

Banks Peninsula Water Management Zone Committee MINUTES ATTACHMENTS

Date: Tuesday 17 May 2022
Time: 4pm
Venue: Lyttelton/Mt Herbert Boardroom, 25 Canterbury Street, Lyttelton

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Banks Peninsula water zone committee

May 17th

I'd like to start with the latest IPCC report which came out in Feb 2022

Research shows that we are now in the critical stage of needing active responses to the compounded weather events we are seeing in NZ and beyond.

These events are increasing in impacts and risks, to our population health, ecosystems, infrastructure, livelihoods and food security.

The NZ climate change risk assessment outlines that these risks are real for NZ.

We need to reach our target of reducing emissions by 2030 and to achieve these targets, all our decisions and choices must be seen through a climate lens.

Water zone committee vision 2021-2024, I was inspired and also curious to learn more. Does our current climate and ecological emergency sit central to all decisions and planning for the Banks Peninsula water zone?

- Supporting the trial of a native forestry carbon farming approach on a landowner's property and help share their experience with the community
- Engaging with the community to improve their understanding and uptake of mahinga kai, soil conservation, erosion and sediment control, biodiversity and native forestry carbon farming. Seek opportunities to partner with other organisations to carry out this engagement
- Supporting community organisations that engage with the community about water management, biodiversity, mahinga kai, sustainable land management, soil conservation, erosion and sediment control and native forestry carbon farming. Explore opportunities to partner with these community organisations
- Supporting community engagement about climate change by helping gather local knowledge about values, changes and adaptation. Encourage activities that increase community resilience, mahinga kai, biodiversity, and water quality and quantity. Carry this out in partnership with Christchurch City Council, Environment Canterbury and community organisations

This newly established role as Lyttelton Community carbon coach is an opportunity to show the rest of NZ what is possible on Banks Peninsula and, to become a role model for other communities, because we are all transitioning to a climate resilient future together.

What is the Community Carbon Coach role?

- Diverse community engagement in the areas of energy, transport, water, waste, food and community resilience.
- Education/outreach
- Networking and liason with CCC and partners.
- Event organizing and management
- Resource development and sharing locally.

What are the Goals of the role for 2022?

- 150 household visits – auditing, planning for reductions and pledges for lifestyle changes. Survey and follow up.
- 40 business visits – providing a toolkit and support for a roadmap to reducing emissions. Survey and follow up.
- Offering 8x Sustainable workshops through the Sustainable Living Education Trust.
- Writing good news stories for social media, newspapers and radio. Interviewing locals for their good news stories.
- Rolling out a compost and recycling bins trial on London St, Lyttelton for plastic free July.
- Bring back the Bokashi campaign linked into a Community Compost scheme – redirecting local food waste and turning it into compost.
- Reconnecting to local food networks, through the community gardens, foodbank and meals for elderly.
- Working with PL projects to promote sustainability – farmers market info table, garage sale repair café, mending group and community gardens.
- Campaign with Waste MINZ for reduction of takeaways, throwaways with cafés in Lyttelton.
- Working alongside Tool Library and Toy Library to promote these resources locally.
- Learning Days Festival in May. Work with Library to promote Creative Spaces resources locally.

Outcomes;

- Greater promotion of CCC programmes into the community – creating a model for other communities
- Resources for Lyttelton which show a pathway for local carbon reduction methods.
- Households have lower energy bills, are warmer and healthier. More healthy local food, improved social resilience and social connectedness.
- Businesses – more resource efficient (energy, transport, water, waste) also creating a unique proposition in Chch as Lyttelton as a sustainable destination - a point of difference.

- Schools become more active in the community and children are connected to the environment through programs which offer a pathway to understand how our everyday choices make a difference.
- We can see changes in our built and natural environment, cleaner beaches, reductions in waste, energy and greenhouse gases.
- Lyttelton community develops a climate resilience attitude and deepens its connection to the surrounding harbour and eco-system.

Vision for 2023.

- Continuation of sustainability workshops, good local stories and audits of households and businesses.
- Local employment through sustainable initiatives – local production of tools and resources.
- Industry working group and climate friendly lyttelton active in community.
- Sustainable expo, locating Lyttelton as a place to live sustainably.
- Creation of Banks Peninsula as a carbon resource through regenerative planting and creation of large reserves.
- Lyttelton Harbour seen as a place role modelling climate resilience.

