



ERNSLAW ONE LIMITED

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Closes 6th April 2023

Contact detail: Darren Mann

Submitter details

Ernslaw One Ltd is a registered NZ company, owned by the Oregon Group Ltd. For further information on our history, please visit our website [click here](#).

Executive Summary

Ernslaw One appreciates the opportunity to submit to Commissioners in the current Ministerial Inquiry into Land Use. Our submission is summarised as follows:

1. A 'Wicked' problem

The Hawkes Bay and Te Tairāwhiti regions have been plagued by accelerated soil erosion ever since European settlers cleared the hill country of native forest for pastoral farming. Severe floods in 1938 in Hawkes Bay and in 1948 in Te Tairāwhiti gave rise to catchment control schemes involving stop banking of lower reaches of some rivers and afforestation of critical headwaters in fast growing conifers. The policy response to Cyclone Bola in 1988 was to incentivise afforestation of private land, which was remarkably successful in moderating flooding and limiting hill country erosion for 30 years. However, clearfell harvesting of those areas made the land vulnerable to landslides and debris flows under severe storms, especially those areas underlain by young steep tertiary silt and mudstones. Forest owners of land damaged in Bola and again in 2018, 2020 and twice in 2023, are left uncertain as to how to best manage that land. It is evident that no biological systems on steep erosion-prone terrain can withstand two ex-tropical cyclones back-to-back, regardless of tree species.

2. Financial contribution to the Gisborne Economy

Ernslaw's operations contribute around 50 million dollars to the Gisborne economy every year (one million dollars every week), excluding the salaries for our 24 Gisborne-based staff members.

3. Forest Management

Ernslaw believes that the current land use of radiata pine plantations, at its Mangatu Crown Forest Licence (CFL) and Moonlight freehold title forest, which sit on very different geology to that found immediately inland from Tolaga, is entirely appropriate, sustainable in the long term, and is critical to the ongoing economic health of the Gisborne economy.

Equally, Ernslaw accepts that the "Business-as-Usual" practices associated with short-rotation radiata pine plantations, including clearfell, on the young tertiary mudstone geology found immediately inland of Tolaga, will be extremely challenged if the region



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continues to experience ex-tropical cyclones at the frequency that has been seen since Cyclone Cook in 2017. Given the robust science behind the most recent climate change scenarios, we suspect that this may be the region's new normal. This also includes pine clear-fell in our Parikanapa forest closer to Gisborne.

Ernslaw is currently trialling redwood as an alternative species to radiata pine that is capable of coppicing in two inland Tolaga forests.

4. RMA settings and a more collaborative working relationship with the Council

Ernslaw respectfully submits that Gisborne District Council lacks experience and capacity to effectively regulate forestry activities. Staff retention and consistency appear to be a key challenge for the Council. Council's approach to monitoring and engagement with Ernslaw is reactive rather than proactive, and in most instances, engagement only occurs when things have gone wrong. Monitoring visits are sporadic and there are delays with receiving compliance reports (in excess of one month), if received at all. Feedback from compliance visits add little if any value to improved performance outcomes.

Ernslaw proposes that greater investment in attracting and retaining skilled and knowledgeable staff is required by Council and that a review be undertaken to develop more effective working relationships with the forest industry and with the agreement of service delivery measures.

Greater understanding and a more collaborative approach is required with the implementation of highly engineered debris traps. Ernslaw proposes a specific amendment to the NES-PF regulation 85 to move the permitted activity threshold from 20ha to 400ha to better accommodate the implementation of debris traps.

5. Debris Traps

Ernslaw supports the use of more robust debris traps (such as Geobrugg) as a mitigation practice compared to the conventional wooden or iron debris traps currently in use. Ernslaw estimates installation costs of European-engineered net-type woody debris traps for catchments of up to 500 ha across parts of our Tairawhiti estate at approximately \$1.5 to \$2 per tonne of log (less interest and depreciation). This is a significant but necessary cost and Ernslaw believes these structures need to be trialled in the more sensitive areas to test their worthiness as a standard mitigation.

6. Catchment area harvest constraints

Following the 2018 storms, Ernslaw implemented a policy of self-imposed catchment-area harvest constraints. This means that no more than one-third of identified catchments under our sole control be harvested in any four-year period, over a threshold of 250 hectares. While Ernslaw understands that there is no scientific evidence to show that catchment clearfell limits are effective in landslide prone terrain with intense storms and may have no real effect in the Tairawhiti Regions, we accept from an adaptive-management perspective, that self-imposing catchment constraints are worth a try. This is **not** 'coup' harvesting.



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We have not however self-imposed an “adjacency constraint”. Ernslaw believes that this would significantly increase the total length of block edges exposed to windthrow. This happens when a “checkerboard” harvest pattern is applied and likely leads to the reverse outcome of more wood left on unstable slopes, not less.

7. Opportunities for selling Wood Residues into the NZ Domestic Bioenergy Market

Ernslaw has previous experience in the bio-energy business and understands the challenges within the supply chain to achieve a viable business. There is a basic cost structure that includes extraction, cartage, handling and processing that needs to be balanced with a high enough raw material (\$/GJ) to ensure a sustainable commercial model. Ernslaw is willing to partner with other wood suppliers in Tairāwhiti to provide raw material for any in-region bioenergy development opportunities that have the potential to be commercially viable.

8. Fire

Ernslaw believes that fire is an effective tool for managing slash particularly around landings that may not be able to be rehabilitated adequately enough to de-risk potential failure and mobilisation of woody material.

9. Riparian

Ernslaw is aware that some submitters will be advocating for riparian buffers planted in indigenous tree species as an alleged “cure-all” for landslides and as a method of eliminating woody debris entering streams and rivers. The two recent cyclone events have shown that land sliding occurred on very wide and long riparian slopes, previously well vegetated in healthy 40-plus year-old indigenous forest. Landslides irrefutably deposited large volumes of native woody debris into the river systems in both events.

About us

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Forests establishment and acquisitions in Tairāwhiti

Ernslaw One Ltd has been operating in New Zealand since 1990 as a forest owner since it's successful purchase of some state forests from the Government agency Timberlands NZ.

Ernslaw initially came to the Tairāwhiti region in response to Government incentives under the East Coast Forest Project (an afforestation subsidy) scheme, a policy administered by the then Ministry of Forests (now subsumed into Ministry of Primary Industry) in the wake of Cyclone Bola to attract investment on eroding and financially failing farms.

In 1995 Ernslaw established a presence in Tairāwhiti with the purchase of Ihungia and subsequently Ruangarehu and Te Pora Stations to form what we now refer to as Mata Forest. Mata Forest is 5850 stocked hectares being 62% Red and Orange zone and 38% Yellow & Green zone under NESPF ESC mapping.

In 2004, Ernslaw purchased the distressed Crown Forest Licence (CFL) forest asset from the Receivers acting on behalf of creditors of the failed Huaguang (Chinese) owners¹. The CFLs purchased include Mangatu, which is well located to the port of Gisborne and the more distant forests near Ruatoria (sold in 2021).

Wood Processing in Tairāwhiti

In 2004, Ernslaw purchased the Prime Lumber sawmill from a Korean owner, which was initially run as a subsidiary of Blue Mountain Lumber (BML) sawmilling operation in Tapanui, West Otago. BML created an extra 30 – 40 jobs at the mill by expanding and adding an extra shift.²

In 2007, Ernslaw purchased Winstone Pulp International (WPI) which ran a sawmill and mechanical pulp mill located between Ohakune and Waiouru in Ruapehu District. Ernslaw transferred the ownership of both Blue Mountain Lumber and Prime Lumber to WPI, of which both sawmills were decommissioned due to accumulated trading debt following the 2008 Global Financial Crisis.

