



NIWA

Taihoru Nukurangi



**SCIENCE
FOR A
RESILIENT
FUTURE**

Half Yearly Report

for the six months ended 31 December 2021

Overview

From a financial performance perspective, NIWA has had a slower than expected start to the financial year, and at the half year stage is below its budgeted revenue and profit. This is largely due to the impacts of COVID-19. Nevertheless, NIWA expects to recover much of the revenue shortfall to date and, together with tight control of costs, expects to meet its budgeted profit for 2021/2022. This assumes no major COVID disruption to science delivery.

All the science and support performance indicators outlined in the 2020/2021 Statement of Corporate Intent are on track. Significant progress has been made on NIWA's Future Property Programme with the building of the Hamilton offices now well underway, the design of a replacement vessel for RV *Kaharoa* is now complete and the build process is expected to commence in the third quarter and build of the experimental commercial-scale recirculating aquaculture system for the culture of high-value finfish is underway.

A number of significant science advances were achieved over the past six months, as outlined in this report. These include progressing commercial production of kingfish, new environmental forecasting services in the Pacific, supporting emergency response during flood events, development of a programme to grow Maori research talent, completing fisheries vessel-based surveys despite COVID-19 challenges, progressing a pan-CRI initiative to provide a single portal for access to all CRI environmental data, and researching ventilation in schools to minimise the spread of COVID-19.

Financial Results

NIWA has had a challenging start to the financial year with some impacts felt from the COVID-19 lockdowns, achieving revenue of \$76.8M in the first six months. This result was \$4.4M below budget and \$9.3M below the same period last year (which included COVID-19 Response and Recovery Funding of \$8.3M). Helping to offset the impact of lockdowns, NIWA's largest ocean-going research vessel, RV *Tangaroa*, was at sea for 27 days more than budgeted during the period.

Total expenditure of \$79.5M was \$1.9M lower than budget, however this was offset by the below budget revenue, resulting in a loss before tax result of \$(2.8)M, compared with a budgeted loss before tax of \$(0.2)M. Loss after tax for the six month period was \$(2.0)M, compared with a budget of \$(0.5)M.

The closing cash balance and short-term investment balance of \$59.1M was \$16.1M above budget as cash continues to be carefully managed to ensure that NIWA's planned strategic investments are not put at risk. The cash balance has decreased by \$2.9M during the first half of the year due to capital spending being higher than operating cash flows from profit and working capital management.

Capital spending for the period was \$13.3M against a budget of \$21.3M. The variance was due to differences compared to budget assumptions in the timing of investment spending during the year.

NIWA is continuing to pursue revenue opportunities in order to meet the full-year revenue budget. Notwithstanding the year to date shortfall, NIWA expects to meet the budgeted profit result for the year through continued careful management of costs and provided no significant project delays occur. We note, however,

that significant headwinds continue to be seen in the market for commercial work. This will continue to be an area of focus for NIWA's management and Board so as to mitigate risks to revenue in FY22 and beyond.

Ratios and Statistics as at 31 December 2021

	Actual Year to date	SCI Year to date	SCI Full year
Revenue and other gains(\$000s)	76,777	81,217	171,256
Liquidity			
Current Ratio	1.4	1.4	1.2
Quick Ratio (aka Acid test)	3.1	3.8	2.0
Profitability (%)			
Adjusted Return on Equity*	(1.6)	(0.5)	5.0
Return on Equity	(1.4)	(0.4)	4.2
Return on Assets	(1.3)	(0.1)	4.6
Operational Risk (%)			
Profit Volatility	48.9	12.8	12.8
Forecasting Risk (non-adjusted ROE)	2.4	2.1	2.1
Coverage			
Interest Cover	(10.7)	(0.6)	15.8
Growth/Investment (%)			
Capital Renewal	145.5	233.7	251.2
Financial Strength (\$000s)			
Cash and Other Short Term Investments	59,116	43,073	29,054

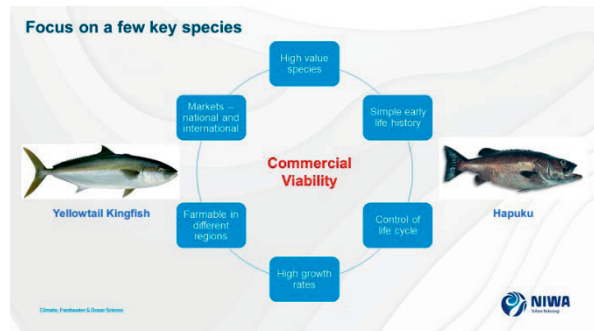
*Agreed with Officials after adjustment in 2006/07 for restatement of certain land and buildings cost figures.

NIWA Science Achievements

Advancing production of high value aquaculture species

The acquisition of the Marsden A & B power station land and infrastructure at Ruakaka, Northland, which commenced in 2002, was a key initiative by NIWA to advance opportunities to grow the New Zealand aquaculture sector and build a world class land-based marine research facility, the Northland Marine Research Centre (NMRC). At this time, a review of our aquaculture strategy resulted in confining core research activity to advancing culture of a few species with a high likelihood of commercialisation. While the site was initially leased from Mighty River Power, NIWA purchased the site, associated infrastructure and consents in 2015.

Two species of marine finfish were chosen, yellowtail kingfish and hapuku, based on their relatively simple early life history, ability to control the life cycle, high growth rates, ability to farm in different regions, high value and marketability both nationally and internationally. Since the establishment of this new strategy, progress has been significant, including building new facilities, establishing industry-based partnerships on site, and moving to the commercialisation phase for the culture of kingfish. Recent highlights of this progress are provided below.