Lyttelton Community Carbon Coach

Contact:

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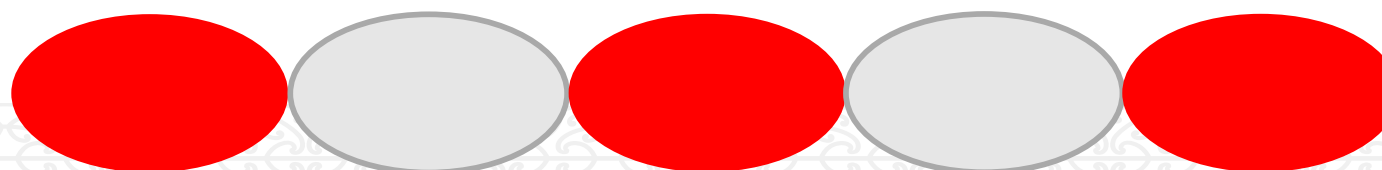
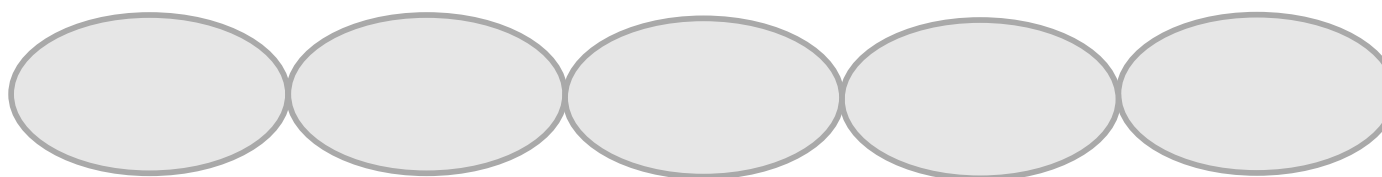
Microplastics & stormwater

Professor Sally Gaw
Director of Environmental Science



What are plastics?

- Group of polymers that soften when heated and can be moulded
- Polymers are long chains of repeating sequences of sub units



How much plastic is produced?

- 1.9 tons produced in 1950
- 330 million tons in 2013
- Increasing

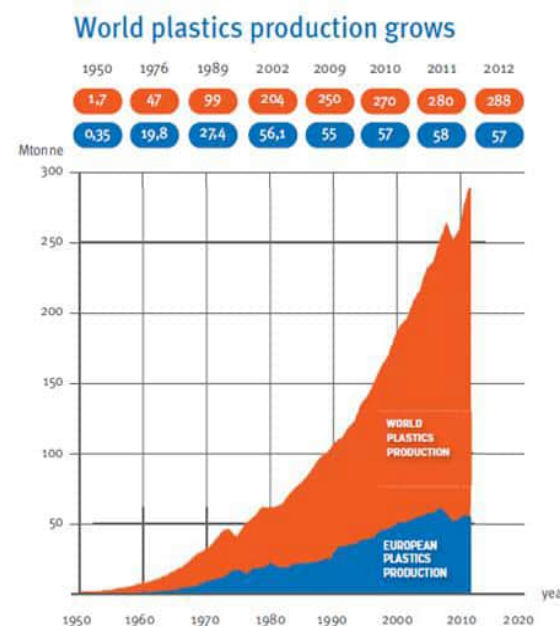


Figure 2: World plastics production 1950-2012

Includes thermoplastics, polyurethanes, thermosets, elastomers, adhesives, coatings and sealants and PP-fibers. Not included PET-, PA- and polyacryl-fibers

Source: PlasticsEurope (PEMREG) / Consultic

With continuous growth for more than 50 years, global production in 2012 rose to 288 million tonnes – a 2.8% increase compared to 2011.

However in Europe, in line with the general economic situation, plastics production decreased by 3% from 2011 to 2012.



Why are plastics of environmental concern?

- Extensive use of plastics in daily life
- Slow degradation
- Most plastic produced still exists somewhere on earth!
- Lightweight and strong materials
- Volume of plastics produced
- Energy needed to make plastics



Plastics contain a range of additives

- Fillers
- Colouring agents
 - Toxic metals are used in pigments
- Stabilisers
 - heat and UV resistance
- Plasticisers





Oceans

- Estimated 80% of plastic in the ocean is from land
- 5-12 million tons of plastics enter the world's oceans each year
- Estimated 100-150 million tons have already been discharged into the oceans
- **Prediction is 1 kg of plastic for every 3kg of fish**