Forests acquisitions and disposals in Tairāwhiti

Plantation forests in New Zealand are relatively liquid assets that are frequently traded. Given the long investment time-horizons, it is relatively uncommon for a forest to be harvested by the entity that planted it.

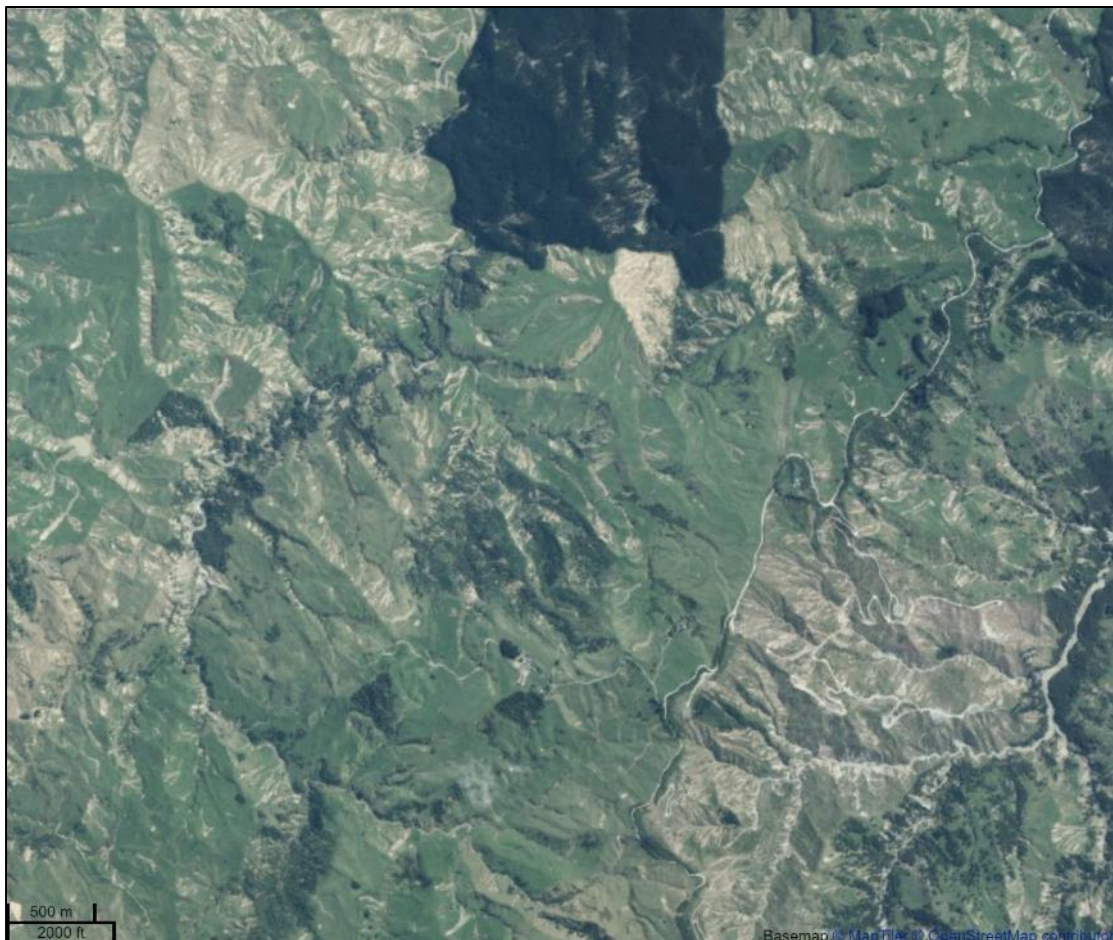
Since 2010, Ernslaw on its own account, or acting as agent for a New Zealand investor, has purchased several medium-sized established plantation forests on freehold land primarily in behind Tolaga Bay, including "Crail's block" established by PF Olsen Ltd

¹www.nzherald.co.nz/business/receivership-means-forest-may-be-sold/XLD4WKK6QY4GXMZDMCNA5R6NNA

²www.scoop.co.nz/stories/BU0410/S00096/ernslaw-purchase-of-prime-sawmill-creates-jobs.htm?from-mobile=bottom-link-01

with subsidies from the Poverty Bay Catchment Board prior to Cyclone Bola. This forest is now known as Uawa forest and is located upstream of Wigan Bridge. Uawa forest was severely impacted by landsliding in the severe rainstorm of June 2018. Other forests that have been severely impacted by landslides from Cyclone Gabrielle are Westho, Waiau, Waiteata, Makomako forests and, closer to Gisborne, Parikanapa forest.

Ernslaw in conjunction with the New Zealand owner of Parikanapa are considering actively managing parts of this land back to native forest, using the replanted radiata as a nurse crop. We note that this forest is in second rotation so will not accrue revenue from the sale of NZUs (Carbon Credits) in the New Zealand ETS. This native reversion transition imposes a negative draw on our business, incurring pest control, rates and insurance costs with no longer accruing revenue.



LINZ imagery, depicting land damage in the vicinity of Parikanapa Road after Cyclone Gabrielle (Parikanapa forest, replanted 2021, is bottom right)

In 2021, Ernslaw sold the Ruatoria area CFL forests (Stephenson's, RIP etc) to Summit Forests (owned by Sumitomo of Japan), due to the ongoing challenge of retaining quality logging contractors with robust Health & Safety systems. Ernslaw made the

strategic decision to focus its preferred, but limited, highly skilled-contractor workforce in forests closer to Gisborne.

In the Tairāwhiti Region around 11% of our land holdings are in indigenous (native) forest, including 12 areas designated as Significant Natural Areas (located within Mata, Mangatu, Waiau, Waiteata and leased Waipaoa forests).

In the Tairāwhiti region Ernslaw inherited and harvested stands of several Eucalyptus species from previous owners and also stands of Douglas-fir and Coast Redwood established by the former New Zealand Forest Service. However, Ernslaw's replant, until recently, has been solely in *Pinus radiata*. In 2020 Ernslaw experimented with replanting in Redwoods. By contrast in Otago & Southland, Ernslaw is the largest owner of Douglas-fir plantation forests also deploying the *attenuata x radiata* hybrid, which is the species better suited than *radiata* to snowfall.

Financial contribution to the Gisborne Economy

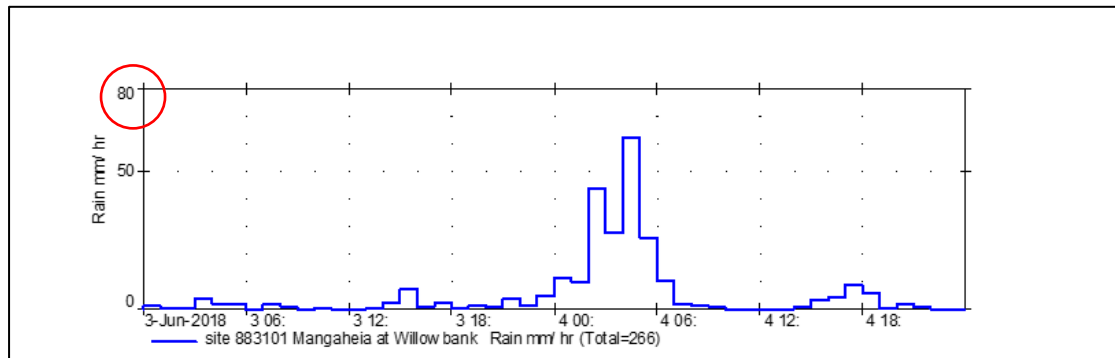
Ernslaw operations contribute approximately 50 million dollars to the Gisborne economy every year (one million dollars every week), excluding the salaries for our 24 Gisborne-based staff members.