The new administration building is now fully operational, and site preparation for the building of the experimental commercial scale Recirculating Aquaculture System (RAS) is well underway (see later section). These changes have required upgrading of the electricity supply and will allow future development by industry on the site. Changes to the site location of the new RAS system has also provided space for the future establishment of an industry led 3000 tonne RAS unit for commercial production of kingfish. NIWA's existing systems are able to produce 1 million kingfish fingerlings per annum, which is enough to support the annual commercial production of 3000 tonnes wet weight of kingfish product.



Kingfish at the NMRC can now be bred all year round, thereby enabling continuous supply of product into the market. This year production will be increased to 40 tonnes and will be supplied via Lee Fish Ltd to over 40 restaurants across New Zealand. Some fish have also been exported into the US market. This market trial has established the high value of our product and prices are continuing to rise in response to increasing demand.

New Algal Photobioreactors at the NMRC for Methane Mitigation Research

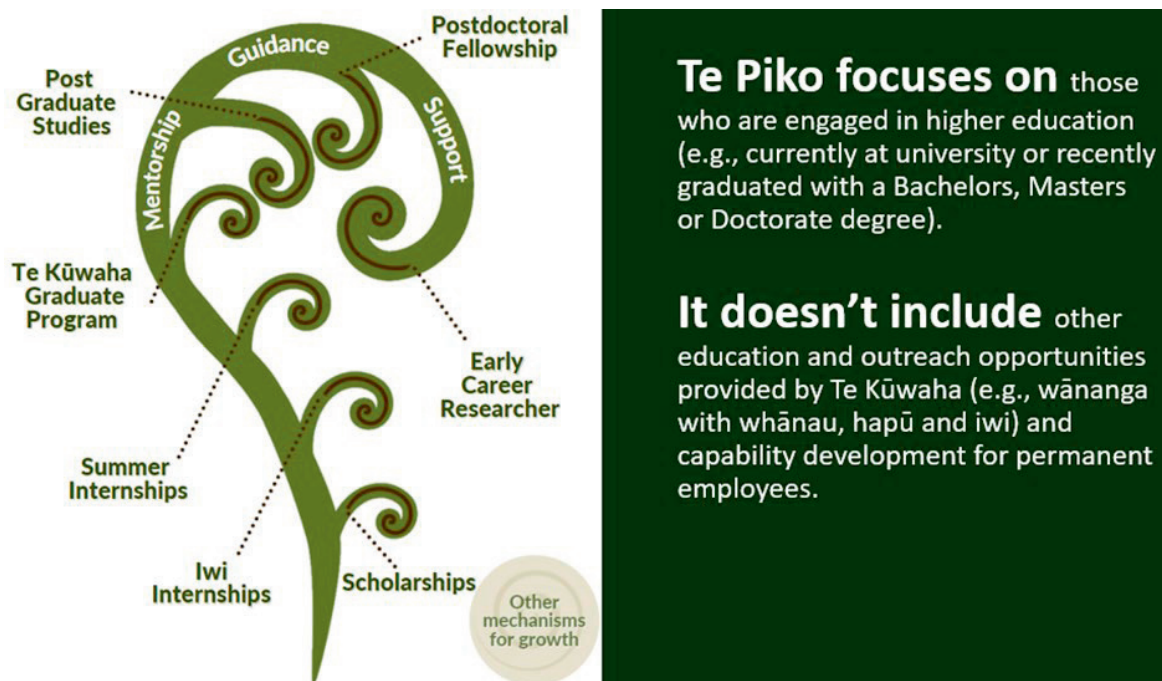
The rapid development of the red seaweed *Asparagopsis* for use as a methane mitigation technology in livestock continues to make headlines all over the world. New Zealand and NIWA are at the forefront of this race to commercialisation through their collaboration with the company CH4 Global. CH4's presence at the NMRC continues to increase with the installation of two highly conspicuous 25,000 L photobioreactors. These reactors are designed to produce large quantities of the tetrasporophyte life-stage (also known as the "Falkenbergia" or "pom-pom")



stage) for biomass that can both be processed into a stock feed supplement and used to seed aquaculture ropes for deployment into the ocean for on-growing of the gametophyte life-stage. They will also serve as an experimental testbed to refine techno-economic models and scale-up biological research into this species. Plans are already in place to install eight more photobioreactors at the NMRC and develop a pilot-scale production plant for *Asparagopsis*, as well as a permanent footprint for CH4’s science activities.

