

Aquatic Pest Co-ordination Group

Annual reporting 2011 to 2013

Planning summary 2013/2014

Prepared for:

Bay of Plenty Regional Council

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1. Background

New Zealand has an historic legacy of introductions of exotic flora and fauna through colonisation by both Maori and European settlers. Freshwater environments have been no exception with introductions of many invasive plants, fish, invertebrates and diatoms such as Didymo (*Didymosphenia geminata*) being intentionally or accidentally released in waterways. The effect of these introductions has often been dramatic on the ecology of lakes, rivers and streams and often with impacts on water quality, amenity, recreational and cultural values.

Aquatic environments are difficult systems in which to control or eradicate species once introduced. There is also a very limited tool box available for control particularly in large waterbodies such as lakes. Rather than treatment once an incursion has occurred there is a strong focus on prevention of introductions through advocacy and education to help prevent the spread or introduction of pest or unwanted species.

The waterways of the Bay of Plenty (BOP) region have always been considered of high quality and have a range of values – cultural, recreational, amenity, biodiversity and as a world renowned trout fishery. Of particular focus and value are the Rotorua Te Arawa lakes and their inflows situated around the Rotorua area along with other high value sites such as the Wairoa, Rangitikei, Tarawera and Kaituna Rivers as well as many streams flowing from the Kaimai Range and around the East Coast near Opotiki.

The Rotorua Te Arawa lakes in particular have had aquatic weed infestations of various species occurring since the 1950's which have in a range of ways impacted on the values of the lakes, the most problematic being hornwort (*Ceratophyllum demersum*), egeria (*Egeria densa*) and lagarosiphon (*Lagarosiphon major*). These species are well established in some of the Rotorua Te Arawa lakes but they are absent from several key lakes and efforts to prevent their spread are ongoing. Table 1 outlines the distribution of these key three aquatic weed species in the Rotorua Te Arawa lakes within the BOP region.

Lake	Hornwort present	Egeria present	Lagarosiphon present
Ōkāreka	Yes	Yes	Yes
Ōkātina	Yes	No	Yes
Rotoiti	Yes	Yes	Yes
Tarawera	Yes	Yes	Yes
Ōkaro	No	No	No
Tikitapu	No	No	Yes
Rotokakahi	No	No	No
Rerewhakaaitu	No	Yes	Yes
Rotoehu	Yes	No	Yes
Rotomā	No	No	Yes
Rotorua	Yes	Yes	Yes
Rotomahana	Yes	Yes	No

Table 1: Presence of aquatic weeds in Rotorua Te Arawa lakes as at September 2013

The effect of these introductions has often varied from lake to lake depending on the species of aquatic weed introduced and other factors including lake bathymetry, lake nutrient levels, existing lake vegetation and lake use. Efforts to control some of these weeds have been in place since the 1960's (Rotorua Te Arawa Lakes Strategy Group, 2011). Additionally a range of floating leaved weeds have been detected locally (eg: water poppy (*Hydrocleys nymphoides*) in Lake Rotoehu and marshwort (*Hydrocleys nymphoides*) in Lake Ōkāreka) and have successfully been eradicated.

The only currently known pest fish species to establish throughout the BOP region is Gambusia (*Gambusia affinis*). Other pest fish species such as Koi Carp (*Cyprinus carpio*), Rudd (*Scardinius erythrophthalmus*) and Brown bullhead catfish (*Ameiurus nebulosus*) have continued to pose a threat to the waterways of the region but have not yet become established in natural waterways including the Rotorua Te Arawa lakes. This in some ways seems surprising given the proximity of the region to the Waikato where many of these fish species are prolific.

Tench (*Tinca tinca*) and Perch (*Perca fluviatilis*) are designated as sports fish within the Eastern Region (Bay of Plenty), and are under the jurisdiction of the Fish and Game Council. Due to the value of the trout fishery within the Rotorua Te Arawa Lakes, the Eastern Fish & Game Council have no 'designated coarse fishing waters' as the spread of perch and tench could present a harm to the trout fishery. It is therefore illegal to use coarse fishing gear and methods within the Eastern Region (Bay of Plenty).