Gisborne expenditure - Ernslaw One	
<i>Reporting Period: 10 Years (FY2012/13-FY2021/22)</i>	
	10 year average
Cost of Production (COP)	
Harvesting	\$ 24,300,000
Cartage	\$ 16,000,000
Other COP	\$ 700,000
Total spending in Harvesting	\$ 40,900,000
Forest Asset Costs (FAC)	
Planting & Silviculture	\$ 1,900,000
Forest Management Expenses	\$ 400,000
Total spending in Forests	\$ 2,200,000
Roading	\$ 5,600,000
amortised Harvesting Roothing	\$ 900,000
Total Roothing	\$ 6,400,000
Land Rental & Leases (including rental and CFL)	\$ 1,600,000
Council Rate	\$ 400,000
RMA Consent	\$ 100,000
Total spending in Land and rate and consents	\$ 2,000,000
Major expenditure in Gisborne Region	\$ 51,400,000

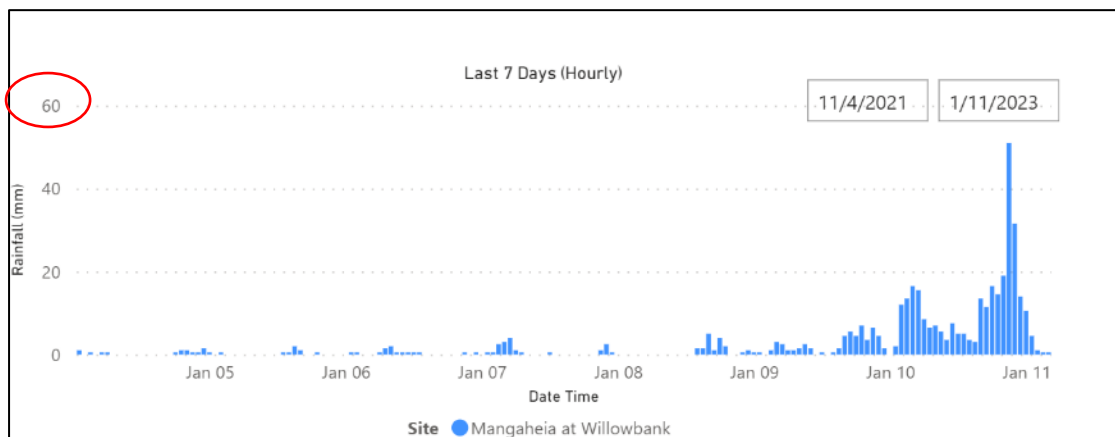
Note: The analysis above is an annual average based on the past 10 years.

Section 1: Impacts and Experiences in Cyclones Hale and Gabrielle

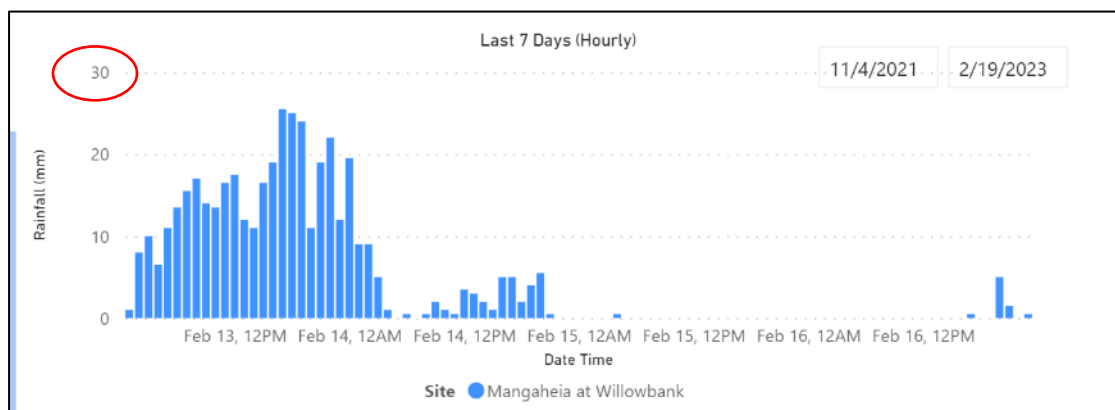
Ernslaw's Uawa forest inland of Tolaga Bay was severely impacted by a highly localised but intense rainstorm in June of 2018, more so than in Cyclones Gabrielle or Hale. Gisborne District Council rainfall records show that the Queen's Birthday 2018 storm brought rainfall that was significantly more intense compared to either Cyclones Hale or Gabrielle, as below.



Queen's Birthday 2018 rainfall from GDC rain gauge Manganheia at Willowbank - rainfall intensity peaked close to 70 mm/hr.



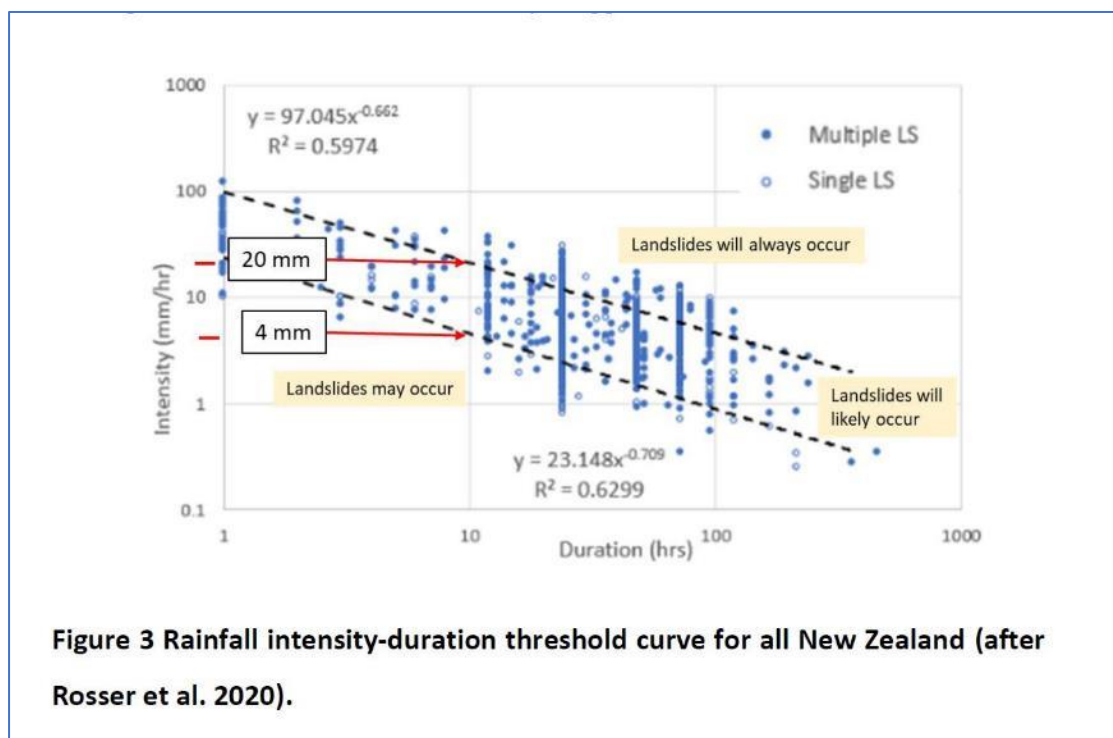
Cyclone Hale rainfall to 11 Jan 2023 – GDC Manganheia at Willowbank - rainfall intensity peaked around 50 mm/hr.