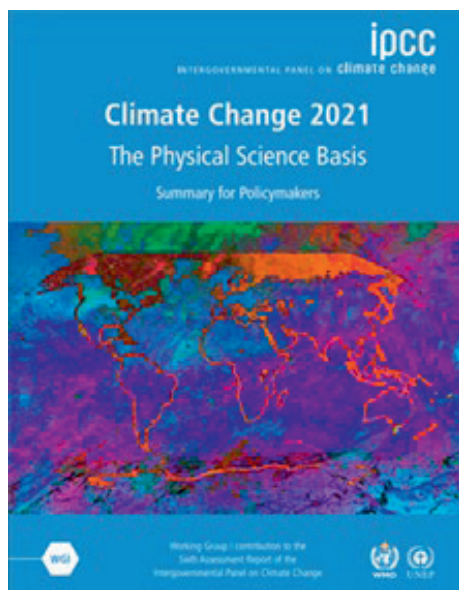
Te Piko o te Māhuri Strategy Released

Since Te Kūwaha was formed in 2001, NIWA has provided a variety of ad hoc opportunities to nurture and grow new Māori research talent, within the organisation, and for the benefit of the wider science sector. Te Piko o te Māhuri Tērā Te Tipu o Te Rākau (*The way in which the young shoot is nurtured (bent), determines how the tree will grow*) celebrates NIWA’s commitment to building Māori research capability and capacity by structuring several pre-existing opportunities/initiatives into a formalised capability development programme to support the growth of Māori research talent. Te Piko o te Māhuri recognises that NIWA may come across new talented Māori researchers at different stages of their career, and that each individual’s growth needs will vary. It responds to these individual needs by providing a range of mechanisms for growth, and supports Māori students who are engaged in science at a tertiary level to advance towards fulltime employment as researchers. The four main objectives of this strategy are to: (1) provide pathways and opportunities for new Māori research talent and support them to reach their full potential; (2) build Māori research capability and capacity across the science system, in particular, the Marine, Freshwater and Climate sciences; (3) encourage Māori science graduates to consider Māori Environmental Research as a career pathway; and, (4) provide additional capacity for Te Kūwaha/NIWA to respond to Māori research priorities and aspirations.



Visualisation of NIWA’s Te Piko o te Māhuri strategy that aims to strengthen Māori research capacity and capability.

Our contribution to the landmark IPCC report



The sixth report of the *Intergovernmental Panel on Climate Change (IPCC)* includes some sobering reading about the state of the climate, trends in greenhouse gas (GHG) concentrations and climate and ocean changes, and the likelihood of exceeding 1.5°C and 2.0°C of warming, based on current rates of emissions.

The [IPCC 6th Assessment Report \(AR6\) by Working Group 1](#) was released in August. NIWA Principal Scientist Dr Olaf Morgenstern was a lead author of chapter 3 'Human influence on the climate system'. It was a role that involved many, many hours of writing, review, responding to comments, editing, and late-night meetings.

Reports from the AR6 Working Group 2 (impacts and adaptation, including a chapter on Australasia) and Working Group 3 (mitigation of GHG emissions) will be published in February and March 2022, respectively. The full AR6 synthesis report is due for publication in September 2022.

Solomon Islands malaria forecasting system now operational

NIWA has upgraded the Solomon Islands malaria forecasting system (MalaClim) from an existing spreadsheet application to a web service running through NIWA's [Climate Data for the Environment Services application Client \(CliDEsc\)](#). The system uses local rainfall observations and seasonal forecasts from the ACCESS-S model. The python code for the new application was developed by NIWA through Ministry of Foreign Affairs and Trade funding under the Australian Climate and Oceans Support Program in the Pacific. The forecasts are based on rainfall impacts on low-lying marshland mosquito breeding areas around Honiara. The model uses rainfall observations and outlooks from September to December to predict variation in malaria case numbers for the following January to June period. The forecast information is provided to the Solomon Islands Ministry of Health to help mobilise resources and assist their programme of stamping out malaria in the current decade.

Team effort provides critical advice during West Coast flooding in July

We had not long signed a contract to develop a dedicated flood forecasting system for West Coast Regional Council (WCRC) when a red alert for heavy rain was issued for the Buller and Westland regions in late July 2021. There were concerns that flooding could coincide with high tides and storm surge at the coast.

Our project with WCRC involves using our [flow forecasting system](#) and updating the flood flow model for Buller, coupled with developing pre-computed inundation scenarios. While the work had only just begun when the rainfall alert came, existing relationships meant that WCRC and emergency responders looked immediately to us for advice, and we were able to generate detailed flood forecasts based on absolute flow values, while also using the national-scale flow forecast model for context.

During the event, two of the three water-level sensors near Westport were washed out. The remaining gauge was partially broken, but still sending information, so at the council's request we increased data transmission from hourly to every 15 mins. Alongside this real-time and forecast river flow information, we provided sea-level and wave forecasts to the council. These all contributed to the council's decisions to evacuate people and to delay letting them return home while the river was still rising the next day.

Commenting on the value of our modelling and advice, Rose Beagley, Hydrology Data Analyst at WCRC said: “I hope the NIWA staff involved before, during and after the flood are receiving all the positive feedback they deserve. You were all invaluable! And in general – our team all feel very lucky to be able to work alongside NIWA.”



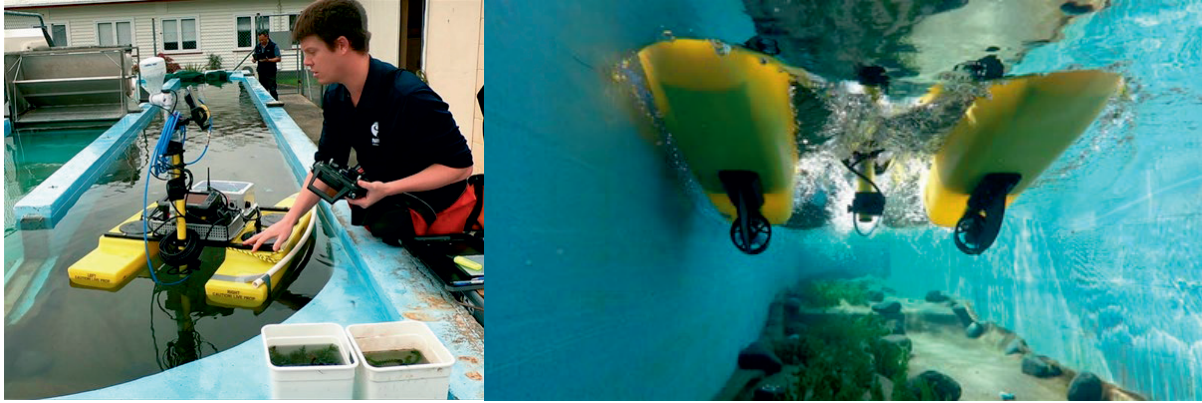
Model of flood inundation in Westport that accurately replicated the actual July flood event of the Buller River.

