



# The Bulletin Kaikōura earthquake update

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## SEAWALL FOUNDATIONS POURED

Our team working at Site 7 just north of Ōhau Point are near finishing the road realignment and geometry for State Highway 1.

The November 2016 earthquake caused a massive slip at Ōhau Point blocking road access completely. In April 2017, work on the seawalls north of Kaikōura began. Some of the crew working at site 7, found accommodation in Kaikōura and flew in to site via helicopter. Most commuted from as far north as Blenheim each day as housing in Clarence and Kaikōura, became fully booked.

Project engineer Tomislav Diklan says the difficulty in getting to the site made it hard, but it did not set the team back.

In fact, the team exceeded expectations and reached milestone after milestone. From preparations which enabled rail to open on time, to getting the seawall up to a safe height in order for the road to reopen on 15 December 2017, the teams on the ground have been successful.

The latest achievement happened on 7 March 2018, when the last footings for the remaining 35 metres of seawall were poured. 'Connecting this seawall has been the goal since the NCTIR project began, and this was a momentous occasion,' says project manager Clark Butcher.

Now the last seawall footings have been poured, the team is working on pouring the remaining footings for the retaining wall and lifting layers to get to road level. 'As we are going up, the team is also working on the capping blocks, shaping the edge of the seawall.

'You can start to envisage how State Highway 1 will look when we get to this point,' says Tomislav. 'I'm very proud of the work this team has done. We haven't really stopped to look back on all that we've achieved.

'We have been working hard to complete this, and when it is finished it will be amazing. At the moment we are still in there fighting to meet our deadlines and deliver on the design.'



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This bulletin provides the latest information about the rebuild of road and rail networks damaged by the Kaikōura earthquake in November 2016. The bulletin is produced by the North Canterbury Transport Infrastructure Recovery (NCTIR) – an alliance representing the NZ Transport Agency and KiwiRail, on behalf of Government.





## RECONNECTING COMMUNITIES

The 14 November 2016 earthquake affected and disconnected three districts on the east coast of the South Island – Marlborough, Kaikōura and Hurunui. We talked to each of the districts' mayors about what the reopening of State Highway 1 (SH1) on 15 December 2017 has meant for their residents and economies.



### **Mayor John Leggett, Marlborough District Council**

'The re-opening of State Highway 1 is already having a positive effect on Marlborough's east coast communities and our tourism sector. Marlborough lost many of its regular Canterbury visitors; those were hard months after the earthquake and, unsurprisingly, our domestic visitor numbers were down. But this summer, with State Highway 1 open again, our southern neighbours have been returning.

'At a personal level, it has meant a great deal to South Island families, who were able to reconnect easily at Christmas time rather than face the arduous inland journey. It has been great to welcome back all our visitors who spend time in the Sounds sailing, fishing and relaxing, or sampling food

and wine at our vineyards and wineries.

'The road itself is now a dramatic drawcard; people are fascinated to see the incredible engineering work, as well as the amazing changes the earthquake has made to our coastline.

'The prospect of a coastal cycle trail holds real promise for regenerating our east coast communities' fortunes and creating long term opportunity for Marlborough and Kaikōura.

'On behalf of everyone in Marlborough, thank you NCTIR for the massive effort you made to re-open the road – you literally moved mountains.'



### **Mayor Winston Gray, Kaikōura District Council**

'What a turn around when the road opened! It has been great to see the numbers of visitors coming through Kaikōura and feel the buzz coming back to town.

'That said, weather events like Cyclone Gita show us how vulnerable State Highway 1 still is and how important it is that the highway's resilience is improved as part of the rebuild work.

'The highway is part of the lifeblood of our district, connecting families and communities as well as businesses and customers. It is critical to all our residents that the rebuild of State Highway 1 is done with speed but also with thought, sensitivity and foresight. We need a road that is a joy

to travel on, that enables access to the ocean, that protects our natural environment and that stands up to the tests of weather and natural hazards. We look forward to continuing to work with the NCTIR team to make this vision a reality.

'Now is also the time to take a serious look at the work Council has left to do. We're developing a three year plan which will build on our recovery plan - Reimagine Kaikōura – to make sure Council is working towards what the community wants and needs.

The plan will be out for consultation in May and we look forward to working with our community and partners like NCTIR to make sure our future is just as impressive as the achievements so far.'



### Winton Dalley, Mayor Hurunui District Council

'For the Hurunui District, State Highway 1 is much more than a road - it is a critical artery which connects our communities with each other and to the wider world. It provides a crucial transport link that is important to our districts and the national economy.

