

The Inlet

Newsletter for Guardians of Pāuatahanui Inlet

DECEMBER

2016

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 CHAIRPERSON

Ithough all years seem to be busy for us, this last one has been exceptionally so. There have of course been the usual annual activities like the photographic competition, now with its associated workshop for younger photographers, and the Inlet clean-up that was held in October. But there were several additional items this year that were out of the ordinary. Our AGM officially voted in the four new committee members from the former Pāuatahanui Inlet Community Trust, or PICT, with added rule changes to our constitution; we prepared written and



verbal submissions on the Duck Creek subdivision and disposal of the Motukaraka Point reserve; for Seaweek we donated a book by prize-winning children's author, Gillian Candler, to all local pre-schools and we were closely involved with monitoring several seagrass transplantation trials in association with Greater Wellington Regional Council. Finally, we carried out our most significant exercise, the Triennial Cockle Survey. This event has not been without its own unusual circumstances, largely due to the storm that hit Porirua on 15 November. There is a lot more about this storm and its repercussions in the newsletter.

Some of these activities, particularly the cockle survey, involve a significant amount of work, both beforehand and on the day. In addition much work goes into keeping our website up to date, producing the four-monthly newsletters and attending the periodic meetings of the Porirua Harbour Education Group and Wellington Regional Environmental Education Forum that we take part in.

The programme for 2017 is already in progress with preliminary work started on next year's photographic competition. No doubt there will also be some more unexpected tasks coming our way, just to make sure we don't start getting bored.

I want to thank all the management committee members for their unfailing energy and enthusiasm throughout the year: Helen, Stephen, Janet, Mary, Lindsay, John McKoy, John Wells, Philippa, Christine, and Michael. I also want to thank all the GOPI members for your continued support. We wouldn't exist if you weren't there to make it all worthwhile.

Very best wishes to all members for a safe and happy holiday.

Tony Shaw

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INLET CLEAN-UP

ur 2016 annual exercise to clean up the Inlet, removing the ever-present build-up of unwanted discarded items, took place a few weeks earlier than normal to avoid overlapping with the triennial cockle survey, originally planned for November. A weather forecast for the weekend of 9 October threatened heavy rain and wind for the lower North Island so that the prospects for a comfortable and relaxed clean-up this year didn't look good. The Saturday beforehand proved the MET office correct with really unpleasant conditions throughout the evening and night. And because the clean-up takes place 'come rain or shine' it looked like a day for only the hardiest of enthusiasts.

In the end, however, we had ideal weather. Not a lot of sun, but no wind to speak of and only the threat of a shower or two all morning. The temperature was perfect for the occasion. The number of people who turned up topped the 80 mark, with adults and children alike taking part in this very worthwhile activity – making the Inlet a cleaner place for the many birds, animals and plants that inhabit the shoreline and low tide mark around the harbour.

As a result we would estimate that, at the end of the day, we had over 100 variously filled bags for the council pick-up truck to take to the tip. It's a pity all this trash didn't make a more direct route to the landfill than via the Inlet.

Supporting the Guardians for the first time were <u>Conservation Volunteers</u> who liaised with Porirua City Council, gave out hi-vis vests, gloves and collection bags on the day, and also provided safety advice for the benefit of everyone taking part. At 12:30 the usual sausage sizzle was enjoyed by everyone, with two winners of the lucky draw vouchers, all courtesy of our long-time supporters New World Paremata and Plimmerton Rotary.

Well done everyone.

LAMB & CALF DAY

nother annual event associated with Pāuatahanui Inlet is the Pāuatahanui School Gala, otherwise known as Lamb & Calf Day. This event is one of the biggest galas in the country with a history going back to 1946. As its name suggests, it has a farming focus appropriate for the rural location but attracts thousands of people from a much larger area than that served by the school.

For some years Guardians of Pāuatahanui Inlet have been supported by the gala organisers granting us a presence on the school grounds where we can promote our message about the value of the picturesque and ecologically significant estuarine habitat that the school overlooks. It is very heartening to feel that the Guardians have a recognised part of the community.