New weapon in the fight against invasive aquatic weeds

A combination of artificial intelligence and scientific ingenuity looks set to be the next step forward in protecting our lakes and rivers from invasive aquatic weeds. These weeds can degrade water quality, exacerbate silting and flooding, reduce the number of native animals and plants and play havoc with irrigation water delivery and hydroelectric power schemes.

Weed management and detection costs millions of dollars annually. NIWA has developed technology, however, that will enable agencies to survey far larger areas more efficiently than is currently possible, and potentially lead to much faster responses to new weed incursions. This significant advance is a portable invasive species detector module that can be strapped to survey boats. The prototype is housed in a small waterproof case with an underwater video camera attached. Inside is a computer containing an artificial intelligence-based detector that has been trained to identify targeted invasive weed species and log their locations in real time.

A deep learning neural network (an AI function) has been used to train a computer model to recognise two of our worst invasive weeds (lagarosiphon and hornwort) and record their GPS locations. These data can then be exported to a mapping programme to enable control or eradication strategies to be implemented. The technology is currently being tested in a flume facility in Hamilton planted out with three different submerged plant species. Most invasive species surveillance work is carried out by specialist divers, but it is hoped that this new technology has the potential to shift diver expertise from detection to control.



Flume tank testing of the new weed detection technology.

Kaharoa voyage successfully completed

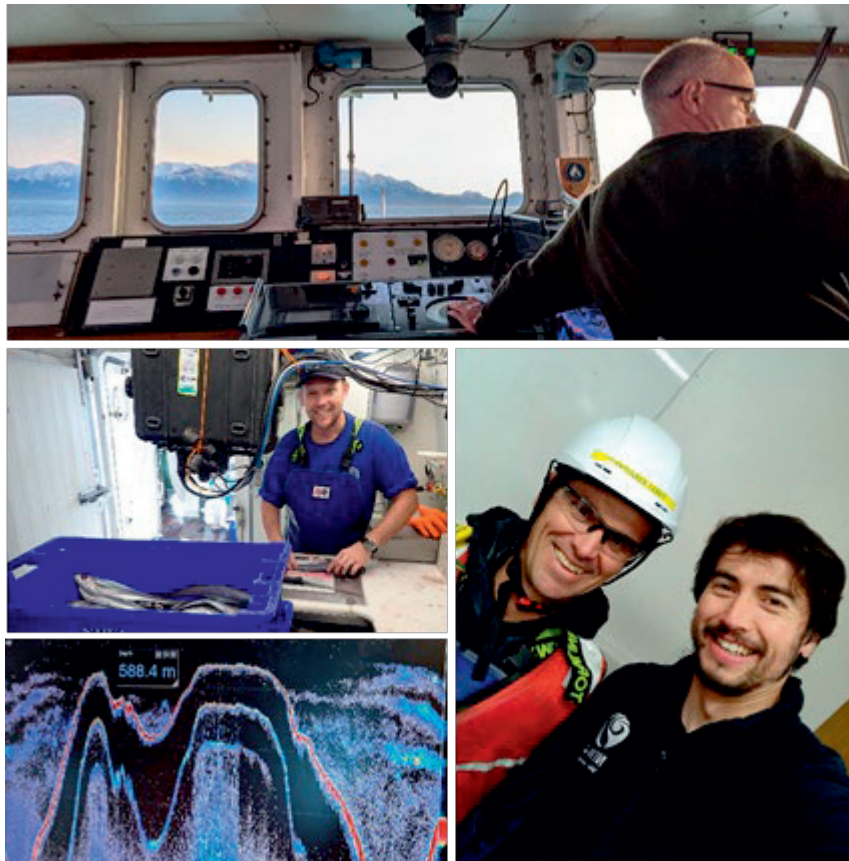
NIWA was contracted to Fisheries NZ to undertake an acoustic survey of spawning hoki in Cook Strait and off the northern east coast South Island (ECSI) from 15 July to 28 August. The survey strategy was for the vessel and science staff to come and go from Wellington, being at sea only when the weather was good (less than 25 knots of wind and 2m swell), as required for acoustic data collection.

When the COVID lockdown was announced, *Kaharoa* had completed 5 of 6 planned survey ‘snapshots’ of the Cook Strait spawning grounds and one of two planned visits to the ECSI. With good weather forecast for the weekend of 21–22 August, we worked with our staff and Fisheries NZ to ensure that we could complete the surveys, while meeting our COVID management procedures.

When we went into Alert Level 4, *Kaharoa* was berthed in Wellington, and the crew were able to form their own ‘bubble’. Voyage Leader Pablo Escobar-Flores was due to join the crew bubble for the final surveys, but after COVID cases were detected in Wellington, and places of interest had yet to be announced, we decided it was safer to keep the *Kaharoa* bubble intact. Pablo was able to provide survey instructions to the crew from the safety of the wharf, *Kaharoa* left Wellington on the evening of 20 August, and the crew successfully completed the acoustic survey transects, thereby meeting our project objectives.