Lake McLaren (Tauranga) has populations of the pest fish Rudd and the sports fish Tench. Koi also exist in several private man-made ponds in the BOP region which are currently being controlled. Goldfish (Morihana) are also present in most of the Rotorua Te Arawa Lakes having been extensively released throughout New Zealand in the early 1900's primarily as a source of food. Goldfish are not currently considered a pest species in the BOP Region and are thought to have minimal impact on the ecology of waterways (McDowall, 2000).

The arrival of Didymo to New Zealand in 2004 has also posed another threat to the BOP region's waterways however to date has not yet been discovered in the North Island.

Many agencies have been active in trying to preserve the values of the region's waterways with particular focus on work since the late 1990's. The focus of much of this work has been on preserving water quality of both the Rotorua Te Arawa lakes and other waterways. However, a large amount of effort and resource has also been targeted at the management of aquatic pests both to aid in the protection of water quality and to help in maintain other values associated with the waterways of the region.

Management of aquatic pest issues combines responsibilities from a number of agencies and organisations. This report focuses on those agencies involved in the Aquatic Pest Co-ordination Group and documents the group's purpose, agency roles and key work and resourcing. Information is provided on key outputs and expenditure for the 2012/2013 financial year and provides a summary of planned work for the 2013/2014 financial year.

1.1 The Aquatic Pest Co-ordination Group (APCG)

The APCG was formerly known as the Aquatic Pest Technical Advisory Group (APTAG) and was established in August 2004. This multi-agency initiative was originally designed as a mechanism for the agencies to work in partnership in regards to improving public awareness relating to aquatic pest plant dispersal between freshwater waterways and advocacy and work programmes in general (Bay of Plenty Regional Council, 2012).

Since the groups inception, several key events have occurred which have modified the role and function of the group. These have included the formulation and signing of the Te Arawa Lakes Settlement Act 2006 as well as the discovery of Didymo in New Zealand in 2004. The influence of these changes and the subsequent impact on aquatic pest management in the region has led to an expanding role of the group.

To reflect these changes and realign the group's purpose, the terms of reference for APTAG were revisited in 2010 and resulted in both a change of name and a more structured role and objectives. The current purpose and objectives of the APCG is outlined below:

"The purpose of the APCG is for those agencies with a role in the management of aquatic pests to effectively network, pool resources where possible and share information to achieve the integrated planning and management of aquatic pests in the Rotorua Te Arawa lakes".

The APCG members are:

- Department of Conservation (DOC)
- Eastern Region Fish and Game Council (Fish & Game)
- Bay of Plenty Regional Council (BOPRC)
- Rotorua District Council (RDC)
- Te Arawa Lakes Trust (TALT)
- Land Information New Zealand (LINZ)
- National Institute of Water and Atmospheric Ltd (NIWA)

The objectives of the Group are:

- To facilitate communication and liaison regarding aquatic pest issues between the representative organisations.
- To act as a forum to promote further discussion and input on technical issues from relevant organisations.
- To plan, implement and report on operational activities in regard to aquatic pests within the Rotorua Te Arawa lakes.
- To raise awareness and understanding of aquatic pest issues in the Rotorua Lakes. To promote consistency of policy and strategic direction between agencies for the management of aquatic pests within the Rotorua Lakes.
- Regularly review these objectives, how they will be achieved and the overall effectiveness of the group

As part of the APCG Terms of Reference, an annual plan will be developed to facilitate achieving these objectives. This annual plan will also be reported by the group by the end of July each year.

The group currently meets formally 3 times per year although at various times many of the agencies are working closely and more frequently on specific projects or areas of work.

2. Purpose of report

This is the second report for the group with the first version completed in early 2013 which documented work undertaken in 2011/2012 financial year and planned work for 2012/2013.. The preparation of the first report enabled the development of a template for use by the group on an annual basis. This template has been reused in this version of the 2012/2013 financial year annual report.