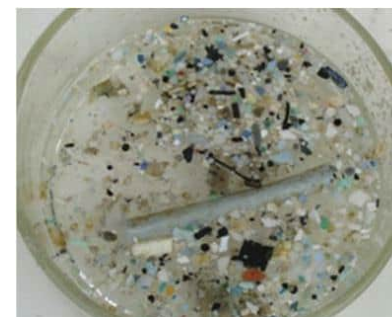
Macroplastics

- Visible plastic debris
- Mistaken for food
- Wildlife can become entangled
 - 40% increase in entanglement in last 10 years



Microplastics

- Plastic particles < 1-10 mm
 - NOAA Definition < 5 mm
- Primary microplastics
 - Plastic pellets
- Secondary microplastics
 - Formed from breakdown of larger plastic items

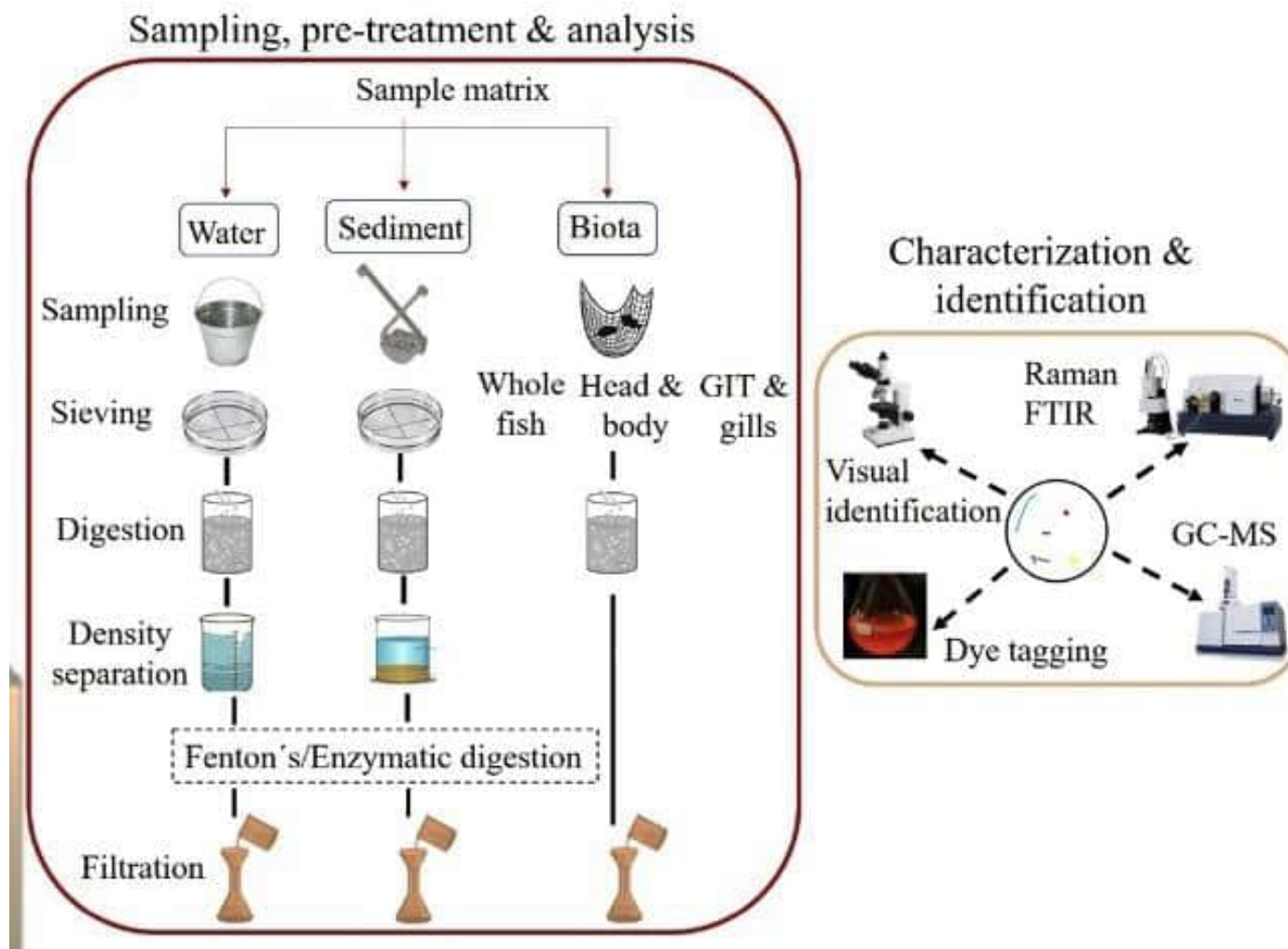




Secondary microplastics

- Larger pieces of plastic are broken down by
 - Sunlight
 - Wind and wave action
 - Friction on beaches
- Includes fibres released from clothing during washing
 - Nylon
 - Polar fleece