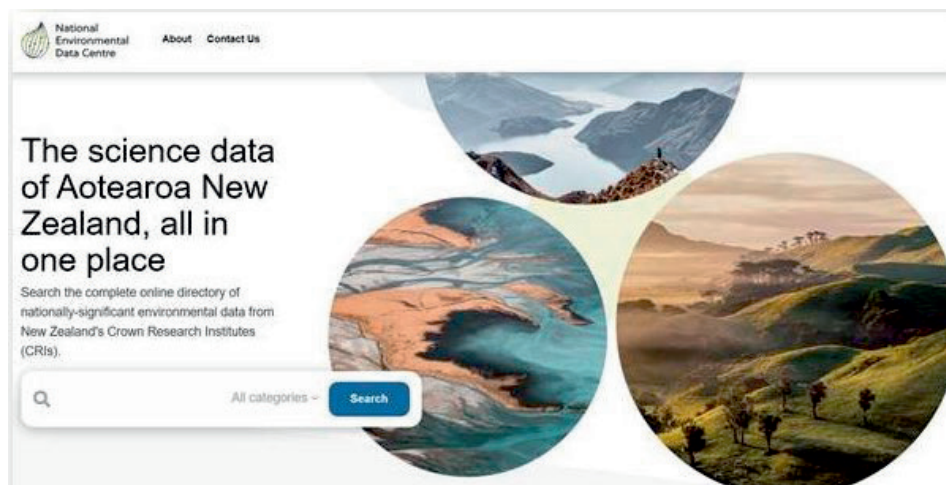
This was a great result and testament to the skill and experience of the vessel master and crew of the *Kaharoa*. It also demonstrated the commitment and willingness of our staff, both shoreside and on the vessel, to ensure we continued to deliver the science the nation needs. The survey results will provide input into the stock assessment that Fisheries NZ will use to set catch limits for the valuable commercial hoki fishery of the Cook Strait/ECSI region.

View of the Kaikoura mountains from the Kaharoa bridge, with Master Lindsay Copland; Jeremy Yeoman measuring hoki; acoustic image showing hoki in a canyon (bright blue patches on the right); and Sam Harrison (Mate) with Pablo.



A National Environmental Data Centre (NEDC) comes closer

The NEDC is a pan-CRI initiative to make environmental data held by all CRIs more visible and accessible – effectively creating a one-stop shop access point. A team of science and communication experts from NIWA and Manaaki Whenua, working with technology company Cucumber, have developed the first version of the NEDC website. The website allows simple addition and editing of resources and provides intuitive search capabilities. There is a test version at <https://niwa-cms.azurewebsites.net/>. Over the coming year we will be working with the other CRIs to integrate their content into the website. This initiative is viewed as a major step forward in providing visibility to the breadth of environmental data held by CRIs and how to access it. It provides CRIs and other stakeholders with the opportunity to combine different data sets in ways that until now has been difficult to achieve. This initiative also provides a potential platform for non-CRI organisations to showcase the environmental data they hold.



Minimising COVID transmission in schools by improved ventilation

Classroom air and Covid-19
How ventilation helps

In a room, everyone's breath rapidly spreads out to fill the space. If you're talking, singing or active you exhale more. If someone is infected with COVID19, virus particles can circulate through the air across the whole room.

In a typical classroom every breath taken contains around 3% of air that others in the room have exhaled.

Build-up of contaminated air is reduced by ventilation. This just means removing the stale air inside the room and replacing it with clean air.

One of the most effective ways to do this is simply to open doors and windows to create air flow across the classroom – this will move air from inside out and replace it with fresh air from outside.

If a classroom doesn't have opening windows, it will probably have a mechanical ventilation system instead. However this isn't necessary for classrooms where the windows can be opened.

NIWA
Tāhoro Nukurangi

With the return of years 11 to 13 to school in Auckland, the Ministries of Education (MoE) and Health (MoH) were deluged with questions about the safety of such a move from both the press and parents. The *NZ Indoor Air Quality Research Centre*, of which NIWA is a founding member, approached the MoE to offer assistance on developing guidelines and research to manage ventilation in schools to minimise virus transmission. An initial meeting was held with the MoE and MoH on 19th October, followed by a flurry of press activity.

The MoE has now created a Technical Advisory Group to advise them, chaired by Prof Robyn Phipps from Victoria University of Wellington with NIWA's Guy Coulson and Ian Longley amongst the members. Events are moving quickly and divide into two parts, the immediate (three or four weeks) and a longer-term plan (months to years). The ministry will issue guidance on ventilation in schools shortly as we set up a longer-term research programme to investigate monitoring indoor air quality and use of air cleaners.

We have undertaken measurements in about 15 to 20 South Auckland schools using our in-house indoor air quality monitoring units and will analyse existing MoE data to get an idea of the scale of the problem. This will inform ministry decisions for next winter – i.e., buying sensors or cleaners. Longer term, the research will inform the design of schools to ensure they have good indoor air quality built in.