Cyclone Gabrielle rainfall to 19 Feb 2023 – GDC Manganheia at Willowbank – rainfall intensity peaked around 25 mm/hr.

Ernslaw’s interpretation of these records is that neither Cyclones Hale nor Gabrielle were truly extreme events, at least inland from Tolaga Bay, but rather their close proximity in time made their impact severe³. Our view is informed by a very recent paper by Harrington & others which concludes “The best-estimated return period of the 2023 [Gabrielle] event averaged over the study region is 30 years (5-45 year)”⁴. Ernslaw accepts that similar events are entirely foreseeable in the future. We conclude that forest companies such as Ernslaw must design infrastructure, and modify silvicultural regimes, to better manage such events.

Ernslaw urges Commissioners to interpret the rainfall intensity graphs (above) in the context of the rainfall intensity and duration graph (below) derived from GNS studies across New Zealand, being the relationship between rainfall and the occurrence of landsliding on steep terrain. All three storms described above exceed the landslide thresholds depicted. In fact, they enter the zone where “Landslides are inevitable”, as per Dr Chris Phillips of Landcare Research expert advice to the Environment Court in the prosecution of Ernslaw One Ltd by Gisborne District Council.



Ernslaw recommends that Commissioners communicate with Dr Phillips (who we understand is submitting) for a fuller explanation of the rainfall intensity & duration graph.

³ We understand that Cyclone Gabrielle was more intense in the vicinity of Ruatoria and Wairoa and Northern Hawkes Bay and than inland of Tolaga Bay.

⁴ Harrington & others 2023 [The role of climate change in extreme rainfall associated with Cyclone Gabrielle over Aotearoa New Zealand’s East Coast](#) World Weather Attribution Initiative Scientific Report. 35p.

Section 2: Causes

Commissioners have asked:

What is it about the way we use land, and how land use has changed over time that led to the effects being so severe?

Ernslaw's response:

It has been long recognised that much of the geology and soil in the Tairāwhiti region and Wairoa district is extremely susceptible to erosion in storms.

1948 Floods

While not to diminish from the impacts of the 2023 cyclones, Ernslaw draws attention to NIWA records of the severe storm of May 1948 as causing widespread landsliding and flooding, and considerable stock loss and pasture damage across the region to show that the 2023 events were not without precedent⁵. Documented flood damage in 1948 included:

- All roads within a short radius of Gisborne were blocked on the morning of the 14th by the floodwaters of the Waipaoa River catchment area. A number of cars throughout the district were caught in the surging water and some had to be abandoned. The Gisborne-Moutuhora railway line suffered heavy silting and washing-out, particularly north of Te Karaka. A large number of settlers were forced to evacuate their homes
- Over 16,000 stock were lost, valued at many thousands of pounds. A total of 15,207 sheep were lost. Dead carcasses of sheep and cattle hung from fence-lines or lay bloated in paddocks and thousands of sheep and cattle were swept seawards. Pigs, horses and fowl were also lost. A mass burial site was created in the sand dunes at Awapuni due to the freezing works being overtaxed. The commercial poultry flocks of Gisborne were cut by 25-30% as a result of the floods.
- Farm damage in the Waikohu and Cook Counties: 3000 chains (60.3 km) of fences were damaged (excluding Waikohu) and 1150 chains (23.1 km) of drains were silted up (250 chains or 5.03 km in the Waikohu County).
- Crop damage in the Waikohu and Cook Counties: 2464 acres (9.97 km²) of maize was considered to be damaged (212 acres or 0.86 km² in the Waikohu County) and 18 acres of pumpkins were lost in the Waikohu County. The estimated loss of maize in the Waikohu County, not including losses in production, was 65%, and in the Cook County it was 45%
- Two aircraft at Darton [Air]Field were extensively damaged by water and silt after being marooned in a hangar in nearly 6 ft (1.8 m) of water on the 14th. Floodwater also seeped into approximately 1000 gallons of petrol rendering it useless
- The total damage due to the floods was £336,356 (\$29,797,000 2023 dollars).
- The monetary value of the agricultural losses was £165,000 (\$14,617,000 2008 dollars).
- The damage to county roads was £47,160 (\$3,050,530 2023 dollars) and damage to state highways was £13,040 (\$1,155,000 2023 dollars) - a total of £60,200 (\$5,333,000 2023 dollars)

A 1-minute national film unit news clip of the flood event is available at Te Ara, the on-line encyclopaedia of NZ:

<https://teara.govt.nz/en/video/33279/1948-flood>

⁵ https://hwe.niwa.co.nz/event/May_1948_North_Island_Storm

Refer to commentary on the woody debris (most likely sourced from landsides in native forests, there being few if any plantations established in the headwaters in 1948) washed up on the foreshore (16 to 19 seconds in):



A storm in Poverty Bay on 14 May 1948 wreaked havoc and destruction, as is evident from this newsreel. As a consequence, flood control schemes were implemented on the Waipāoa River.

1970 NWASCO report

Taylor and others (1970) following an expert inquiry in a National Water and Soil Conservation Organisation (NWASCO) report to the Poverty Bay Catchment Board identified land in the “critical headwaters” that urgently needed to be retired from pastoral farming to reduce silt loads in rivers and deposition downstream on the floodplains known as the Poverty Bay flats⁶. The Taylor report was the catalyst for the taking of freehold farmland by the Crown under the Public Works Act. The New Zealand Forest Service was directed to commence a broader programme of blanket afforestation in exotic conifers, mainly in *Pinus radiata* in some, but not all, of the identified land in those critical headwaters. This was modelled on earlier New Zealand Forest Service afforestation of active earthflows at Mangatu, inland from Gisborne.

Subsequent to Taylor 1970, the Ministry of Works and Development (Water & Soil Division, 1987) declared that "pastoral farming cannot be considered a sustainable land use on much of the [Tairāwhiti] hill country"⁷.

⁶ Taylor 1970 Wise Land Use and Community Development MoW NWASCO (we can make this available), and
Jessen & others 1999 [NZ Land Resource Inventory LUC East Coast](#) Landcare p20022 coll1_278

⁷ Water and Soil Directorate (MWD). 1987. The East Coast Project review. Wellington, New Zealand, Ministry of Works and Development.

Afforestation at Mangatu has proved hugely successful in controlling all but the largest gully erosion processes and on arresting earthflows in all but the wettest years^{8 9}.

1988 Cyclone Bola

Cyclone Bola hit the region in February 1988 causing widespread landsliding and flooding¹⁰. Central Government and the Catchment Board (whose functions were transitioned into District Council under the Local Government reforms of the late 1980s) response to Cyclone Bola¹¹ was to actively promote afforestation in pines. This was by way of subsidy and a District Plan rule change to achieve “Effective Tree Cover” on the higher risk terrain (mapped as Plan Overlay 3A) and on much younger (Tertiary era), steeper hard and largely impermeable silt stone and mudstone geology (the Tolaga Bay rock group, colloquially known as “papa” rock), and readily identifiable on GNS’s geological online map of NZ, Q-map¹².

More recently, Gisborne District Council has commissioned research to better understand the vulnerability of plantation forests in relation to mass movement.¹³ Thus, Ernslaw submits that the Land use challenges in Tairāwhiti and Wairoa region are already well described, but the current Ministerial Inquiry is timely as much of the knowledge from the 1970s and 80s has been lost to much of the population’s collective consciousness and to many local government decision makers.