<https://doi.org/10.1016/j.teac.2021.e00123>

Ubiquitous presence in the environment

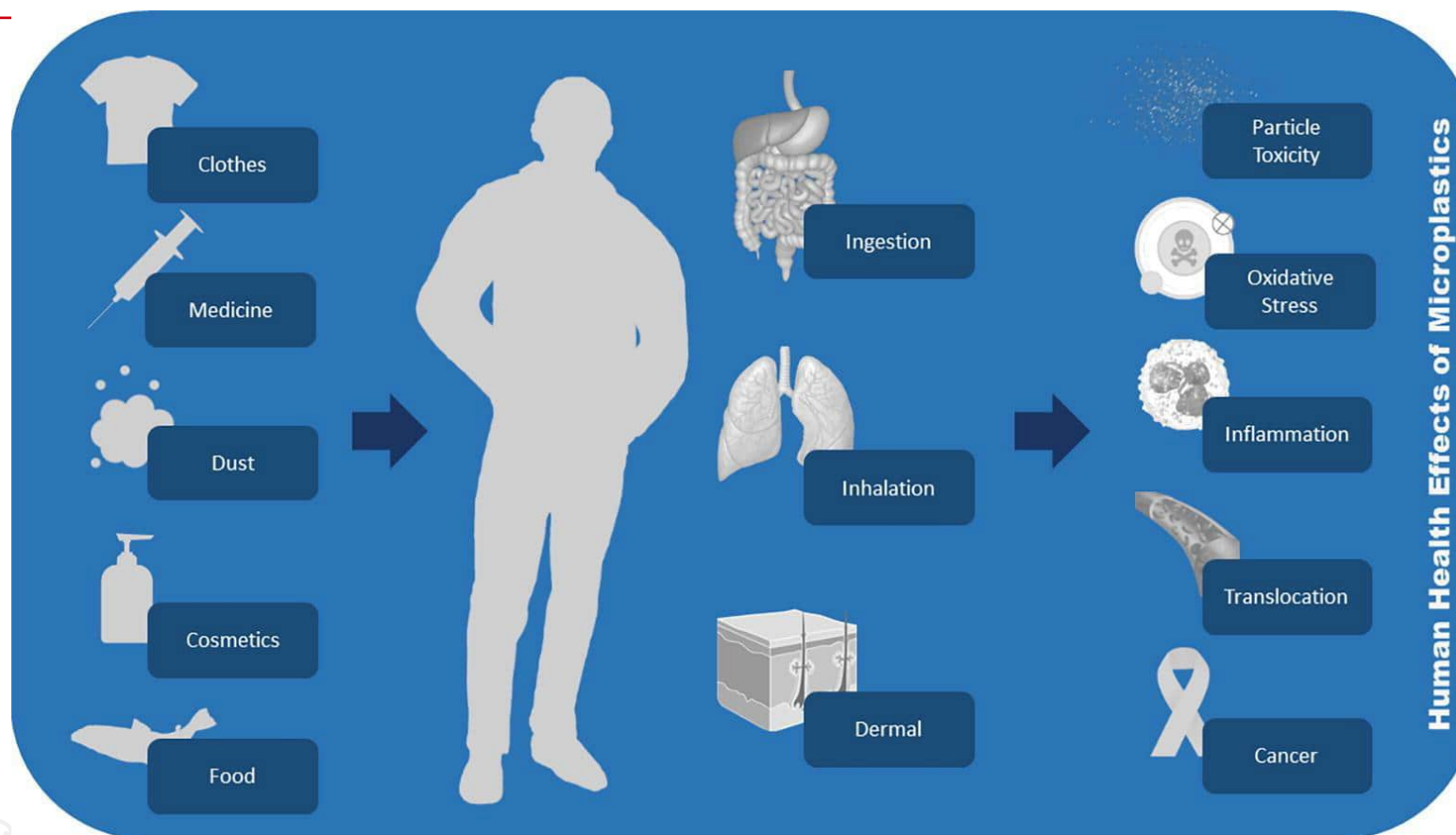


- Microplastics have been found
 - Widespread in ocean waters and beach sediments including remote areas
 - Lakes
 - Frozen into Arctic sea ice & in Antarctic snow
 - Soils
 - **Road dust**
 - **Stormwater**
 - Atmosphere
 - In a wide range of organisms
 - Human tissues