Barry Harris
Chairman

February 2022

John Morgan
Chief Executive

Statement of comprehensive income for the 6 months ended 31 December 2021

in thousands of New Zealand dollars	Note	6 Months to Dec 21 Unaudited	6 Months to Dec 20 Unaudited	12 Months to Jun 21 Audited
Revenues and other gains	1			
Revenue		76,776	86,040	176,886
Other gains		1	1	1
Total income		76,777	86,041	176,887
Operating expenses	2			
Employee benefits expense		(41,240)	(38,989)	(78,127)
Other expenses		(28,271)	(23,779)	(55,775)
		(69,511)	(62,768)	(133,902)
Profit/(loss) before interest, income tax, depreciation and amortisation		7,266	23,273	42,985
Depreciation		(9,627)	(9,758)	(19,813)
Amortisation		(387)	(309)	(682)
Profit/(loss) before interest and income tax		(2,748)	13,206	22,490
Interest income		212	311	502
Finance expense		(256)	(196)	(398)
Net interest and other financing costs		(44)	115	104
Profit/(loss) before income tax		(2,792)	13,321	22,594
Income tax credit/(expense)		782	(3,730)	(6,331)
Profit/(loss) for the period		(2,010)	9,591	16,263
Other comprehensive income				
Foreign currency translation differences for foreign operations		(23)	(13)	(4)
Total comprehensive income for the period		(2,033)	9,578	16,259
Profit/(loss) attributable to:				
Parent interest		(2,022)	9,570	16,214
Minority interest		12	21	49
Profit for the period		(2,010)	9,591	16,263
Total comprehensive income attributable to:				
Parent interest		(2,045)	9,557	16,210
Minority interest		12	21	49
Total comprehensive income for the period		(2,033)	9,578	16,259

The accompanying 'Notes to the financial statements' are an integral part of, and should be read in conjunction with, these financial statements.

Statement of changes in equity for the 6 months ended 31 December 2021

in thousands of New Zealand dollars	Share capital	Retained earnings	Minority interest	Foreign currency translation reserve	Total equity
Balance at 1 July 2020 (Audited)	24,799	106,913	284	(285)	131,711
Profit for the year	–	9,570	21	–	9,591
Translation of foreign operations	–	–	–	(13)	(13)
Total comprehensive income	–	9,570	21	(13)	9,578
Balance at 31 December 2020 (Unaudited)	24,799	116,483	305	(298)	141,289
Balance at 1 July 2020 (Audited)	24,799	106,913	284	(285)	131,711
Profit for the year	–	16,214	49	–	16,263
Translation of foreign operations	–	–	–	(4)	(4)
Total comprehensive income	–	16,214	49	(4)	16,259
Balance at 30 June 2021 (Audited)	24,799	123,127	333	(289)	147,970
Balance at 1 July 2021 (Audited)	24,799	123,127	333	(289)	147,970
Profit/(loss) for the year	–	(2,022)	12	–	(2,010)
Translation of foreign operations	–	–	–	(23)	(23)
Total comprehensive income	–	(2,022)	12	(23)	(2,033)
Balance at 31 December 2021 (Unaudited)	24,799	121,105	345	(312)	145,937

The accompanying 'Notes to the financial statements' are an integral part of, and should be read in conjunction with, these financial statements.

Share capital

The Group has issued and fully paid capital of 24,798,700 ordinary shares (2021: 24,798,700 ordinary shares). All shares carry the equal voting and distribution rights and have no par value.

Statement of financial position as at 31 December 2021

in thousands of New Zealand dollars	Note	As at Dec 21 Unaudited	As at Dec 20 Unaudited	As at Jun 21 Audited
Equity				
Share capital		24,799	24,799	24,799
Equity reserves		120,793	116,185	122,838
Shareholders' interest		145,592	140,984	147,637
Non-controlling interest		345	305	333
Total equity		145,937	141,289	147,970
Non-current liabilities				
Provision for employee entitlements		877	903	879
Lease liabilities		8,336	9,950	9,026
Deferred tax liability		–	2,824	2,352
Total non-current liabilities		9,213	13,677	12,257
Current liabilities				
Payables and accruals		11,006	9,256	12,879
Revenue in advance		35,612	32,635	29,155
Provision for employee entitlements		8,689	10,182	9,937
Tax payable		–	2,754	3,635
Lease liabilities		6,686	1,952	1,996
Forward exchange derivatives		–	46	–
Total current liabilities		61,993	56,825	57,599
Total equity and liabilities		217,143	211,791	217,826
Non-current assets				
Property, plant and equipment		117,614	110,566	113,072
Identifiable intangibles		1,459	1,318	1,837
Deferred tax asset		260	142	114
Right-of-use assets		12,947	9,543	8,819
Prepayments		51	66	51
Total non-current assets		132,331	121,635	123,893
Current assets				
Cash and cash equivalents		20,116	22,384	22,988
Other short-term investments		39,000	39,000	40,000
Forward exchange derivatives		–	–	8
Receivables		7,574	7,388	19,060
Prepayments		3,887	3,675	2,526
Assets held for sale		245	245	245
Uninvoiced receivables		11,063	14,787	6,614
Inventories		2,907	2,677	2,492
Total current assets		84,812	90,156	93,933
Total assets		217,143	211,791	217,826

The accompanying 'Notes to the financial statements' are an integral part of, and should be read in conjunction with, these financial statements.