The Commissioners’ question on what may have changed over time is highly relevant:

Blanket afforestation of steep eroding farmland inland of Tolaga & Tokomaru Bays and elsewhere after Cyclone Bola has been of sufficient scale to almost certainly change the catchment response to large storms. Since the early 1990s, downstream landowners have enjoyed almost three decades of flood moderation. In combination with market and MPI signals to intensify land use, this has seen increased capital investment on the elite soils of the Poverty Bay flats and arguably gives rise to increased vulnerability to floods.

The establishment of a near even-age plantation forest of radiata pine in 1980s and 1990s has consequently resulted in very significant areas of clearfell harvesting, as

⁸ Marden & Lynn 2011 [Sedimentation History of Waipaoa Catchment](#) Envirolink project 1015-GSDC96 for GDC

⁹ Marden & others 2018 [Badass gullies: Fluvio-mass-movement gully complexes in New Zealand's East Coast region, and potential for remediation](#) Geomorphology 307 pp12–23

¹⁰ <https://teara.govt.nz/en/video/33280/cyclone-bola>

¹¹ Rhodes, D. (2001). [Rehabilitation of deforested steep slopes on the East Coast of New Zealand's North Island](#). *Unasylva* (UN FAO).

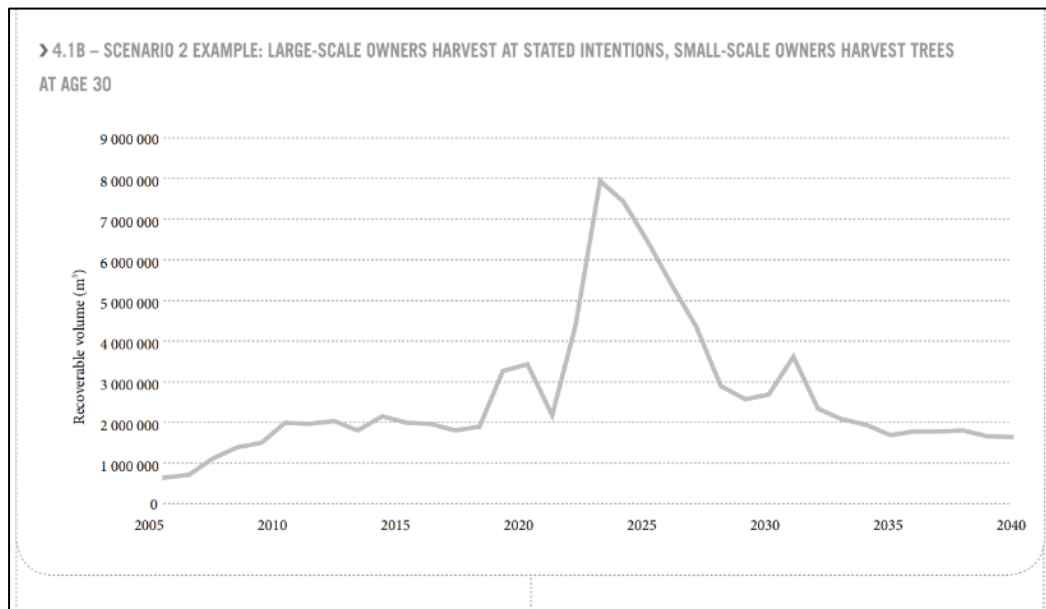
¹² <https://www.gns.cri.nz/data-and-resources/geological-map-of-new-zealand/>

¹³ Phillips & others 2015 [Forests and erosion protection – getting to the root of the matter](#). NZ J Forestry 60:2 and

Phillips & others 2017 [A risk matrix for storm initiated forestry related landslides and debris flows in the Gisborne region](#). Landcare Research Project LC2711 and

Marden & others 2023 [Effect of changes in forest water balance and inferred root reinforcement on landslide occurrence and sediment generation following Pinus radiata harvest on Tertiary terrain, eastern North Island, New Zealand](#). NZ J For Sc 53:4

was predicted by MPI's regional log availability forecasts back in 2008¹⁴, now verified by the Eastland Group's export log volumes across the wharf at the Port of Gisborne¹⁵. Refer graphs below.

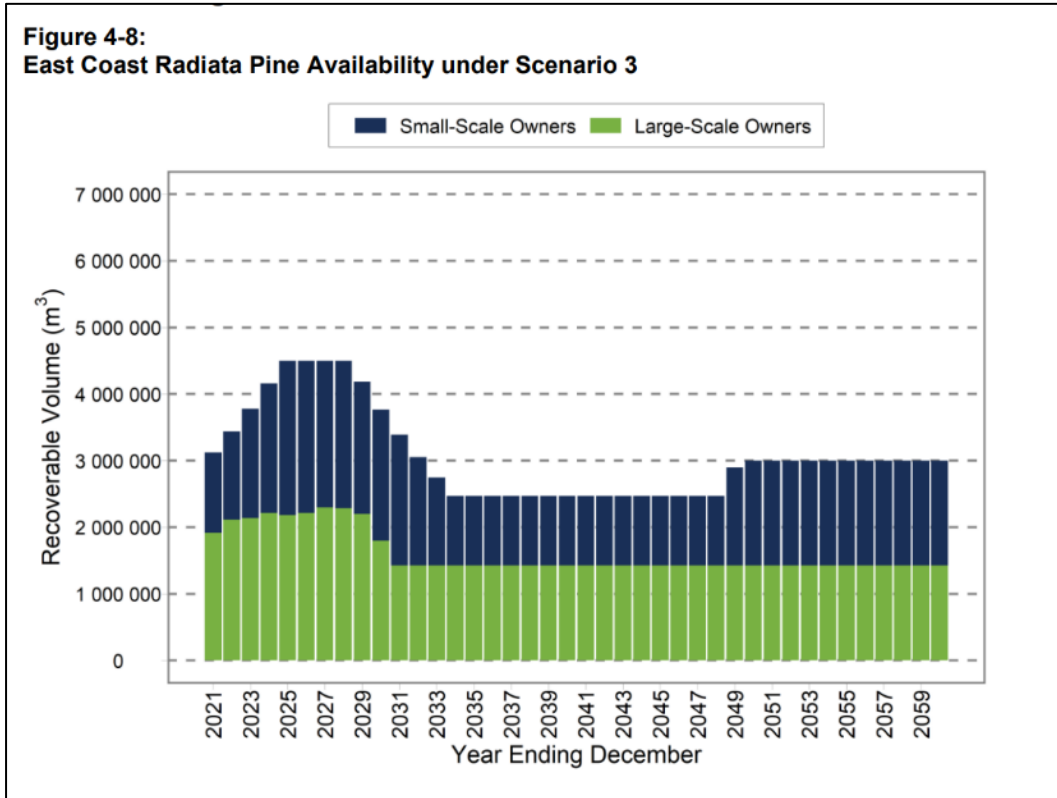


Source: MAF 2008 wood availability forecast.

Note that some owners brought their harvest peak forward in response to good export prices into the China market (2016-2020), so the predicted 2025 harvest peak of 8 million tonnes will not eventuate. Furthermore, there is currently not the logging contractor base to harvest more than about 3 million tonnes/year.

¹⁴MAF 2008 [East Coast Forest Industry and Wood Availability Forecasts](#)
 Margules Groome 2021 [Wood Availability Forecast – East Coast 2021 to 2060](#) report to MPI

¹⁵ <https://www.eastland.nz/tag/log-volumes/>



Source: Margules Groome 2021 wood availability forecast for MPI.