This year was no exception and on 5 November we had three committee members share four to five hours of their time, talking to members of the public who passed by our display boards. Quite a few of those who stopped to chat expressed interest in the work we do and several were keen on the idea of helping with the forthcoming cockle survey.

In hindsight, the school was incredibly lucky to have chosen that weekend for its gala, given the heavy rain that saw the village flooded and cut off just a few days later.

A STORM EVENT FOR PĀUATAHANUI INLET

n 14 November the lower North Island was shaken by a very strong South Island earthquake that, for the affected locals in and around Kaikoura, was life changing. Wellington city also experienced sufficient seismic movements to result in closure of many buildings for damage assessment, some of which were found to be seriously compromised. The repercussions of this event are ongoing for those directly involved but, fortunately, Porirua and areas north escaped the worst of the quake's influence.

It was a different matter, however, when, in the next 48 hours, central New Zealand was visited by a torrential and persistent rainstorm that caused mayhem for Porirua and its surrounding districts. During the week leading up to 14 Nov, 82.8 mm of rainfall was measured at Paremata. Because of this the land in the catchment was already close to being water-logged and any further precipitation could have resulted in rapid rain run-off with increased chance of slips. As all the creeks would have already been quite high any added influx of water was likely to exceed their maximum capacity.

Then came the storm.

At least 110mm of rain was dumped on us in 48hrs. Pāuatahanui, Paremata and north through Pukerua Bay all suffered flooding and landslips, with road closures for over a day in some cases.

While the immediate and visual effects were short lived, what gave members of the Guardians of Pāuatahanui Inlet real concern was the physical and environmental disruption to the estuarine habitats in and around the shores of the harbour.



View of the former Lanes Flat with Inlet in background

The major problem was the silt. Slips generated by the rainfall carried soil and debris across the roads and directly into the water. In addition the excess turbulent water in the streams drove all the silt that had built up gradually during normal rain run-off surging down-river in one go, colouring the waters brown for days afterward.

And then there were the tide levels that were higher than normal. The water being drained from the Inlet at low tide was not enough to keep up with the flood waters running into the Inlet from the surrounding catchment and much of the sediment was retained in the harbour, instead of flushing out to sea.

One very notable consequence was the postponement of the cockle survey that only takes place once every three years and happened to be due on 27 November. It was anticipated that the lack of water flow would mean the low tide sites would not be able to be surveyed. To cap it all, on the day, we also had a gale blowing, a very high wind that prevented water from flowing out with the ebbing tide. At low tide time only a metre or so of the beaches was exposed, so sampling was wholly impossible. Had we undertaken the survey on that day any results would not have been comparable to previous surveys, losing vital information for the research programme of the Porirua Harbour Strategy and Action Plan.

The amount of silt deposited in the Inlet may also have affected the cockles directly. It may well have had a deleterious effect on the settlement of cockle larvae from the plankton and also on the survival of the

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A Storm Event cont....

small juvenile cockles. Adults can close up and stop filter-feeding until the silt content falls but juveniles cannot do that and still survive on their limited stores of energy.

The cockle research programme needs to establish if this has happened as it could have a long term effect on the size of the cockle population. The cockle count was therefore re-scheduled for 11 December in the hopes that conditions would be more suitable after an extra couple of weeks. All we could do then was keep our fingers crossed for good weather on the day which, by good fortune, is what we had.

The Cockle Survey article also deals with possible effects of the storm on the cockle population.

The other major effect was on the Forest & Bird-managed Wildlife Reserve at Pāuatahanui itself. You can see from this view of the village how much flooding occurred in the immediate vicinity but this doesn't show the extent of damage caused by the raging waters and debris carried across the reserve's land.

Wanda Tate of F&B described this flood as about half a metre higher than one in



2004, inundating the cottage, the tractor shed, the Biocycle wastewater treatment plant and the garden shed. All the floor coverings had to be lifted along with moving all the equipment, cabinet, fridge etc. and hosing out the mud. The good news is that the Biocycle was quickly brought back to life and repairs on the equipment were carried out successfully. Thankfully insurance will cover this damage.

Wanda also expressed consternation about the disruption to various plantings and the nursery and, while much has been repaired, the additional loss of ground cover of ferns and sedges and all the ground litter left behind is discouraging. There is still a lot to do: clearing debris out of trees, disposing of uprooted sedges around the pond and uncovering as many of the new plantings as can be found.