'For individual business communities such as Cheviot, and all of our State Highway 1 businesses, which were savaged by the instant loss of custom when the earthquake destroyed the road, the re-opening has been particularly meaningful and welcome as it has substantially restored the traffic flow which was their life blood.

'Many of them derive their major custom from serving tourists and the travelling public, so these small towns and businesses benefit immensely from being on the State Highway 1 route.

'Another important result of State Highway 1 re-opening is the return to more normal traffic patterns on the stressed State Highway 7 route and across our local road network, enabling a redistribution of heavy traffic and travellers.

'While our community is grateful for the initial return of the State Highway 1 route, we are looking forward to having the road restored to its pre-earthquake reliability.'



## EASTER HOLIDAY TRAVELS - PLEASE TAKE TIME TO PLAN YOUR JOURNEY

Easter long weekend is the busiest time on our roads.

While many sites will be pulled back or packed up for the Easter break to help with holiday traffic flow, some sites will still be one-lane and stop/go traffic in place. There will be delays, so remember to build in plenty of time along the route. Please drive to the conditions and follow on site traffic signage.

Check travel times and SH1 status through [www.nzta.govt.nz/p2c](http://www.nzta.govt.nz/p2c) or phone **0800 4 HIGHWAYS** (0800 44 44 49).

### Reminders for travelling between Christchurch and Picton:

- There are two routes to choose from: SH1 via Kaikōura (allow up to 5.5 hours) or the alternate route via Lewis Pass (allow up to 6.5 hours).
- **Two sections of SH1 are closed overnight due to ongoing repair work: 7.30pm - 7.30am between Mangamaunu and Clarence in the north and SH1/Leader Road to Peketa in the south.** We cannot allow access through these checkpoints any earlier than 7.30am as from 6.30am to 7.30am we are undertaking geotechnical inspections.
- Inland Road (Route 70) and alternate route via Lewis Pass is open 24 hours a day

If you have any questions or wish to raise any safety issues with us, we would really like to hear from you as part of our commitment to keeping everyone safe in the community. Please contact us on **0800 NCTIREQ** (0800 628 4737) or email [info@nctir.com](mailto:info@nctir.com).

Wherever you are travelling in New Zealand, plan ahead and check out where the hotspots are at [www.nzta.govt.nz/hotspots](http://www.nzta.govt.nz/hotspots)

## DAYLIGHT SAVINGS ENDS SOON

Remember to put your clocks back one hour on Sunday 1 April for the end of daylight savings.



# OUR ECOLOGICAL PRINCIPLES AT WORK

Taking care of the environment during the design and construction of State Highway 1 (SH1) and the Main North Line railway is important — while infrastructure can be replaced, the natural setting cannot be. The Kaikōura coast is internationally renowned for its landscapes, ecosystems and tourism experiences. The ocean is biologically-rich, there are many rivers and streams, and the native forest cloaking the hillsides is home to various native flora and fauna.

These are the ecological principles that guide our project:

- 1 Avoid as far as practicable, or minimise permanent habitat loss (including coastal, terrestrial and freshwater habitats).
- 2 Avoid as far as practicable, or minimise loss of rare ecosystem types and habitats for Threatened, At Risk, taonga and marine mammal species.
- 3 Avoid as far as practicable, or minimise habitat fragmentation/barriers (including coastal, terrestrial and freshwater habitats).
- 4 Avoid as far as practicable, or minimise impacts on habitat connectivity (including coastal, terrestrial and freshwater habitats).
- 5 Avoid as far as practicable, or minimise impacts on Threatened, At Risk, taonga and marine mammal species.
- 6 Create safe habitats, especially for Threatened, At Risk, taonga and marine mammal species. For example, where possible build in habitat creation/improvement opportunities for species such as seals, penguins and significant plants.
- 7 Avoid as far as practicable, or minimise effects on water quality and sediment – including kai moana and mauri.
- 8 Avoid as far as practicable, or minimise alteration of natural hydrology patterns to the extent practicable.
- 9 Avoid as far as practicable, or minimise the potential for the spread and/or establishment of pest plants or animals (including coastal, terrestrial and freshwater habitats).
- 10 Avoid as far as practicable, or minimise impacts on habitats that play an important role in the life cycle and ecology of native species. For example, seal breeding colonies, shag roosts/nesting sites, gull breeding colonies.