Note that the 2025-2028 peak is now forecast to be substantially less than that predicted by MAF in 2008. As stated earlier, there is currently not the contractor workforce base to harvest more than about 3 million tonnes per year, and the export port as currently configured would struggle to cope with a 4 million tonne harvest (at least until completion of the Berth 7 development), so peak harvest is likely to spread out into 2030 to 2045, and the age class and hence tree size is likely to increase.

Storm Frequency and Climate Change

Given the increased frequency of very severe storms encountered in the Tairāwhiti region since Cyclone Cook in 2017, a trend that Ernslaw considers is consistent with, and largely inevitable, under accepted Climate Change scenarios¹⁶. The observed increase in storms is attributable to atmospheric warming caused by increases in anthropogenic sourced CO₂ concentrations in the atmosphere, amplified by methane from melting permafrost and from agricultural sources. Ernslaw submits that there is very strong evidence to support the latest UN proposition that “every increment of warming will come with more extreme weather events”.

Ernslaw accepts that it now operates under frequent high intensity rainstorms and the accelerated erosion that is occurring on some of the world’s most erodible soils may be the new norm.

¹⁶ UN Environment Programme [Climate Change 2023: Synthesis Report](#)

Section 3: Policy framework, including Legislation, Market settings and Regulations

Commissioners have asked:

How do the current laws, policies and rules influence the way we use our land?

Ernslaw submits that the NES-PF correctly steers investment in new land away from Red and Orange zoned land, hence away from Gisborne and Wairoa Districts and onto “Better” Green & Yellow zoned land, which is primarily found in the South Island.

Ernslaw submits that for investment funds in particular, investment capital, is highly mobile. Gisborne District Council’s policies, rigorous enforcement regime and the lack of incentive to invest in wood processing, is forcing many larger owners to consider divestment in the Tairāwhiti regions in favour of forestry-neutral Council regimes.

What works well?

Ernslaw has recently invested in afforestation in the Manawatu and southern Hawkes Bay regions, and in Marlborough and Otago. The regional policies and rule sets work far better there than in Gisborne/ Tairāwhiti.

Ernslaw has good insight into the NES-PF because the head of our Environmental Performance and Planning team (Peter Weir, FNZIF) participated in MfE then MPI’s development of the NES-PF over a 9-year period, as did two expert soil conservators from Gisborne District Council (Trevor Freeman and Kerry Hudson). Ernslaw’s Environmental Manager was subsequently on MPI working groups in the Year-one review of that regulation undertaken by MfE & MPI, as was a GDC representative.

Ernslaw submits that the current construct of NES-PF as Gazetted in 2017 is robust, defensible, and fit for purpose. This is in contrast to the publicly stated position of the Gisborne District Council¹⁷ and in a proposition currently up for legal test in the Environment Court in Marlborough District brought by the Environmental Defence Society.¹⁸

Ernslaw submits that NES-PF regulation 6 already delivers the powers and flexibility that GDC seek. It has enabled GDC to develop more stringent rules for plantation forestry, as indeed exist in the Tairāwhiti Plan, and almost all earthworks and harvesting in steep lands in the Tairāwhiti region is controlled via Council consent rather than as a Permitted Activity.

What is unhelpful?

RMA settings

¹⁷ www.gdc.govt.nz/data/assets/pdf_file/0013/48001/Late-Item-Report-23-24-Petition-Land-Use-Planning-and-Regulations.pdf Extract:

GDC notes that central government is responsible for the primary forestry instrument being the National Environmental Standards for Plantation Forestry (NES-PF) and that staff have submitted to the Ministry for Primary Industries that a fundamental review of the NES-PF is required.

¹⁸ www.marlborough.govt.nz/repository/libraries/id:2ifzri1o01cxbymxkvwz/hierarchy/documents/your-council/meetings/2023/environment-planning-2023/Item_10-09032023-EDS_Legal_Proceedings-NES-PF-Attachments_1-11.pdf

Ernslaw respectfully submits that Gisborne District Council lacks experience and capacity to effectively regulate forestry activities. Staff retention and consistency appear to be a key challenge for GDC. Since the storm of June 2018 Council has blocked discussions regarding the challenges and opportunities for innovation.

GDC's approach to monitoring and engagement with Ernslaw and other forest owners is reactive rather than proactive, and in most instances, engagement only occurs when things have gone wrong. Monitoring visits are sporadic and there are delays with receiving compliance reports (in excess of one month), if received at all. Feedback from compliance visits add little if any value to improved performance outcomes.

GDC consent conditions have largely remained unchanged for the last 10 years. Some further conditions have been added which are in effect a cut and paste from the NES-PF permitted activity standards. There has been no efficiency and effectiveness analysis of consent conditions and it is unclear how current consent conditions would achieve a different outcome from operations if undertaken under the NES-PF. Ernslaw has been part of a review of forestry resource consent conditions that has been ongoing for more than five years with no resolution. Ernslaw submits that there needs to be more clarity on the purpose and intent of consent conditions to support the uptake of best practice.

Ernslaw has invested in additional resourcing, Environmental Planners on staff. These highly skilled planners prepare detailed AEEs in support of resource consent applications and liaise with the GDC consenting team. Processing timeframes continue to extend more than twice the non-notified timeframes. GDC contract out much of the forestry consent applications to out of town processing officers (including in Christchurch) who are often lacking knowledge of fundamental forestry activities, the Tairāwhiti Resource Management Plan and Tairāwhiti landscape. This creates further delays, increased costs and time needed to explain proposed activities, to respond to Sec 92 requests and review draft consent conditions. An example of excessive timeframes for processing was in late 2022. A 11.5ha retrospective consent for windthrow salvage in red zone took approximately 60 working days to obtain and cost more than \$6,000. The cost of consenting has increased at a rate far quicker than inflation in the economy and shows no sign of levelling off.

As best we understand it, GDC's refusal to issue a Discharge Permit (a consent under RMA S15) with defensible and meaningful but workable conditions to a third party who sought to contract out of NES-PF regulation 89 & 90 (discharges & sediment), but instead received a consent that mirrored the conditions of regulation 89 & 90 was most unhelpful. It sent a message to all other parties not to bother with Discharge permits, least they too end up in double jeopardy.

Ernslaw is also aware that GDC put a neighbouring forest owner, on notice that a consent to install four very well-engineered debris traps out for Public Notification and submissions on grounds of potential for interrupted fish passage. This was very unhelpful. Ernslaw has experienced the high cost of defending publicly notified consents (in 2005, to facilitate harvesting, road construction and stream crossing installation at Whangapoua forest on the Coromandel) and where the consent issued was subsequently appealed to the Environment Court. Defence of the consent through a two-year Public Hearing then an Environment Court challenge cost Ernslaw over \$1 million in legal fees and expert witness briefs (in 2007 dollar amounts).

The GDC position regarding discharge consents appears to be the polar opposite of Environment Bay of Plenty who urge forest owners seeking consents to harvest, to also apply for Discharge Permits.

One area where Commissioners might make recommendations regarding the NES-PF is in regard to Permitted Activity compliance monitoring and in land management officer extension services to landowners which, as of August 2023, can only be offered by Council staff registered with MPI as Forestry Advisors¹⁹. Ernslaw believes that this is unhelpful to all parties, and we note that the legislation was forced through the house under urgency by former Forest Minister the Hon Shane Jones as part of NZ's Covid-19 response and with support from all parties except ACT. Ernslaw submits that the breadth of the MPI drafted Forest Advisors legislation was ill-considered and is truly unhelpful.