....And, Wanda says, 'there is a predominant smell left behind', which only time will cure.

(Photos: Jack Scott, Nz.Drones aerial photography [http://www.nzdrones.nz/])

POLLUTION RISK?

Do you ever see anything in the Inlet that concerns you? Is there a risk of pollution from effluent, chemicals or discarded items in the water?

A pollution hotline is available to put you in touch with Greater Wellington 24 hours a day, every day.

0800 496 734

THE 2016 COCKLE SURVEY

he 2016 triennial cockle survey was our most significant and, as it turned out, most demanding exercise of the whole year. There is always a lot of planning that goes into this task, partly because it involves such a large number of volunteers who need to know the right procedure and also require close coordination on the day. However, because of last month's storm on 14 November, and the resultant conditions in the Inlet, the 27 November population count was, for the first time ever, postponed and moved to the fall-back date of 11 December. It was hoped that Inlet conditions would recover in the intervening period to allow the chance of valid data to be gained for a successful statistical analysis. If, because of the storm, the cockles suffered from the influx of sediment or high volumes of fresh water, it would be important to know this as a measure of the effect of a natural phenomenon. All we could do was hope for reasonable weather on the day.

Considering all the drama that the storm and resultant delay created, the exercise was in the end fairly successful. The main problems encountered were due to the reduced number of volunteers who turned up to help, many perhaps lost to alternative, seasonally focussed plans. Not all stations could, therefore, be measured on the Sunday and some volunteer work has been needed to fill in the gaps while the favourable tide levels lasted throughout the following week.

Now, as is normal practice, the results will be collated and passed to NIWA for full analysis before we receive the verdict, good or bad, on the current state of the cockle populations in the Inlet. However, what is apparent from the recorded numbers this time is that there has been a considerable drop in cockle population since 2013. Almost all of the 30 sampled stations are below the 2013 level and only a very few are close or equal to those recorded in that survey.

This change in recorded numbers is significant but at this stage we have no capacity to establish, for sure, any specific causes. Nevertheless we know that there have been quite radical changes to the configuration of the shores and sand banks in parts of the Inlet since 2013 which are likely to have affected the size and status of the cockle habitat. It is also possible, but yet to be established in detail, that the recent mass input of silt from the excessive November rainfall will have increased sediment deposits in the Inlet. In particular, the storm brought massive amounts of material into the harbour and the gale which occurred at the same time may well have reduced the ability of tidal flows to carry this out of the Inlet, allowing it to settle over much of the cockle habitat.

We await the final results with a degree of nervous anticipation.

This survey is the fifth such event organised by our former Chair, John Wells, and is significant also in that John has decided it will be his last. A huge amount of work goes into each triennial survey and we thank John and his wife, Margery, for all the time and effort they have put into them. The challenge for us will be to find someone who can take over management of this vital programme for the future.

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FEATURE ARTICLE

We are all now very well aware that the new Wellington motorway – Transmission Gully – is under construction with the intersections to other major roads along the route the first signs that progress is being made. The Guardians of Pāuatahanui Inlet have been a supporter of this new road almost from the beginning, mainly because we believe the benefits to the Inlet will be positive. It will take much of the current through-traffic away from Highway 58 and Grays Road, reducing the impact of pollution on the most scientifically important estuarine habitat in the lower North Island.

But what will be the impact of construction on Pāuatahanui Inlet itself during the years that the motorway is being built? This article explains the steps being taken by the construction companies to circumvent the environmental impact the motorway could have on the Inlet during this time.

(This article is based on information provided by the CPB/HEB joint venture group via the Community Liaison Officer, Rebecca Kraakman-Czerwonka.)

TRANSMISSION GULLY MOTORWAY Environmental Protection Measures



Transmission Gully is a 27km, 4-lane highway linking the Wellington Motorway at Linden with the Kapiti Expressway at McKays Crossing. Initial work was started in late 2014 and its opening is scheduled for April 2020. It is a complex project crossing 11 different geological terrains, steep inclines and several gullies. It also affects several habitats with some ecologically important areas that could impact Pāuatahanui Inlet. So what is being done to prevent permanently harming our 'jewel in the crown'?