Adverse effects: ingestion

- Microplastics can be ingested by aquatic organisms
 - Similar size to food items like plankton and fish eggs
 - Filter and benthic feeders particularly susceptible
- Adverse Effects
 - Feeding
 - Movement, growth & reproduction
 - Transfer from prey to predator has been documented
 - Toxic effects from additives

Human health effects



<https://www.sciencedirect.com/science/article/pii/S0048969719344468?via%3Dihub>

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Marine Pollution Bulletin
Volume 149, December 2019, 110641



Baseline

Microplastics in the New Zealand green lipped mussel *Perna canaliculus*

S. Webb ^a, H. Ruffell ^a, I. Marsden ^b, O. Pantos ^c, S. Gaw ^a

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Synthetic shorelines in New Zealand? Quantification and characterisation of microplastic pollution on Canterbury's coastlines

PJ Clunies-Ross, GPS Smith, KC Gordon & S Gaw

To cite this article: PJ Clunies-Ross, GPS Smith, KC Gordon & S Gaw (2016) Synthetic shorelines in New Zealand? Quantification and characterisation of microplastic pollution on Canterbury's coastlines, New Zealand Journal of Marine and Freshwater Research, 50:2, 317-325, DOI: 10.1080/00288330.2015.1132747

To link to this article: <https://doi.org/10.1080/00288330.2015.1132747>

Microplastic pollution in urban streams across New Zealand: concentrations, composition and implications

Aidan K. Mora-Teddy & Christoph D. Matthaei

To cite this article: Aidan K. Mora-Teddy & Christoph D. Matthaei (2020) Microplastic pollution in urban streams across New Zealand: concentrations, composition and implications, New Zealand Journal of Marine and Freshwater Research, 54:2, 233-250, DOI: 10.1080/00288330.2019.1703015

To link to this article: <https://doi.org/10.1080/00288330.2019.1703015>



Environmental Pollution
Volume 250, July 2019, Pages 292-299



Microplastic pollution in streams spanning an urbanisation gradient

Nadezhda Dikareva , Kevin S. Simon

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<https://doi.org/10.1016/j.envpol.2019.03.105>

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Marine Pollution Bulletin
Volume 151, February 2020, 110867



Baseline

Microplastic contamination in Auckland (New Zealand) beach sediments

James H. Bridson ^a, Meeta Patel ^a, Anita Lewis ^a ^b, Sally Gaw ^c, Kate Parker ^a

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<https://doi.org/10.1016/j.marpolbul.2019.110867>

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Water Air Soil Pollut (2021) 232: 133
<https://doi.org/10.1007/s11270-021-05080-9>

Comparison of Deposition Sampling Methods to Collect Airborne Microplastics in Christchurch, New Zealand

Ella Knobloch • Helena Ruffell • Alex Aves • Olga Pantos • Sally Gaw • Laura E. Revell



Stormwater: sources of MPs

- Artificial turf
- Clothing
- Building materials – polystyrene, paint, cladding
- Litter
- Vehicles – tyre wear, brake discs
- Road paints
- Sewer overflows
- Industry





International evidence

- Limited number of published studies
- Microplastics are present
 - Water 3 to 23,000 particles L⁻¹, dominated by polypropylene and polyethylene
 - Sediment , higher density plastics e.g. PVC and synthetic rubber
 - Blue and black most common
 - Fibres > fragments > films
- MP concentrations typically greater during storm events
- Stormwater treatment options may not remove microplastics



What do we know for NZ?

Streams and rivers

- Water column
 - Auckland 0.02 -0.3 particles L⁻¹
 - NZ wide study: max 0.044 particles L⁻¹
- Sediment
 - Auckland: 9-80 MPs kg⁻¹
 - Christchurch: 0-350 MPs kg⁻¹



What do we know for NZ?



