

# Making sense of the numbers

Summary of *Transitioning to alternative fishing methods off New Zealand's West Coast North Island, A response to the threat to Māui dolphin*. April 2017. [www.berl.co.nz](http://www.berl.co.nz)

Māui dolphin are a critically endangered species that is only found on the West Coast of the North Island of New Zealand. The Māui dolphin population is estimated at 63 individuals over one year of age. In addition to natural mortality, this population faces threats caused by human beings.

The risk of human-induced threats to Māui dolphin is high because they are found inshore and their habitat overlaps with human coastal activities. The scientific advice is that 95 percent of Māui dolphin mortality caused by humans can be attributed to set-netting (also known as gill-netting) and trawling. In an attempt to reduce the level of threat, some fishing areas have been closed and/or restricted through a range of specific fishing regulations. To date, these regulations have not been accompanied by measures to assist affected fishers with a transition to alternative fishing methods.

WWF-New Zealand advocates an extension to fishing restrictions to ensure that no set-netting or conventional trawling takes place between Maunganui Bluff and the Whanganui River mouth, including harbours, and out to the 100 metre depth contour. This is based on scientific advice regarding the range of Māui dolphin. WWF-New Zealand asked BERL to investigate the costs of transitioning away from commercial set-netting and trawling within this range, to inform discussion on how to ensure the survival of Māui dolphin.

## Factors impacting on transition costs

Estimating the cost of transitioning existing fishing operations away from commercial set-netting and trawling within this range is not straight forward. There are many uncertain factors, in particular the paucity of data as to the nature of existing operations. For example, fishing data is collated by management areas, which do not perfectly align with the north-south Māui dolphin range BERL was asked to consider. Fishing data is also not collated according to depth contours so a proxy, 12 nautical miles, was used.

The analysis is based on assessing a transition from set-netting and trawling to longlining – an existing fishing method known to pose no threat to these dolphins. It does not examine the potential for technological changes to enable set-netting or trawling to continue. The potential to fish in deeper water was also considered, but advice received indicated that it was not an option to include within this analysis.

The analysis that BERL was able to undertake must therefore be viewed in light of these constraints and should be seen as a contribution to the discussion. It is not the final word and WWF-New Zealand has made it clear that the organisation would welcome further work being done on how a transition could be achieved.

## Developing scenarios

Bearing in mind these limitations, BERL has collated data and information that is publicly available, and in conjunction with industry advice, has estimated the potential transition costs under a principal and alternative scenario. Our principal scenario assumes that boats unable to transition will leave the industry, while our alternative scenario assumes that boats unable to transition will be replaced with ones that can.

For both scenarios, a pessimistic scenario, which assumes revenue losses, boat refit costs, along with spending on a retraining package at the high end of the range, and an optimistic scenario which assumes these revenue losses, boat refits and retraining costs at the low end of the range, were developed.

While these scenarios and the consequent estimates are dependent on the assumptions adopted, this approach does provide a framework to assess the magnitude of the costs involved. Should more comprehensive data or



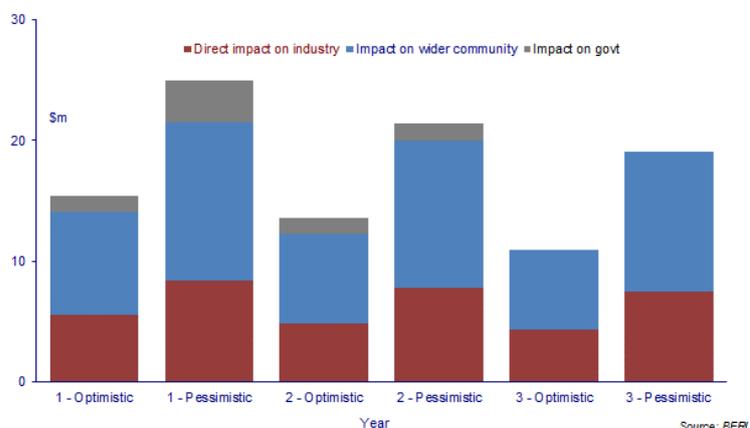
better information become available, as to where on the spectrum the outcome is more likely to lie, BERL would look to calculate more precise estimates.

### Principal scenario cost estimates

Assumption: boats unable to transition will leave the industry. BERL estimates the total net costs of the transition to longlining could range from \$40.1 million to \$65.6 million, over a three-year period.

The pessimistic principal scenario estimates a total transition cost of just over \$25 million in the first year of an assumed three-year transition period.

This cost would fall to just over \$19.1 million in the third year, as shown in the figure. The estimated cost in the optimistic principal scenario totals just under \$15.5 million in the first year, dropping to just under \$11 million in the third year. For this scenario the impact of the transition falls heavily on the fishing industry and the wider community across each of the three years.

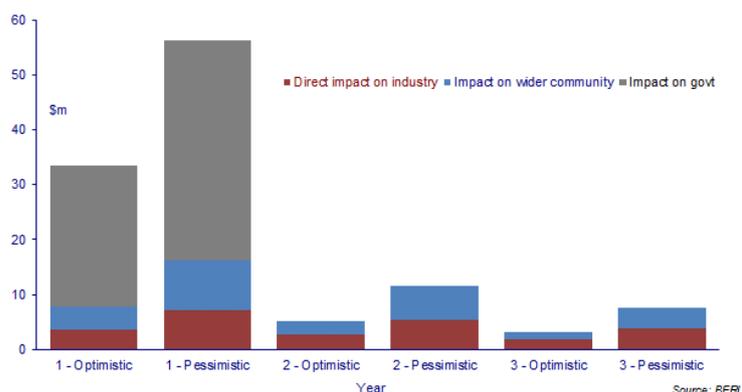


### Alternative scenario cost estimates

Assumption: boats unable to transition will be replaced with ones that can. BERL estimates the total net costs of the transition to longlining could range from \$41.8 million to \$75.3 million, over a three year period.

The pessimistic alternative scenario estimates a total transition cost of just under \$56.2 million in the first year of an assumed three-year transition period.

This cost would fall to just under \$7.6 million in the third year, as shown in the figure. The estimated cost in the optimistic alternative scenario totals just under \$33.5 million in the first year, dropping to just over \$3.1 million in the third year. For this scenario the impact of the transition falls heavily on Government across a single year.



### Mitigating these impacts

These total cost estimates include the ‘multiplier’ (or ‘ripple’) effects on sectors associated with, reliant on, and/or supplying the fishing industry. Consequently, mitigating the overall costs of transition could be addressed by focussing on the direct impact of the transition. Mitigating these direct impacts would in turn avoid the majority of the indirect ‘multiplier’ effects being experienced.

This mitigating effect can be seen in the principal and alternative scenarios. In the principal scenario, the direct impact of the transition falls heavily on the industry and the wider community across the three-year period. **In the alternative scenario, a substantial portion of the three-year impact on industry and the wider community has been replaced by a one-year impact on the Government of between \$25.6 million and \$39.9 million.**