In the first instance it is important to know that Transmission Gully has $Greenroads^{TM}$ accreditation. $Greenroads^{TM}$ is an internationally recognised sustainability certification system specific to the design and construction of roading projects. Credits are provided for a broad range of aspects such as drainage, recycling, carbon footprint, training, quality and safety. The Transmission Gully Motorway (TGM) is only the second project in New Zealand to register for $Greenroads^{TM}$, the first being Arthurs Pass in the South

Feature Article cont....

Island. What's more, Transmission Gully is the first to go for 'silver level' in New Zealand, a level it is contractually obligated to achieve. Only 10 projects worldwide have reached this level of accreditation and Transmission Gully will be the largest of them all.

Sensitive environmental management is a key priority for this highly complex endeavour and Pāuatahanui Inlet is a key feature of the project and its consent conditions. It is an area of national ecological significance and a large area of the TGM route drains to tributaries and streams of the Inlet. The rate of sedimentation into the Inlet has been rising, particularly during the last 30 years or so, due in part to the community developments around its shores and associated removal of vegetation. This is a concern locally, which TGM's consent conditions recognise and it has led to some key environmental mitigations, described below, being introduced to support construction.

All earthworks are covered by Site Specific Environmental Management Plans (SSEMPs) of which 55 have been certified, one for each section of the route. These plans outline how to manage the environmental impacts of the construction. Once certified, internal permits are also required before work can begin. The installation of erosion and sediment controls are a precursor to the start of bulk earthworks which will ramp up this summer, 2016. Erosion and sediment controls include:

- 7 kilometres of swales (low areas of land beside the road to channel run-off);
- 17 kilometres of silt fences (to protect against loose soil getting into streams);
- 37 kilometres of stormwater and run-off diversions;
- 26 kilometres of stream enhancement/mitigation works;
- Multiple erosion and sediment control devices, and
- Revegetation around streams (to slow erosion and sedimentation).

Two of the most visually significant erosion controls are Sediment Retention Ponds and Decanting Earth Bunds.

Sediment Retention Ponds are excavated into natural ground, or are created by constructing an

embankment. They capture water runoff after it rains, letting any sediment in the water settle out (with the help of a flocculent) so that only clean water is discharged, at a controlled rate, out of the pond. They are used for catchments greater than 0.3ha and are key to protecting the environment and the treasured Pāuatahanui Inlet during construction. monitored on а regular particularly after any rain event, to sure they are working effectively, deemed to be a 70%



Sediment Retention Pond at the Bradey Track (Bradey Road in the background)

efficiency with 95% of run-off being channelled through them.

Decanting earth bunds are another type of control used on the project for smaller catchment areas. This is a temporary berm or ridge of compacted earth constructed to create impoundment areas where ponding of

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Transmission Gully cont....

run-off can occur and suspended material can settle before run-off is discharged. The size of the pond depends on the size of the catchment, which is the open area that generates the dirty water run-off when it rains.

In addition to the above, other processes used are:

- Diverting clean water around construction sites;
- Utilising alternative construction methods to minimise the opportunity for sedimentation and erosion. (An example of this is the technique of boring underground to install pipelines rather that creating a trench to lay them in);
- Stabilising 'haul roads' (e.g. The Bradey Track, built to carry heavily loaded trucks at a good speed) and disturbed areas as they are created through the use of things like mulch, hay, hydro seed and geotextiles;
- Slowing water flow to let sediment settle and minimise erosion through the use of rock check -dams and sediment socks (as pictured in the image above).

In order to ascertain the effectiveness of all environmental protection measures a key area of focus for the project is Environmental Monitoring. Baseline monitoring began two years ago to determine the background sedimentation rates and aquatic conditions that existed before construction. Now, during and after construction, environmental mitigation is monitored to check that the obligations are being successfully met, including the requirements for stream restoration and re-vegetation of native bush. To that end, divers from the Bay of Plenty polytechnic undertake bi-annual marine survey of Pāuatahanui Inlet and this will continue for two years after construction is complete.