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## ROAD SAFETY FOR SEALS

NCTIR has worked closely with the Department of Conservation to manage impacts on seals during the coastal road and rail reinstatement works. Last year, the Seal Team moved seals out of harm's way more than 11,000 times. Now seawalls and temporary fences near the Ōhau Point NZ Fur Seal Sanctuary keep seals clear of the highway, railway and construction sites. 'Seal-proof' measures are being incorporated as designs are finalised to help keep seals off of the road and rail in the future.



Photo credit: Boffa Miskell

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## FISHING'S HARD WORK, BUT SOMEBODY'S GOT TO DO IT

Koaro, an *At Risk* species, was one of several types of native fish captured and then released by hand at Hewson's Stream, near Cheviot, where currents were chewing away at the concrete piers of a bridge. Rocks were being placed to act as a buffer, so part of the stream was 'de-fished' during the work. At least 20 species of native freshwater fish and freshwater crayfish (kōura/kēwai) can be found in the waterways within NCTIR's work areas. These include *Threatened* or *At Risk* species, and taonga species. Thousands are being moved while bridges and culverts are repaired.



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## EVERY RARE BIRD COUNTS

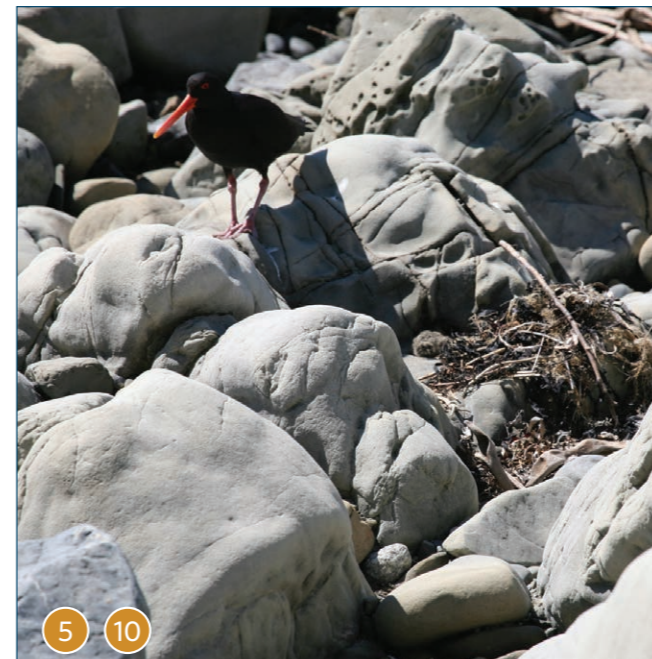
Having systems in place for situations which may arise is a key part of environmental management. It's known that *Threatened* Hutton's Shearwaters can be disorientated by and attracted to artificial lighting. When one landed on a SH1 construction site during night works, the team knew what to do. Traffic controllers carefully placed the bird in a cardboard box and kept it in a Portacom until the morning when the environmental team collected it and successfully released it at sea. Every one of these rare birds count - they are the only New Zealand seabird to breed in the mainland mountains, and they only breed in the Kaikōura district.



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## HAPPILY, THE EARTHQUAKE COULD NOT CHANGE THIS

These white-fronted terns, an *At Risk* species, have long nested at Sail Rock, a distinctive triangular pinnacle just north of Ōhau Stream. It was an important location for the terns before the earthquake, and that hasn't changed despite the heavy-duty construction taking place beside it. Spotted shags were nesting there too — close enough to the shore you can glimpse down-covered chicks. The opportunity to view the coast's wildlife has been preserved. Sail Rock's still a landmark whether you're travelling by car or train, and it'll be magical to see if you're on a bike.



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## CAN YOU SPOT THE OYSTERCATCHER CHICK?

It's there, though it's not glossy black like its parents. Sometimes bird nests are in work areas and need to be moved out of harm's way by the environmental team, which has a Department of Conservation permit to do so. A pair of variable oystercatchers, an *At Risk* species, laid an egg right next to a haul road, not far from Irongate Stream north of Kaikōura. The road needed to be removed before SH1 could open, so the nest was moved a short distance. As you can see — the chick's fluffy bottom is right in the middle of the photo — the egg did indeed hatch.



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## DID YOU KNOW THAT NATIVE FISH AREN'T THE GREATEST OF SWIMMERS?

Some species struggle in swift currents. A rocky stream bed can help them a lot, because they navigate through nooks and crannies, and pockets of quieter water between rocks.

Understanding how fish travel is essential to design during the transport rebuild, because many of New Zealand's freshwater fish need unimpeded passage between streams and rivers and the sea to complete their lifecycles.

Hundreds of bridges and culverts have been damaged in the earthquake, and it will take a good while to repair them all. In the meantime, the fish need to keep moving — or their numbers will drop, impoverishing ecosystems.