Cash flow statement for the 6 months ended 31 December 2021

in thousands of New Zealand dollars	Note	6 Months to Dec 21 Unaudited	6 Months to Dec 20 Unaudited	12 Months to Jun 21 Audited
Cash flows from operating activities				
Cash was provided from:				
Receipts from customers		90,281	91,245	175,112
Dividends received		1	1	1
Interest received		212	311	502
Cash was disbursed to:				
Payments to employees and suppliers		(74,441)	(64,166)	(130,177)
Interest paid		(256)	(196)	(398)
Taxation paid		(5,351)	(3,897)	(6,061)
Net cash inflow from operating activities	3	10,446	23,298	38,979
Cash flows from investing activities				
Cash was provided from:				
Sale of property, plant and equipment		–	25	26
Term deposits maturing		9,000	11,000	22,000
Cash was applied to:				
Purchase of property, plant and equipment		(13,311)	(10,250)	(22,480)
Purchase of intangible assets		(9)	(51)	(943)
Investments in other term deposits		(8,000)	(25,000)	(37,000)
Net cash outflow in investing activities		(12,320)	(24,276)	(38,397)
Cash flows from financing activities				
Cash was applied to:				
Payments for lease principal		(987)	(795)	(1,769)
Net cash outflow from financing activities		(987)	(795)	(1,769)
Net increase/(decrease) in cash and cash equivalents		(2,861)	(1,773)	(1,187)
Effects of exchange rate changes on the balance of cash held in foreign currency		(11)	(16)	2
Opening balance of cash and cash equivalents		22,988	24,173	24,173
Closing cash and cash equivalents balance		20,116	22,384	22,988
Made up of:				
Cash		3,491	5,257	1,669
Short-term deposits		16,625	17,127	21,319
Closing cash and cash equivalents balance		20,116	22,384	22,988

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Preparation disclosures

Reporting Entity

National Institute of Water & Atmospheric Research Limited ('NIWA' or 'the Company') and its subsidiaries form the consolidated Group ('the NIWA Group' or 'the Group'). NIWA is a profit-orientated company registered in New Zealand under the Companies Act 1993.

The financial statements for the NIWA Group are presented in accordance with the requirements of the Crown Research Institutes Act 1992, the Crown Entities Act 2004, the Public Finance Act 1989, the Companies Act 1993, and the Financial Reporting Act 2013.

Nature of activities

The NIWA Group conducts research and commercial science in water and atmospheric sciences in New Zealand and internationally.

Basis of preparation

The measurement basis adopted in the preparation of these financial statements is historical cost, except for financial instruments as identified in specific accounting policies. Cost is based on the fair value of consideration given in exchange for assets.

The presentation currency of the Group and functional currency used in the preparation of these financial statements is New Zealand Dollars.

Accounting policies are selected and applied in a manner that ensures that the resulting financial information meets the concepts of relevance and reliability, ensuring that the substance of the underlying transaction or event is reported.

The Group's accounting policies have been consistently applied in preparing the financial statements for the six months ended 31 December 2021; and the comparative information for the six months ended 31 December 2020 and the year ended 30 June 2021.

Statement of compliance

The financial statements have been prepared in accordance with New Zealand generally accepted accounting practice (NZ GAAP). They comply with the New Zealand Equivalents to International Financial Reporting Standards (NZ IFRS) and other applicable financial reporting standards appropriate for profit-oriented entities.

The financial statements comply with International Financial Reporting Standards (IFRS).

These interim financial statements have been prepared in accordance with the requirements of NZ IAS 34 *Interim Financial Reporting*. They should be read in conjunction with the 2021 annual report.

Accounting judgements and major sources of uncertainty

In the application of the accounting policies, the Group makes judgements, estimates and assumptions about the carrying amounts of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised and in any future periods affected.

Comparatives

The financial statements for the six months ended 31 December 2021 and for the comparative six-month period to 31 December 2020 are unaudited. The comparative figures for the year ended 30 June 2021 are audited.

Notes to the financial statements for the 6 months ended 31 December 2021

1. Revenues and other gains

in thousands of New Zealand dollars	6 Months to Dec 21 Unaudited	6 Months to Dec 20 Unaudited	12 Months to Jun 21 Audited
Research			
Strategic Funding	22,188	23,632	50,552
Rendering of services	20,266	22,307	50,289
COVID-19 Response and Recovery Funding	–	8,270	8,270
Commercial Science			
Rendering of services	31,608	28,954	61,862
Sale of goods	2,714	2,877	5,913
Dividends	1	1	1
Total operating revenue	76,777	86,041	176,887

2. Operating expenses

Employee benefits

in thousands of New Zealand dollars	6 Months to Dec 21 Unaudited	6 Months to Dec 20 Unaudited	12 Months to Jun 21 Audited
Defined contribution plans	1,466	1,623	2,846
Defined contribution benefits	192	–	400
Termination benefits	191	209	124
Other employee benefits	39,391	37,157	74,757
Employee benefit expense	41,240	38,989	78,127

Other expenses

in thousands of New Zealand dollars	6 Months to Dec 21 Unaudited	6 Months to Dec 20 Unaudited	12 Months to Jun 21 Audited
Materials and supplies	3,772	4,372	10,067
Research collaboration	9,120	6,410	17,236
Property occupancy costs	2,096	2,255	4,383
Information technology	5,834	3,313	9,389
Remuneration of directors	95	131	261
Foreign currency (gain)/loss	(26)	66	(2)
Movement within loss allowance provision	–	15	(457)
Change in the fair value of derivatives	(12)	38	(16)
Other expenses	7,314	7,088	14,742
	28,193	23,688	55,603

Auditor's remuneration

in thousands of New Zealand dollars	6 Months to Dec 21 Unaudited	6 Months to Dec 20 Unaudited	12 Months to Jun 21 Audited
Auditor's remuneration comprises:			
Audit of the financial statements (Group)	65	80	146
Audit of the financial statements (Subsidiary)	13	11	26
Total auditor's remuneration	78	91	172