Ernslaw believes that the current construct of NES-PF Permitted Activity regulation 85 (Slash Traps) creates a disincentive to install these protective devices. We have recommended to MPI officials responsible to the NES-PF that the Permitted Activity area limit in regulation 85 be increased from 20 hectares to 400 hectares, subject to a new Permitted Activity condition for catchments sized between 20 and 400 ha. We further recommend that debris traps be subject to proper engineering and hydraulic design (accounting for slash working loads, scour around pylons - if any - materials strength and with appropriate safety factors, etc). the installation is then signed off by a Certified Professional Engineer (CP Eng) and requires Producer Statements (PS1 to PS4) to be lodged with the relevant Regional or Unitary Council.

Furthermore, a Tairāwhiti Regional Plan rule developed under NES-PF regulation 6, that requires resource consents to debris traps on a stream of any size, as opposed to NES-PF Permitted Activity regulation 85's 20-hectare limit, is extremely unhelpful. Ernslaw submits that GDC consenting costs for slash traps adds tens of thousands of dollars in cost but little if any benefit, and creates a real disincentive to install slash traps.

¹⁹ www.mpi.govt.nz/forestry/forest-industry-and-workforce/registration-of-log-traders-and-forestry-advisers

Section 4: Solutions

Commissioners have asked:

What is our vision for the future of land use in the region?

Council – Industry Relationship

Adopting a similar collaborative model to that between the Hawkes Bay forestry group, Hawkes Bay Regional Council and MPI providing a forum for open discussion, including field days and insights into research and new technology and practices.

Forest Management

Ernslaw believes that the current land use, radiata pine plantations, at its Mangatu CFL and Moonlight freehold title forest, which sit on very different geology to that found immediately inland from Tolaga, is entirely appropriate, sustainable in the long term, and is a key driver of the Gisborne economy.

Equally, Ernslaw accepts that “Business-as-Usual” short-rotation radiata pine plantations subject to clearfell on the young Tertiary mudstone geology found immediately inland of Tolaga will be extremely challenged if the region continues to be hit with ex-tropical cyclones at the frequency we have seen since Cyclone Cook in 2017, and given the robust science behind the most recent climate change scenarios we suspect that this may be the region’s new norm. This also includes pine clear-fell in our Parikanapa forest closer to Gisborne.

Debris Traps

Based on failures of some of our earlier debris traps under heavy woody debris loads in floods, Ernslaw accepts that what GDC described as a better “ambulance at the bottom of the cliff” is required to contain woody debris in our forests when landslides introduce wood into streams in severe storms.²⁰ We have made a first estimate of the installation cost of European-engineered net-type woody debris traps for catchments of up to 500 ha across parts of our Tairāwhiti estate. Expressed as log volume sold per ‘protected hectare’, the cost might amount to around \$1.5 to \$2 per tonne of log (less interest and depreciation). That is significant but not crippling.

Catchment-area harvest constraints

After the 2018 storms Ernslaw implemented a policy of self-imposed Catchment-area harvest constraints (we specify that no more than one-third of those catchments under our sole control be harvested in any four-year period, over a threshold of 250 hectares). While we recognise that catchment-area harvest constraints make perfect sense in catchments dominated by snow melt hydrology, we also understand that there is no scientific evidence to show that catchment clearfell limits are effective in landslide prone terrain on intense storms and thus may have no real effect in the Tairāwhiti Regions. but we accept from an adaptive-management perspective that self-imposing catchments constraints are worth a try. What we have not done is self-imposed an “adjacency constraint” because we believe that significantly increases the total length

²⁰ www.gisborneherald.co.nz/frontpage-featured/local-news/20230302/slash-traps-debate

of block edges exposed to windthrow, as happens when a “checkerboard” harvest pattern is put in place, and will likely lead to the perverse outcome of more wood left on unstable slopes, not less.

Opportunities for selling Wood Residues into the NZ Domestic Bioenergy Market

If Ernslaw could make bioenergy markets work from Gisborne we would, but without rail, cost-effective coastal shipping, or an in-region facility to service in-region demand (eg, power plant), we are hamstrung.

In 2007 Ernslaw sponsored two senior staff members on a fact-finding study tour of Western Europe, visiting wood chipping, pelletising and wood boiler equipment manufacturers servicing the already mature forest-based bioenergy markets. In early 2008 we set up a related company, Ernslaw Bioenergy Ltd. We imported two wood chippers (photo below) as well as a wood pelletising plant and a demonstration wood chip boiler and we set up a bioenergy supply hub at the site of the former Naseby Forest sawmill. We entered into supply agreements with major energy users including the Dunedin energy centre that supplies steam to the Hospital and the then Cadbury chocolate factory, an elder-care home, motels, a convent and the government research centre at Invermay.



Trials of Ernslaw Bioenergy’s new drum chipper capable of chipping logs of up to 800 mm diameter, 2008 at Naseby Forest in the Maniototo



Forest thinning stacked to air-dry at Ernslaw's bioenergy supply hub at Naseby Forest, now operated by Pioneer energy.

Ernslaw Bioenergy Ltd expanded operations to supply fuel chip to the large heat plant at the Winstone Pulp mill at Tangiwai, which at the time was operated by Meridian Energy's Energy for Industry division (EFI), collecting chipping harvest residues and slash from both Karioi and Waimarino forests in the Ruapehu District. We subsequently sold Ernslaw Bioenergy to Meridian, who a few years later on-sold the company to Pioneer Energy of Central Otago. The original equipment continues to supply wood chip into markets in Canterbury, Otago and Southland.

Separately, Ernslaw One, with assistance of an EECA Industry grant and an investment of just under one million dollars, sponsored a South Auckland energy start-up company, Alternative Energy Systems Ltd, to develop a world-leading fast pyrolysis reactor one-tonne-per-day pilot plant. This successfully converted dry radiata wood chip into bio oil, producing biochar for incorporation into agricultural soils as a by-product. The project was predicated on energy densification, with the intent of converting relatively low energy bulky wood chip into a diesel "drop in" substitute fuel of much higher density.

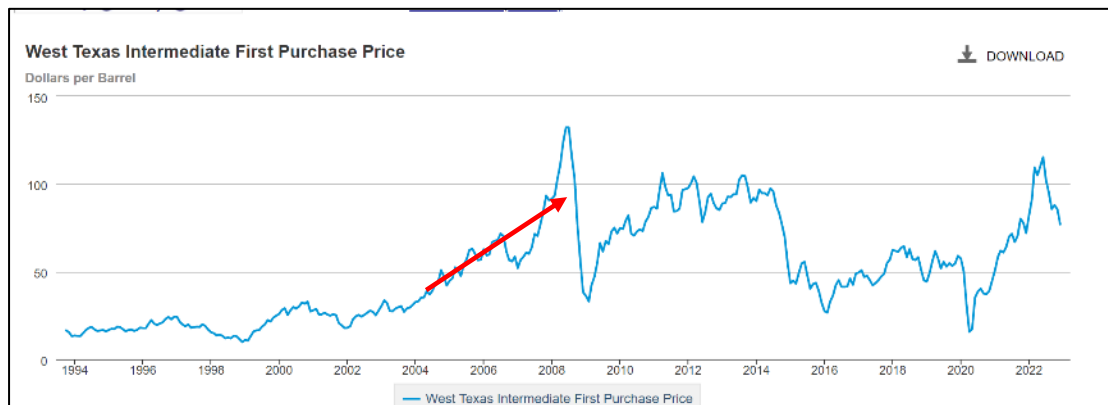


Above: Ernslaw's one tonne per day fast pyrolysis plant developed by AES Ltd,

Left: Bio-oil made from radiata chip.