Current projects

Kaiwharawhara Stream (Wellington) with NIWA & ESR

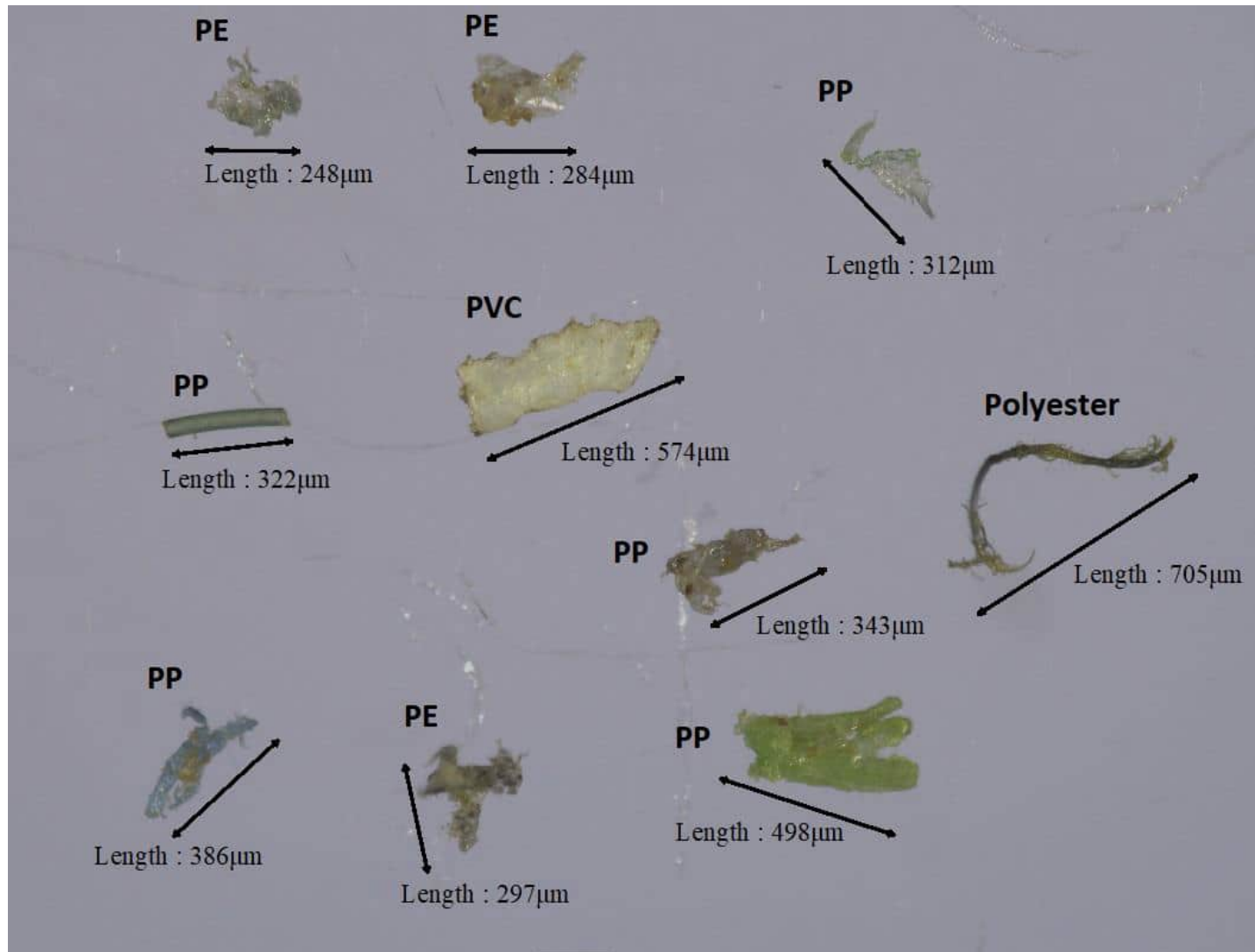
- Base & stormflow
- Sediment
- Stormwater

Preliminary results:

- Stormwater discharge point
- In the stream storm > baseflow, range 0.1 -1.1 particles L⁻¹



- Polyethylene, polypropylene – main polymers, possibly tyre wear



Questions?



Image credit: Phil Clunies-Ross

17/05/2022




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Moepuku Peninsula Harvest

Harvest Challenges:

- Trees right down to coast edge
- Will be very hard to harvest w/o debris in harbour....
- ..although if not harvested trees will eventually fall into harbour



An aerial photograph showing a dense forest of tall, thin trees growing right down to the coast edge. The water is visible in the foreground. A small watermark 'Image 13 of 19' is visible at the bottom right of the image.