Another key consent requirement is Ecological Management which includes landscape planning and revegetation, and ecological and habitat management. Along the route risks to native wildlife have been mitigated through several procedures. Lizards have been relocated to Nga Manu reserve for the duration of the build and will be returned after completion of the final landscaping using specially created boulder fields. Rivers have been de-fished with 4,300 individuals already moved from the Te Puka to Wainui Stream and those in the Horokiri relocated to Duck Creek.

Procedures are also in place to minimise loss of native vegetation lying outside the project's designated area but which may still be impacted by construction activities. These procedures are developed by Project Ecologists and Landscape Architects and are incorporated into the construction programme through the SSEMPs. (An example is the use of a helicopter, rather than logging trucks, to remove felled trees from the Te Puka valley). Such methods minimise the impact on surrounding native vegetation.

The project also has one of the largest replanting programmes by a construction project in New Zealand. A combined total of 534 hectares of land along the alignment will be replanted with trees, shrubs or plants as part of the project.

In summary, Transmission Gully is a road of National Significance whose route is close enough to our locality to be of immediate relevance to the Guardians. While we are positive about the road, once it has been built, we are concerned about the effects it will have on the Inlet during construction. Its 200ha of earthworks, moving 6.3 million cubic metres of earth which will be relocated along the tract, is a major undertaking that could threaten our rivers and harbours for years to come. Hopefully the mitigation programmes explained above will ensure that our far-from-pristine environment will not be degraded

Transmission Gully cont....

further by the construction process and we can continue to enjoy our harbour and all its amenities as we would hope to.

It does appear from recent events, however, that the Inlet is more under threat from increasingly severe weather events, and possibly earthquakes, than it is from the construction of a new motorway. Last month's rain storm resulted in huge amounts of sediment being washed off the land through slips and scouring and this has, in all probability, caused much more damage to the Inlet ecology than a year of construction of the motorway. Hopefully the monitoring taking place on a regular basis will be able to quantify the effects that weather and construction are having on the Inlet's health and wellbeing, and at least keep the motorway's effects to a minimum.

(The images are provided by the Transmission Gully Consortium.)

TAWA COLLEGE DONATION

few days before the cockle survey we received an email from Laura Boyd, Year 9 Dean at Tawa College, telling us that four of her students had undertaken an end-of-year project looking at human impacts on the health of the harbour and what actions they could take to assist in improving it.

Following completion of the project the group of four then organised a sausage sizzle at neighbouring Tawa Intermediate and collected a sum of \$302 in the process.

After a short debate the four decided to donate the proceeds to the Guardians and contacted us with the news.

That a group of young students were motivated to finish their school year working on a project like this and then take on further work to raise funds for a group like ours was a very welcome and encouraging surprise.

We were delighted that Laura and two of the students involved were able to come to the start of the cockle survey to hand over the \$302 cheque.

Many thanks to all of you.



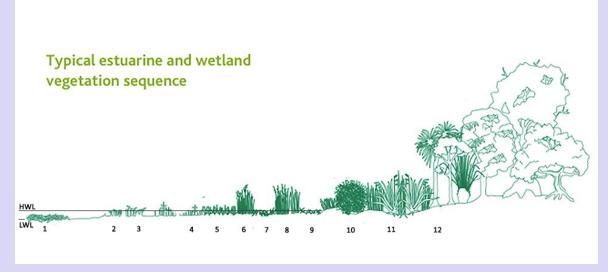
Tony accepts the donation from Cailin Applegate and Sendhill Rungasamy (behind)

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FAMILY CORNER

ESTUARINE PLANT SEQUENCE

In any estuarine environment there is a gradual change from the continuously submerged sea floor through to the dry land situated well above high water mark. Plants able to grow in the marine aquatic environment of the sea floor are obviously very different from those that grow in the 'dryland' environment, where they are irrigated with fresh water. The various areas in the sequence from fully aquatic to fully dryland plants are known as 'zones of vegetation' and you can see many examples of these sequences around the Inlet. The best example is near the outlet of the Pāuatahanui Stream at the eastern end of the Inlet.



The diagram above lists 12 zones with a typical species of plant identified at each location.