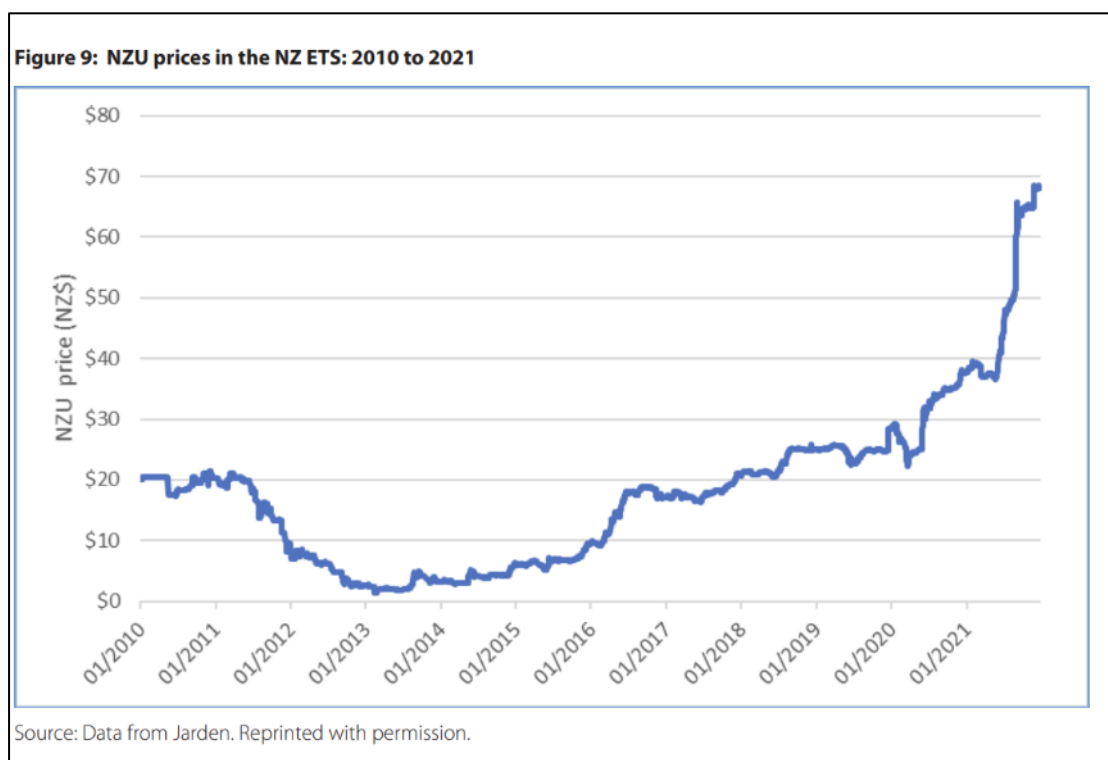
Ernslaw invested in fast pyrolysis R&D to specifically create a market for harvest residues from our forests in the Tairāwhiti region with the intent of fuelling heavy diesels including (hopefully) Kiwirail's locomotives and Cook Strait ferries and possibly log boats (from a bunkering facility in Gisborne) by offering bio-oil to the transport sector. If we could make the economics work, the intent was to scale up to create one or more 50-tonne-per-day pyrolysis plants to operate at the forest gate, and to then truck bio-oil to Gisborne to put on rail.

Our bio-oil project, including the EECA funding, was predicated on Treasury predictions of rising carbon prices, as required to change the behaviour of NZ's major energy users and other greenhouse gas emitters and to drive fuel switching in the NZ economy. A crude oil price above US\$150 barrel and or a price of Carbon in the NZ ETS above NZ\$100 /t CO₂e were key factors for our success. A number of factors conspired to see our bio-oil project mothballed including the development of shale-oil "fracking" in the US which saw the price of West Texas and other crude fall to near historic low levels, rendering Bio-oil from pyrolysis at the scale proposed completely uncompetitive. Additionally, the NZ government admitted low cost carbon credits into the NZ ETS from the Ukraine causing the price of carbon to crash, removing any incentive for transport industries to fuel switch and the rail out of Gisborne cut by landslides and debris flows in 2012 (and again in 2021).



West Texas crude (unrefined) oil price 1994 to 2023. Ernslaw's investment decision in pyrolysis of wood residues (slash) was predicated on the trend from 2004 to 2008 (arrowed above)

Source: www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=F003048623&f=M



Price of Carbon Emission Offsets (permits to pollute) in the NZ ETS 2010 to 2021

Source: Motu Policy Research²¹, data from Jardine, with permission

Faced with the political reality of a steep decline in carbon prices from 2010 to 2013, Ernslaw sold its share in the bio-oil business back to the development engineer for \$1 who then exported the technology to Japan (where it won innovation awards). Around the same time (2012) the NZ Government owned SOE Solid Energy Ltd closed and

²¹ www.motu.nz/assets/Documents/our-research/environment/climate-change-mitigation/emissions-trading/A-Guide-to-the-New-Zealand-Emissions-Trading-System-2022-Update-Motu-Research.pdf

mothballed its rapeseed oil to biodiesel plant at Rolleston. History shows that both Thomas Song, the former Managing Director of Ernslaw One Ltd and Don Elder Chief Executive of Solid Energy were well before their time in risking capital to decarbonise the NZ economy. Unfortunately, both projects suffered from “early mover disadvantage”.

Based on a 70 km working circle for trucking with a maximum economic cart distance of 100km (noting that Mangatu & Moonlight just work, but not from Tolaga or Tokomaru Bay where the best practicable option is to burn residues), we believe that our break-even price for delivering Wood Chip into Gisborne or to the port, is in excess of \$15 per Gigajoule (GJ). We are aware that dairy and meat processing companies in Canterbury, Otago and Southland are keen to fuel switch from coal to wood residues, and that the potential demand for wood chips or pellets for bioenergy far exceeds the available supply from southern South Island plantation forests. However, we are also aware that these industries do not wish to pay more than \$10 GJ delivered. Because forest owners are not in a position to cross subsidise the NZ dairy and rear meat industries, we find ourselves at an impasse.

Ernslaw is keen to partner with other wood suppliers in Tairāwhiti to provide raw material to any in-region bioenergy development opportunities that have the potential to be commercially viable.

Currently Ernslaw believes that burning log-making residues and slash in birds-nests over the side of landings is a valid practice. We implemented that practice after the June 2018 storm and consider this as an option in our toolbox to de-risk landings across our Tairāwhiti forest estate.



Best practicable slash management option for forests more than 70 km from Gisborne – burning on landings.

General feedback

We are aware that some submitters will be advocating for riparian buffers planted in indigenous tree species as an alleged “cure-all” for landslides and as a method of eliminating woody debris entering streams and rivers. Ernslaw offers the oblique air photo below showing landsliding that occurred on very wide and long riparian slopes, previously well vegetated in healthy 40-plus year-old indigenous forest. Landslides irrefutably deposited large volumes of native woody debris into the river system depicted below.



Riparian slope failures in indigenous forest in an Ernslaw managed near-harvest-ready forest south of Wairoa (harvesting has not commenced).
Source: Forest Industry colleagues.

We conclude our submission with the proposition that no biological systems on steep erosion-prone terrain can withstand two ex-tropical cyclones back-to-back, regardless of species.

Ernslaw One grants consent to release our submission.