As in the inaugural report, the focus of this version is to continue to provide an overview of work that is undertaken towards achieving the goals outlined in the APCG's terms of reference and provide an overview of work undertaken by the group.

Again, this does not replace the reporting undertaken by individual agencies on their various work programmes however this report provides information at a level enabling the scope and extent of activities to be summarised across all areas of work and the full extent of resource commitment to aquatic pest management realised.

The format of this report and associated spreadsheet will be useful for agencies to use individually for internal reporting mechanisms or provide an overview of all aquatic pest work undertaken within the Bay of Plenty Region – particularly within the Rotorua Area for the collective group.

For the purposes of this report, figures for both costs and staff hours reported on in the 2012/2013 and 2013/2014 spreadsheets presented in sections 5 and 6 of this report are generally indicative.

3. The agencies and their roles in management of aquatic pests in the Bay of Plenty region

Aquatic pest management in the BOP is the role in some way of all members of the APCG group. Work is undertaken by the members under various legislative requirements in a range of ways and by a variety of mechanisms. This is particularly so within the Rotorua Area and in regard to the Rotorua Te Arawa lakes. The following section seeks to outline these roles and identify the synergies and overlap that may exist between APCG agencies. A summary diagram of legislative linkages is provided in Appendix 1.

3.1 Bay of Plenty Regional Council (BOPRC)

As well as being represented on the Rotorua Te Arawa Rotorua Lakes Strategy Group which consists of two representatives of TALT, RDC and BOPRC – see section 3.4), BOPRC is responsible for managing the control of pest plants and pest animals in the BOP region. Landowners and occupiers, the Crown, the community and other agencies also have responsibilities.

BOPRC exercises a variety of roles in pest management, including a leadership role in promoting, influencing, motivating, enforcing, educating and informing those involved in pest management across the region.

BOPRC prepares statutory documents to assist in the management of pests within the Region. The current Regional Pest Management Plan (RPMP) for the Bay of Plenty 2011-2016 has been created by BOPRC in accordance with the Biosecurity Act 1993.

The Plan sets out what BOPRC is trying to achieve to manage pest plants and pest animals in the BOP region. It identifies a set of key outcomes to achieve and high level objectives and rules that need implementing to achieve these outcomes. The Plan identifies the primary pest management roles and responsibilities for BOPRC as well as landowners and occupiers across the region.

Aquatic pest plants and animals are also covered by the RPMP. Specific rules relate to the control and movement of some aquatic pests and as well as who is responsible for their control.

For the Rotorua Te Arawa Lakes, the control of aquatic weeds attached to the lakebed are the responsibility of the Crown (or their agent) under the Te Arawa Lakes Settlement Act 2006. In the case of the Rotorua Te Arawa Lakes that fall within the BOP Region (except Ōkaro and Rotokakahi), this Crown agent is LINZ. The role of LINZ is further explained below (Section 3.5).

Other aquatic animal pests (fish and other) are managed under the Biosecurity Act either via the RPMP or specifically by the Crown when they are of national interest.

Some work implemented by BOPRC is funded from within the Rotorua Te Arawa lakes Management Strategy programme of work however other workstreams are funded through the 10-Year plan process and also through the implementation of the RPMP.

3.2 Te Arawa Lakes Trust (TALT)

Te Arawa Lakes Trust (formerly Te Arawa Maori Trust Board) is the governance entity that received and manages the redress received from the Te Arawa Lakes Settlement Act 2006 on behalf of Te Arawa.

The mission of TALT is "*Utilisation and management of the assets and resources to provide cultural social environmental and economic sustainability for Te Arawa*"

The settlement Act covers 14 lakes of which Te Arawa was given ownership of 13 of the lake beds (excluding Ōkaro). The lakes are:

Rotoehu, Rotomā, Rotoiti/Te Roto- Whaiti-i-kite-ai-a-Ihenga-i-Ariki- ai- a Kahumatamomoe, Rotorua / Rotorua-nui-a Kahumatamomoe , Ōkātina / Te Moana i kātina a Te Rangitakaroro, Ōkareka, Rerewhakaaitu, Tarawera, Rotomahana, Tikitapu, Ngāhewa, Tutaeinanga, Ngāpouri/Opouri and Ōkaro/Ngakaro (Te Arawa Lakes Trust , 2013).

