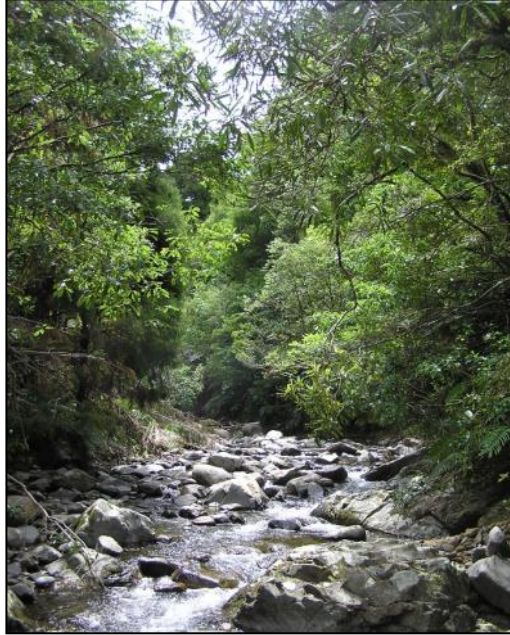


PF Olsen Ltd

Environmental Management



The New Zealand forest industry is based on renewable plantation forests. PF Olsen Ltd, a New Zealand owned and operated company, oversees forest operations on client's land.

Our ability to provide environmental services to both forest and non-forest industries is recognised as a key area of expertise.

PF Olsen staff are committed to the protection and management of natural and historic heritage.



PF Olsen takes its environmental performance seriously. However, many in our stakeholder communities have little idea of what steps we take to manage the environmental aspects of our business. This document provides a brief insight into what we do.

Key Statistics

PF Olsen Ltd, a New Zealand owned and operated company, oversees forest operations on client’s land involving:

4 million tonnes logs/year	183 km of roads built /year
7,273 ha/year harvested	545 landings built /year
6,287 ha/year planting	60% rolling and steep hills
Area managed 365,289 ha	144 contractors
Present in 14 Council Regions	134 New Zealand staff

What we monitor and why?

PF Olsen actively monitors many environmental aspects of its operations. Information collected in the field is retained in a comprehensive management system that currently produces 52 separate reports on various aspects of environmental management. The monitoring ranges from aspects of direct management of reserved areas through to operational performance as part of a continuous improvement process. All monitoring contributes towards our independent third-party - audited Forest Stewardship Council (FSC™) environmental certification.

Examples include:

Reserve ecological values	Harvesting/ roading audits
Consent compliance	Contractor performance
Threatened species	Restoration projects
Chemical usage	Recreational use
This information can be found on our website www.pfolsen.com	

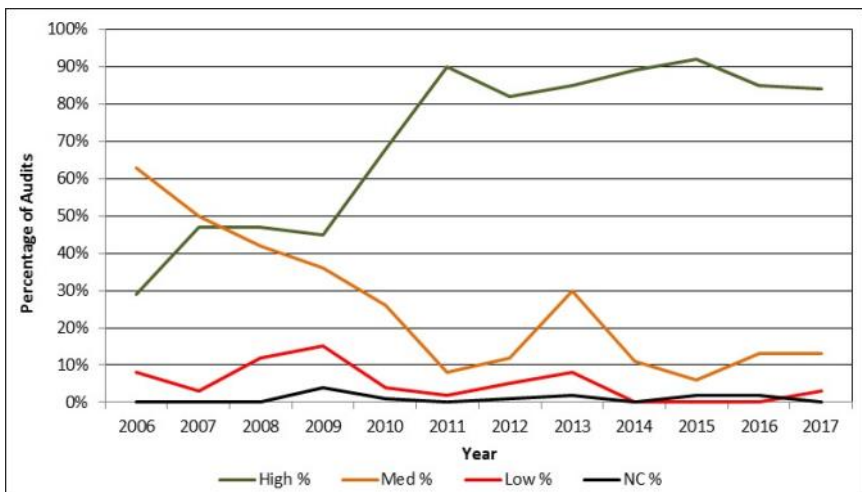


Statutory Compliance

PF Olsen currently holds 306 resource consents for 542 activities which results in between 30 and 70 council consent compliance inspections each year. The consent compliance graph (below), shows the results of the last twelve years of consent compliance inspections by Regulatory Authorities.

In the last 12 months 84% of consent compliance inspections have resulted in high compliance results and approximately 13% were medium compliance. Only 3% were low and we are meeting our target of zero non-compliant results.