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Moepuku Peninsula Harvest

Harvest Challenges (contd):

- High erosion risk soils – significant for sediment generation
- No permanent streams but a number of small ephemeral gullies which will flow after rain events
- Runoff from the harvest will flow directly to harbour



Moepuku Peninsula Harvest

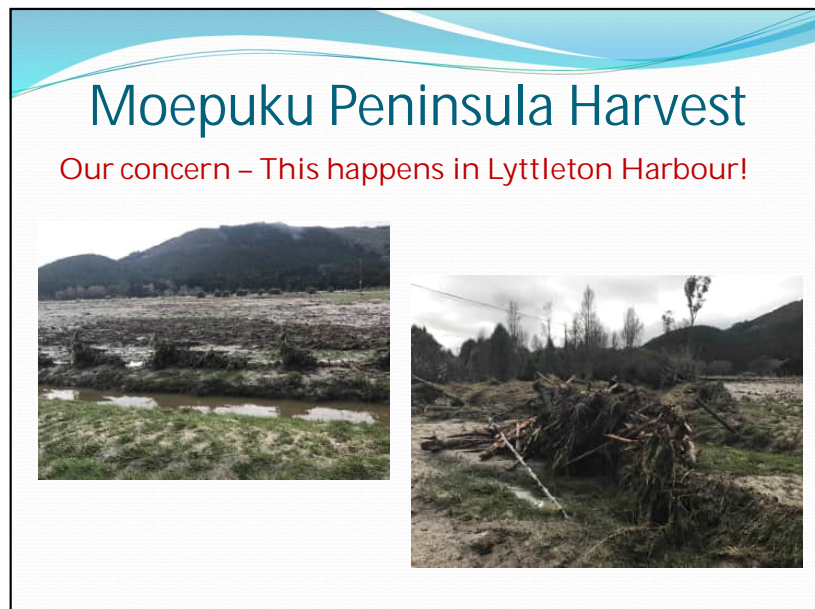
Ecan's position

- No consent is required for current harvesting of 5.2 Ha.....Or for the remaining 44 Ha
- Ecan rely on the NES-PF – no requirement to replant; no chance for community input

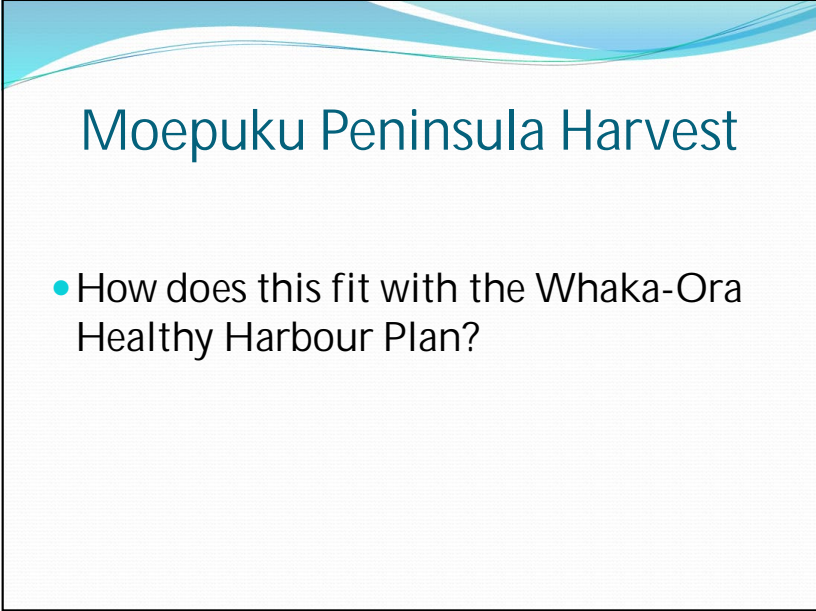
Charteris Bay Residents position:

- not against harvest but.....
- best practices should be used for this unique environment

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Moepuku Peninsula Harvest

- How does this fit with the Whaka-Ora Healthy Harbour Plan?

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BACKGROUND

- In early 2018 the BP Water Zone Committee had numerous discussions regarding forestry.
 - Loudon incident July 2017 – deposition of ~ 4,000 T of harvest debris on downstream property in Teddington, blockage of road bridge and closure of Charteris Bay Road, flooding of two houses, scouring of Waiake Stream and significant sediment deposited into the harbour. Associated with unconsented harvesting activities 2-3 years earlier.
 - Similar event in Pidgeon Bay.
 - The National Environmental Standards for Plantation Forestry (NES-PF) published August 2017 came into effect 1 May 2018.
 - Whaka-Ora plan was in preparation which identifies sedimentation as the biggest threat/issue for the harbour.