As a landowner of the Rotorua Te Arawa lake beds, the Trust provides input, support and advocacy to activities and work associated with the Rotorua Te Arawa lakes. TALT are also represented on the Rotorua Te Arawa Lakes Strategy Group (see Section 3.4). Te Arawa Lakes Trust and Land Information New Zealand (LINZ) have a formal relationship agreement in accordance with the Settlement Act.

3.3 Rotorua District Council (RDC)

The role of RDC in aquatic pest management is primarily from an amenity and recreational aspect. Many of the boat ramps in the Rotorua Te Arawa lakes area are located on land administered by RDC. RDC is involved in conjunction with BOPRC, in maintaining access to these structures and ensuring the public have the ability to use these facilities and use is not inhibited by aquatic plants. RDC's reserve and park department are also responsible for amenity cleanup of aquatic weeds which have washed up on lakeshores on RDC reserves. Much of this work is undertaken at the Rotorua lakefront (Rotorua Te Arawa Lakes Strategy Group, 2011).

RDC are also represented on the Rotorua Te Arawa Lakes Strategy Group (see Section 3.4).

3.4 Rotorua Te Arawa Lakes Strategy Group

A Lakes Management Working Group (consisting of TALT, BOPRC and RDC) was initially established in 1998 to identify and address the problems arising from a lack of coordination between the many groups with interests in managing the lakes, and to consider how those concerned could work together to solve problems as effectively and efficiently as possible.

The commitment of the various authorities was to unite efforts and resources to achieve sustainable lake and catchment management through the Lakes Management Working Group. The Group identified the best way to achieve this was through the development of a Lakes Management Strategy.

In 2000 the Lakes Management Strategy was released to the community for consultation and feedback. A Draft Strategy was adopted in October 2002. The document sets goals for the protection, use, enjoyment and management of the lakes.

The Rotorua Te Arawa Lakes Strategy Group (previously known as the Rotorua Lakes Strategy Joint Committee) was established under the Local Government Act 2002 through the Te Arawa Lakes Settlement Act 2006. The Lakes Strategy Group consists of TALT (previously Te Arawa Māori Trust Board), BOPRC and RDC with each agency having two governance representatives on the Group. The Strategy Group have worked cooperatively on a programme of action for the protection and restoration of the Rotorua Te Arawa lakes as agreed in the vision and purpose:

“The lakes of the Rotorua district and their catchments are preserved and protected for the use and enjoyment of present and future generations, while recognising and providing for the traditional relationship of Te Arawa with their ancestral lakes.”

In April 2007, a Memorandum of Understanding between the Crown and the Rotorua Te Arawa lakes Strategy Group was signed to formally establish a working relationship between the parties for the purpose of maintaining and improving the water quality of the lakes through the Rotorua Te Arawa lakes Protection and Restoration Action Programme (Human Rights and the Treaty of Waitangi, 2013) . The MOU was associated with the Crown contributing \$72.1 million over 10 years and RDC and BOPRC jointly contributing an additional \$72.1 million to focus on improving the condition of the Rotorua Te Arawa Lakes (Bay of Plenty Regional Council, 2008).

Although much of the Rotorua Te Arawa lakes Management Strategy is focused on implementing and achieving water quality gains, a component of the work is focused on aquatic pest management and also achieving outcomes of an associated recreational strategy.

The Strategy has recently been reviewed with public consultation/submissions concluded in June 2013 (Rotorua Te Arawa Lakes Strategy Group , 2013). Progress towards adoption of the review was continuing at the time of writing.

3.5 Land Information New Zealand (LINZ)

LINZ has responsibility for managing Crown-owned land under the Land Act 1948 including some river and lake beds. Through its biosecurity programme, LINZ works with landowners, regional councils and other agencies to mitigate the threats posed by plant and animal pests to New Zealand's biodiversity values.