Below is a list of the 12 plant species. See if you can put them in order from 1 to 12 as you move up the shoreline in the diagram. It might require a bit of research using the internet or books to recreate the typical order of species seen in most locations.

Batchelor's button (Cotula coronopifolia) Cabbage tree (Cordyline australis)

Gut weed (Enteromorpha intestinalis)

Glasswort (Sarcocornia australis)

Jointed Rush (Apodasmia similus) New Zealand Flax (Phormium tenax)

Remuremu (Selliera radicans) Seagrass (Zostera novazelandica)

Saltmarsh ribbonwood (*Plagianthus divaricatus*) Sea lettuce (*Ulva lactuca*)

Sea primrose (Samolus repens)

Sea rush (Juncus maritimus)

The answers are on page 11.

ON THE HORIZON

Photographic Competition

with clean lenses and fully charged batteries. Then we can carry tripods and memory sticks down to the Inlet and look for imaginary ways of portraying our 'jewel in the crown' in its various lights.

The 2017 photographic competition is already being planned and when the committee comes back from the summer holidays the dates for entry will be set and published on our website in February.

So if you are keen to take part this year please use your imagination and see what images you can create to show how the Inlet influences our lives.

The categories are: Nature, recreation, human impact and artistic.

Fern Birds

Pāuatahanui Wildlife Reserve. This is in co-operation with Lake Rotokare Trust Reserve in Taranaki, close to Eltham, which has offered a number of birds to populate our reserve. Fund raising for the project has been underway for some time. A specialist team is required to conduct the transfer which needs to organise capture and release on the same day and this is expected to be available after February 2017. We will bring you up to date when we get more information.

ANSWER TO FAMILY CORNER

1 Seagrass; 2 Sea Lettuce; 3 Gut weed; 4 Sea Primrose; 5 Glasswort; 6 Sea rush; 7 Batchelor's Button; 8 Jointed Rush; 9 Remuremu; 10 Saltmarsh Ribbonwood; 11 Flax; 12 Cabbage Tree.

PLEASE SIGN UP A FRIEND OR NEIGHBOUR

ign 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 0800 496 734 (24 hours)

Boating infringements: Greater Wellington 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.

233 9391 (Chairman, GOPI) or <u>pauainlet@gmail.com</u>.



Guardians of Pāuatahanui Inlet

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

Membership Form: new members

To join the Guardians of Pāuatahanui Inlet, you can pay your subscription either online or by post. IF YOU ARE PAYING ONLINE, PLEASE REMEMBER TO FILL IN THIS FORM WITH *ALL DETAILS*, AND EMAIL OR POST IT TO US.

Online payment

- Pay your sub via e-banking into our Westpac account 03-1533-0009387-00. In the 'Particulars' or 'Reference' columns, YOU MUST write your surname AND initials AND the period of your sub (1-yr or 5-yr).
- 2. Then fill in this form and either email it to us at pauainlet@gmail.com or post it (see next column for our postal address)

Postal payment

- 1. Write a cheque made payable to 'Guardians of Pāuatahanui Inlet'.
- 2. Then fill in this form and send it, along with your cheque, to: Membership Secretary, Guardians of Pāuatahanui Inlet, Box 57034, Mana, Porirua 5247.

Please fill in your details for our records. If you are filling in this form electronically, click at the beginning of a dotted line and then type.

Name:			
Address:			
	Phone:		
Please put ⊠ next to the subscription you are paying (electronic completion – highlight the box and type lower case x.) We are also very grateful for donations. (We are a registered charity for tax purposes: registration number CC47523.)			
One-year individual (\$12.00)	Five-year individual (\$50.00)		
One-year family (\$15.00)	☐ Five-year family (\$60.00)		
Donation: \$ Do you require a receipt for your sub? □ or your donation? □ Date subs paid: Reference appears as:			
		(e-banking only)	
We'd like to send you newsletters and notices via email. May we do this? □			
Please tell us which of our activities you would like to be part of.			
Annual Clean-up day	☐ Submissions to local bodie	es \square	
Three-yearly cockle survey	Our educational programm	nes for schools	
Website and video clips	Other:		

NOW EMAIL OR POST THE FORM. THANK YOU AND WELCOME