquiries: Greater Wellington Regional Council – 0800 496 734 (24 hours)

Boating infringements: Greater Wellington Regional Council – 384 5708 (24 hours)

Illegal fishing activity: Ministry for Primary Industries – 0800 476 224 (24 hours)

Pāuatahanui Wildlife Reserve: Department of Conservation – 0800 362 468

Let us know what you have reported so we can keep an accurate record and follow up if necessary.
235 5052 (Chair, GOPI) or pauainlet@gmail.com.



Guardians of Pāuatahanui Inlet

www.gopi.org.nz
pauainlet@gmail.com

MEMBERSHIP FORM

To join the Guardians of Pāuatahanui Inlet you may pay your subscription in person or on line.

TO MAKE YOUR PAYMENT

Pay your subscription at a bank branch, or on line, into our Westpac account: **03-1533-0009387-00**. When on line, use the 'Particulars', 'Code' and 'Reference' columns to write your **surname, initials** and the **period** of your sub (1-yr or 5-yr).

NOTE

We do not have a postal address so please email all correspondence.

If you have something that cannot be delivered electronically please send a request by email and we will contact you to arrange collection.

Then fill in this form with all details.

(If you are filling in this form electronically **CLICK** at the beginning of a dotted line and then type).

Name	
Address	
Email	Phone

Please put 'x' next to the subscription you are paying. (For electronic completion **HIGHLIGHT** the box and type a lower case 'x').

You can also make a donation. (We are a registered charity for tax purposes. Registration Number: CC47523).

One-year individual (\$12.00)	<input type="checkbox"/>	Five-year individual (\$50.00)	<input type="checkbox"/>
One-year family (\$15.00)	<input type="checkbox"/>	Five-year family (\$60.00)	<input type="checkbox"/>
Donation \$	Do you require a receipt for your sub?	<input type="checkbox"/>	or your donation?
		<input type="checkbox"/>	<input type="checkbox"/>
<i>For online banking -</i>	Bank reference appears as		
	Date subs paid		

We'd like to send you newsletters and notices via email. May we do this?

Please tick a box if you would like to take part in one or more of our activities.

Annual Clean-up day	<input type="checkbox"/>	Submissions to local bodies	<input type="checkbox"/>
Three-yearly cockle survey	<input type="checkbox"/>	Restoration Planting	<input type="checkbox"/>
Website and video clips	<input type="checkbox"/>	Other:	<input type="checkbox"/>

Now email the form to: pauainlet@gmail.com

Thank you and welcome to the Guardians