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BACKGROUND

- At the April 2018 BP zone committee meeting Nathan Dougherty (ECan staff member in charge of forestry) gave a presentation which included the following recommendation.

- 2. *Recommend to senior management within Environment Canterbury that all professional forestry operations on BP (and other foothills sites in Canterbury) should be required to gain resource consent prior to commencement (tracks, stream crossing & harvesting), notably also including for aerial vegetation removal using herbicides, prior to planting. The reason is that no forestry operation observed to this point meets the NES standard for water clarity: "no conspicuous change in water clarity after reasonable mixing"*

BACKGROUND

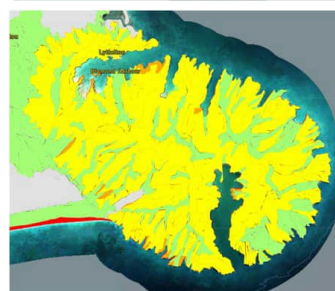
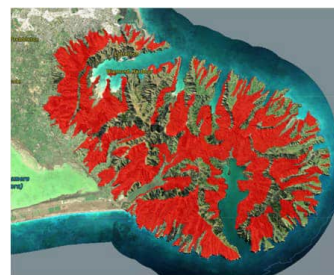
- A resource consent:
 - Allows local site-specific issues to be addressed
 - Provides clarity on performance criteria
 - Clarifies monitoring requirements
 - Enhances enforcement
 - Allows potentially affected parties to be involved
- All the above are more difficult without resource consent.

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Moepuku Peninsula is classified as erosion prone land in the LWRP as is a lot of Banks Peninsula.

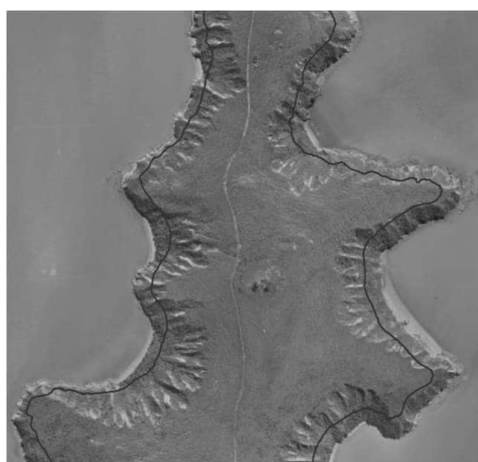
There are various rules in the LWRP that restrict activities including forestry on erosion prone land.

Moepuku Peninsula is classified as moderate to high erosion susceptibility in the NES-PF. Most of BP is classified as low to moderate. Forestry is predominantly permitted under the NES-PF on low, moderate and high land - provided certain information is provided.



Moepuku Peninsula is steep particularly the coastal fringe and is known to be erosion prone. See scars on aerial from early 1970's. Forest was planted for soil control reasons.

The steep coastal fringe is not suited for production forestry.

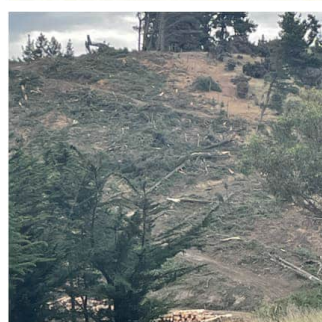


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Currently 5.2 ha at the southern end of Moepuku Peninsula is being harvested. Note steepness and new tracks / fill

ECan staff have indicated that ECan do not require resource consent for either this harvesting or harvesting of the whole peninsula.

Given the sedimentation risk to the harbour ECan's staff decision is surprising and opposite to early staff recommendations.



Another block recently harvested without consent also in Teddington on erosion prone land.

Note unvegetated tracks. Photo taken at least 6 months after the completion of harvesting.

Runoff from the harvested block during a recent rain event.



17/05/2022

I am not against the current harvesting and am not questioning their current performance. But I am very concerned about:

- Potential windthrow from harvesting only part of the forest.
- How the coastal fringe trees will be removed without sediment and debris entering the harbour.
- What will happen post harvest and the replanting / retirement plan.
- The lack of process and that resource consent is not required.

Thank you for the opportunity to bring this to the committee's attention.

I have done so, as I do not want to see a repeat of the Loudon incident, where there was considerable environmental damage, and no one was held accountable.