3. Reconciliation of the profit for the period to net cash inflow from operating activities

in thousands of New Zealand dollars	6 Months to Dec 21 Unaudited	6 Months to Dec 20 Unaudited	12 Months to Jun 21 Audited
Profit/(loss) for the period	(2,010)	9,591	16,263
Add/(less) items classified as investing activities			
Net loss/(gain) on disposal of property, plant and equipment	–	(18)	126
	–	(18)	126
Add/(less) non-cash items			
Depreciation and impairment	9,627	9,758	19,813
Amortisation of identifiable intangibles	387	309	682
Net foreign currency (gain)/loss	(11)	3	(6)
Increase/(decrease) in deferred tax liability	(2,498)	1	(443)
	7,505	10,071	20,046
Add/(less) movements in working capital items			
Increase/(decrease) in payables and accruals and revenue in advance	4,584	7,465	7,950
Increase/(decrease) in employee entitlements	(1,247)	660	388
(Increase)/decrease in receivables and prepayments	10,125	3,714	(6,794)
(Increase)/decrease in inventory and un invoiced receivables	(4,864)	(8,055)	303
(Increase)/decrease in taxation payable and receivable	(3,635)	(168)	713
(Increase)/decrease in forward exchange derivatives	(12)	38	(16)
	4,951	3,654	2,544
Net cash flows from operating activities	10,446	23,298	38,979

4. Related party transactions

The Government of New Zealand (the Crown) is the ultimate shareholder of the NIWA Group. No transactions with other New Zealand Government-owned entities are considered as related party transactions in terms of NZ IAS 24. No related party debts have been written off or forgiven during the year. Any business the NIWA Group has transacted in which a director or an employee has an interest has been carried out on a commercial basis. Any potential conflict is recorded in the minutes of Board meetings for directors and a separate interests register for employees. The interests register containing all relevant interests is updated on a regular and timely basis.

5. Key management personnel compensation

in thousands of New Zealand dollars	6 Months to Dec 21 Unaudited	6 Months to Dec 20 Unaudited	12 Months to Jun 21 Audited
Short-term benefits	1,837	1,970	3,655

The table above includes remuneration of the Chief Executive Officer, Executive Team and the Board of Directors

Chief Executive's remuneration

The Chief Executive's remuneration package that will apply for 2022, together with the comparative information for the prior year, is as follows:

in New Zealand dollars	6 Months to Dec 21 Unaudited	6 Months to Dec 20 Unaudited	12 Months to Jun 21 Audited
Base salary ¹	352,160	349,674	659,064
Benefits ²	30,663	30,486	59,606
Total Remuneration	382,823	380,160	718,670

Note 1: The Chief Executive's base salary for 2022 is \$658,711 which is unchanged from 2021. Actual salary paid includes holiday pay paid consistent with New Zealand legislation.

Note 2: Benefits include KiwiSaver, insurance and vehicle fuel expenses.

The Chief Executive is a member of KiwiSaver. As a member of this scheme, all Group staff, including the Chief Executive, are eligible to contribute and receive a matching company contribution up to a maximum of 5% of gross taxable earnings. In the period to date, the Group's contribution was \$17,735 (2021: \$17,737).

Executive Team remuneration

In addition to the Chief Executive, NIWA's Executive Team consists of eight members. The remuneration package for all Executive Team members combined (excluding the Chief Executive) that will apply for 2022, together with the comparative information for the prior year, is as follows:

in New Zealand dollars	6 Months to Dec 21 Unaudited	6 Months to Dec 20 Unaudited	12 Months to Jun 21 Audited
Base salary ¹	1,261,970	1,353,520	2,478,652
Benefits ²	97,066	106,011	197,114
Total Remuneration	1,359,036	1,459,531	2,675,766

Note 1: The Executive Team's base salaries for 2022 total \$2,348,790 (2021: \$2,414,970). Actual salaries paid include holiday pay paid consistent with New Zealand legislation.

Note 2: Benefits include employer contributions to superannuation schemes (KiwiSaver or legacy government superannuation schemes, as applicable), insurance and wellness allowances.

6. Capital commitments

in thousands of New Zealand dollars	6 Months to Dec 21 Unaudited	6 Months to Dec 20 Unaudited	12 Months to Jun 21 Audited
Commitments for future capital expenditure: Contracted, but not provided for	38,912	2,980	34,357

7. Subsequent events

There are no material events occurring subsequent to 31 December 2021 which require adjustment or disclosure in the financial statements.

National Institute of Water & Atmospheric Research Ltd

Directory

BOARD OF DIRECTORS

Barry Harris (Chairman)
Nicholas Main (Deputy Chairman)
Dr Tracey Batten
Mary-Anne Macleod

EXECUTIVE TEAM

John Morgan, *Chief Executive*
Dr Rob Murdoch, *Deputy Chief Executive and General Manager, Science*
Geoff Baird, *General Manager, Communications & Marketing*
Patrick Baker, *Chief Financial Officer and Company Secretary*
Dr Mary-Anne Dehar, *General Manager, People & Capability*
Warrick Johnston, *General Manager, Technology & Innovation*
Dr Helen Neil, *General Manager, Operations*
Marino Tahi, *General Manager, Māori & Pacific Partnerships*
Dr Alex Thompson, *General Manager, Research Strategy* (from 1 July 2021)

Auditors

Troy Florence with the assistance of PricewaterhouseCoopers
on behalf of the Auditor-General

Solicitors

Atkins Holm Majurey
Meredith Connell

Bankers

ANZ Bank of New Zealand Ltd
ASB Bank Ltd
Westpac New Zealand Ltd

Insurance Broker

Marsh Ltd

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linkedin.com/company/niwa
Instagram.com/niwa_science



NIWA

Taihoro Nukurangi

Climate, Freshwater & Ocean Science