This photo of a new culvert being built at the mouth of Ōhau Stream helps explain how 'thinking like a fish' has been incorporated into design and construction. While the new culvert was being built, Ōhau Stream was temporarily diverted through a pipe and channel, which kept the stream safe from the construction project.

Our construction crew and environmental team worked hard to place rocks in the diversion channel to create the areas of quiet water that the migratory fish need to swim upstream. They also laid strands of mussel spat rope to help some fish species 'climb' uphill; fish use their fins to propel themselves along the rope. The fish really do this! Of course, the rocks would shift in the rising stream after rain, so the diversion channel needed to be monitored and fixed up now and then.

Last month Ōhau Stream was returned to its original course without a hitch. But fish-friendly design will be a lasting feature of the rebuild there. The floor of the new culvert has been covered with rocks, rather than being smooth concrete. It's a small helping hand for nature.

Respect for the environment is an important aspect of modern-day construction - work must be carried out in an environmentally-sound way and effects on the environment are monitored. The project has achieved 100% environmental compliance to date.



## OPEN FOR BUSINESS

Customers are flocking back to businesses along State Highway 1 (SH1), following extensive work to clear material brought down by ex-cyclone Gita.

With more than 300,000 cubic metres of material sprawling across the road and rail because of the major rain event, it was a case of 'deja-vu' for the owners of Fossil Point Café and Gallery, south of Cheviot.

'It was like turning off the tap,' says Kerry Henderson. He and his wife, Kim, had already struggled through 13 months of road closures, only for the road to close again because of the ex-cyclone.

'We are so thankful for our regular weekend crowd - despite the road shutting, they've kept us going,' he says.

Kim Henderson is also feeling positive. 'It can only get better. This is a long term investment and we're in it for the long haul,' she says.

As well as supplying food and drinks, the café also features a gallery showcasing Kim's artwork. The couple spent 18 months tidying up and fitting out their new business before officially opening March 2016. The earthquake later that year stopped all traffic to Fossil Point.

'We were busy and then overnight we didn't see one campervan, and if they did turn up they were lost,' says Kim.

SH1 is a lifeline for this café and others like it right along the route, from Blenheim to Christchurch. As the rebuild progressed Kaikōura visitors kept telling the couple about 'the amazing progress being made.' 'I turned my feelings into a creative outlet, designing cartoons reflecting how I felt. When the road opened we literally jumped for joy,' says Kim.

Her cartoons will feature in an upcoming art exhibition held in Hurunui. The upbeat couple have been so busy with customers they haven't had a chance to drive the reopened highway to check out progress.

'We plan to hire more staff and I want to focus on creating more mosaic art and running my gallery,' says Kim.



Kerry and Kim outside Fossil Point Café



One of Kim's cartoon



The first new seawall to be constructed around a landslide north of Kaikōura will be complete by the end of next month.

A series of small slips and a major landslide came down on top of the Irongate road and rail line during the earthquake. Crews spent month's clearing material, first building a temporary access track around the base of the landslide for vehicle access before demolishing the big slip.

Since last April, crews have been building a 550m long seawall on top of the seabed. Teams worked through the harsh winter with a tight four-hour window to pour concrete footings during low tide.

The seawall connects to the new 144m long Irongate Bridge, which is finished, sealed and line marked, complete with a shared access path along the coastal side of the bridge.

Crews are completing another section of the shared access path on the seaside of the seawall. A series of capping blocks are being placed on top and concrete will then be poured to create the new path. A pedestrian fence and a guard rail will complete the seawall, ready for cyclists, walkers and runners.

'A project such as this would generally take two years, to design and build a bridge and seawall in just one is absolutely fantastic,' says project manager Greg Burns.

Greg's road crews are now constructing the final road seal on top of the seawall, with the road down to one-lane here until the end of the month. Design is also underway for a permanent rock fall structure around the Site 2 landslide, protecting the road and rail line from any future movement.



## WHERE TO EXPECT DELAYS ALONG THE CORRIDOR

In the red on the map below are delay hotspots along State Highway 1. Please drive safely through these areas - some of which are single lane. The closure point for 7.30pm to 7.30am in the south will remain at Leader Road/State Highway 1 as repair work continues in the Hundalee Hills because of damage caused by ex-cyclone Gita.



**Thank you for your patience.**

For further updates on the condition of State Highway 1 both north and south of Kaikōura please visit here [www.nzta.govt.nz/p2c](http://www.nzta.govt.nz/p2c) or call 0800 44 44 49.

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