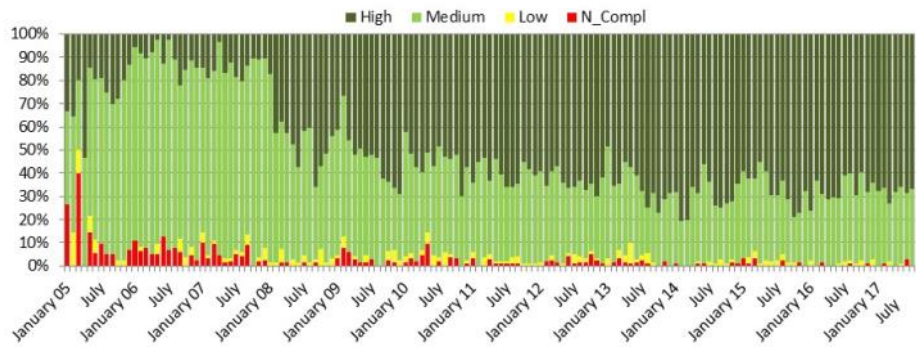
Consent Compliance Ranking Trends – 2006-2017



Environmental Performance

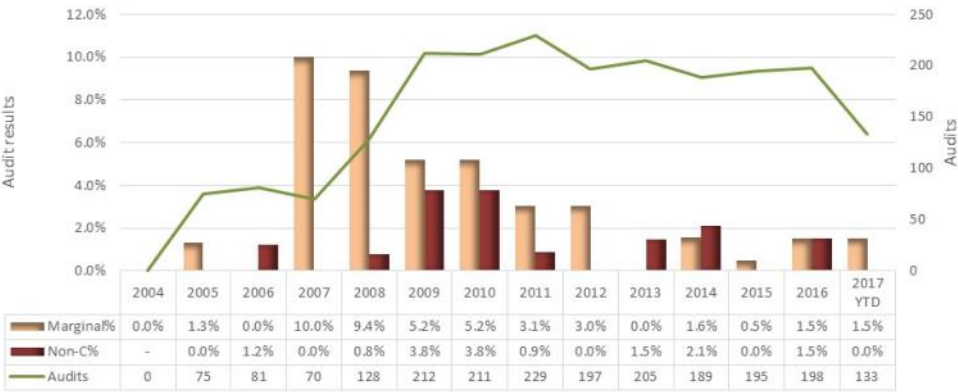
PF Olsen is engaged in a journey of continuous improvement. We believe that constant monitoring is the only way to achieve constant measured progress. The statistics derived from internal auditing are being applied in different ways to monitor success and encourage behaviours that deliver the results we all want. The graphs below show long-term trends.

Rolling harvesting audit results to June 2017:



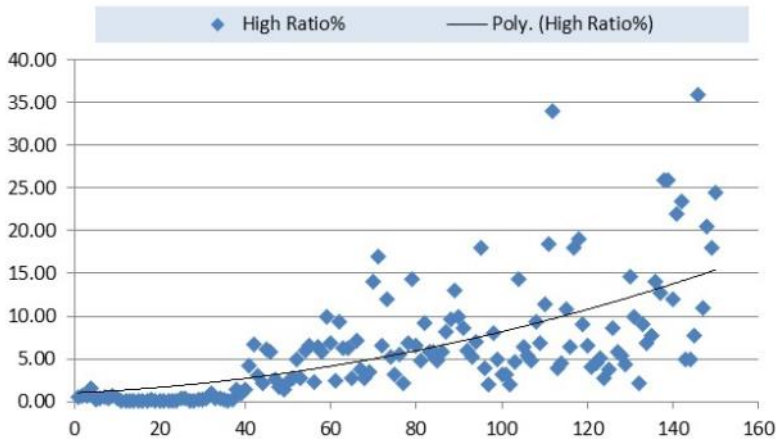
Long-run monthly performance trends for management reporting

Annual harvesting audit results to June 2017:



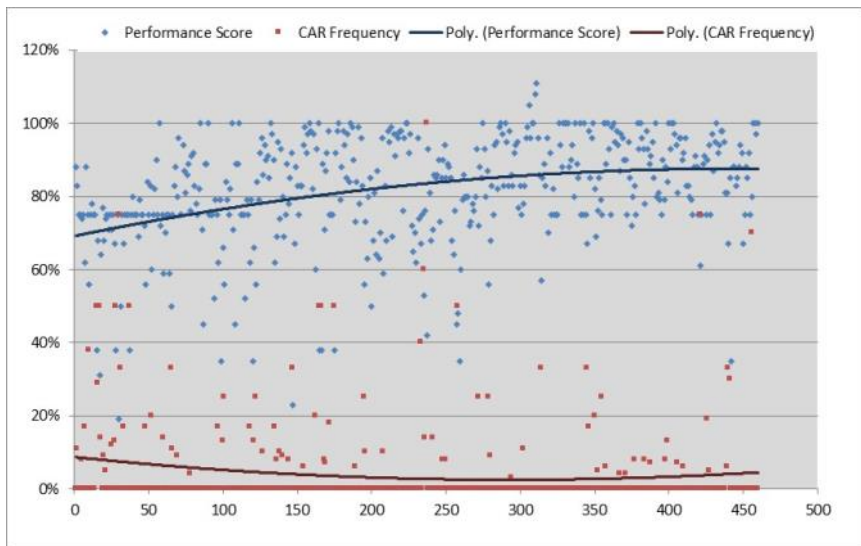
Ever-increasing company performance targets set from past performance

Ratio of high to medium audits – long-run average:



Promoting continued effort to meet the highest standard

Crew scores and corrective action frequencies:



Informs performance recognition or performance review

The graphs show positive trends over time. Although we are still seeing some 'non-compliant' results, their frequency has been greatly decreased.

As we face 'diminishing returns', new initiatives are being developed to maintain the momentum of continuous improvement.

Environmental Operations

Today's forest management operations, centred on the commercial production of plantation pine timber, still involve environmental management tasks ranging across a number of fields. Some examples are provided below.

Wetland Restoration Projects

In partnership with corporate and Maori landowners, forest owners, regional councils and the Waikato River Authority, three important wetland areas are being restored in local regional forests around the Central North Island.



Tūhoe Forest Wetland Restoration

Terrestrial Ecosystem Restoration

Within the 11, 186 ha of protected ecosystems there are some areas where vulnerable terrestrial ecosystems require added attention. They may be rare vegetation types or ecosystems or small enclaves where more threatened or locally rare species remain. Photopoints are often used as an effective and efficient means of monitoring long-term changes in native vegetation cover. They are especially useful in showing the impact of any management applied, such as wilding pine control shown in the photos below on a geothermal sinter terrace.

2008



2012



Reserve & Ecological Values

Within FSC™ certified forests in PF Olsen’s Group Scheme, almost 10,000 ha of indigenous ecosystems have been mapped and categorised. This enables us to prioritise the management and protection from damage during adjacent commercial forestry operations such as harvesting.

Protective function	Hectares
Terrestrial ecosystem	6,853
Non-specific	67
Riparian ecosystem	1,908
Rare species	140
Landscape/Amenity	15
Erosion control	418
Wetland ecosystem	516
Grant Total	9,917

Road construction and harvesting crews are becoming much more attuned to recognising the need to protect all such areas from damage in all forests.

Right: An example of great environmental performance. A well protected reserve edge after adjacent harvesting in difficult conditions.



Research Contributions

The forests PF Olsen manage on behalf of clients are often small and fragmented. Nevertheless such areas occasionally provide, at least in part, habitat for threatened species. PF Olsen has helped support North Island Kokako protection through sponsorship of the Kaharoa Kokako Trust, and along with other forestry companies, research into NZ falcon and bats in plantation forests. Other collaborative research aims are to minimise the use of chemical pesticides and develop more environmentally benign to agrichemicals.

Native Wildlife Protection

Bat Monitoring

Bats are New Zealand's only native land mammals and although predation by rats and other introduced species is their main threat, they can also be impacted by harvesting operations. PF Olsen has been conducting pre-harvest bat monitoring where we suspect bats may be present, using a 'bat box' detector. The box is set up at various locations in a forest and takes sound recordings which are triggered by the high frequency pulse the bats make. Recordings can then be analysed both visually and by listening to determine if bats are present nearby. The presence of bats has been confirmed at three of the forests that have been monitored so far.



Left: The New Zealand long-tailed bat is more common than the short-tailed bat

Kiwi Monitoring

In forests where there may be kiwi present we conduct kiwi listening surveys with the help of experts. If kiwi are heard in areas where harvesting is planned we consult with the experts and interested parties alike before deciding on how to proceed. There are usually several options which can be utilised. When kiwi are found any contractor crews in the area all receive a kiwi induction so they know how to identify kiwi sign and what they need to do should they see or disturb a bird. We have experienced great enthusiasm from employees and contractors about protecting our national bird.