For the Rotorua Te Arawa lakes, LINZ is the Crown agency through which aquatic plant pests are managed under the Te Arawa lakes Settlement Act 2006.

Boffa Miskell Limited (BML) is appointed as service provider to LINZ and is responsible for the operational management and coordination of biosecurity services (pest control) on Crown river and lake beds. BML assumed the management of these services on 1 July 2009. BML's role includes the following key tasks on behalf of LINZ:

- Site inspections
- Preparation of annual pest control programmes
- Liaison and consultation with interested parties and stakeholders
- Preparation of tenders and contracts for the engagement of pest control contractors
- Monitoring and inspection of operations
- Monitoring of resource consent compliance

- Preparing annual reports on control works operations at various sites
- Reporting on other issues relevant to biosecurity operations
(Boffa Miskell Limited, 2012)

For aquatic plant pest control in the Rotorua Te Arawa Lakes, Boffa Miskell and LINZ are represented on the APCG.

3.6 Department of Conservation (DOC)

DOC has a role in aquatic pest management as an administrator of Crown land under the Biosecurity Act and the relevant RPMP. DOC also has some responsibilities under the Conservation Act (1987) in regards to Section 26ZM transfer or release of live aquatic life - which requires the permission of the Minister of Conservation.

Under the Freshwater Fisheries Regulations (1983), the Minister of Conservation also has the power to issue licences for the harvest of Koi or European Carp and control the removal of these species within the gazetted containment area (sections 67A, 67B and 67C).

The Department's primary role in APCG is through advocacy and education and as part of a joint agency technical and operational response to any pest fish incursions.

3.7 Eastern Region Fish & Game

Fish & Game New Zealand is the collective brand name of the New Zealand Fish and Game Council and 12 regional Fish and Game Councils, established in 1990 to represent the interests of anglers and hunters, and provide coordination of the management, enhancement, and maintenance of sports fish and game (under Section 26B of the Conservation Act 1987) (Fish & Game New Zealand, 2013). The Council/s are responsible to the Minister of Conservation but are both administratively and financially independent of government.

In the BOP region, Eastern Fish and Game Council represent the interests of anglers and hunters and is a member of the APCG group and has a focus on advocacy and education through existing work programmes.

3.8 National Institute of Water and Atmospheric Research (NIWA)

NIWA are a Crown Research Institute (CRI) established in 1992, undertaking aquatic and atmospheric scientific research. NIWA's statement of core purpose is to enhance the economic value and sustainable management of New Zealand's aquatic resources and environments, to provide understanding of climate and the atmosphere and increase resilience to weather and climate hazards to improve the safety and wellbeing of New Zealanders (National Institute for Water and Atmospheric Research, 2013).

The NIWA freshwater biosecurity group, based in Hamilton provides expertise on aquatic pest impact and management issues as required for individual agencies and fulfills a science advisory and review role on the APCG.

4. Key work programmes

Many aquatic pest work programmes have been active for several years within the BOP region. This section provides an outline of the inception, timing and content of the main work programmes undertaken by agencies in regards to aquatic pest work.

4.1 Advocacy and Education

Advocacy and education programmes have formed a large component of the work undertaken by agencies in the BOP region in the prevention of aquatic pest incursions and spread in the last 10 years. Work programmes that have focused on aquatic weed and exotic fish issues have been underway since at least the year 2000 and have included promotional material and educational resources. Since the detection of *Didymosphenia geminata* (Didymo) in October 2004, a greater level of resourcing has been targeted at raising awareness of Didymo and prevention of its spread. This has enabled information and messaging to be incorporated from other aquatic pests (weeds, fish and other) into the general “aquatic pest” advocacy campaign and the general themes, messages and behaviours amalgamated with those specifically targeted towards Didymo. This has resulted in a more holistic aquatic pest message and programme of advocacy and educational implementation.

Both DOC and BOPRC have had summer employees since 2004 whose sole function has been to focus on working within the BOP region on aquatic pest advocacy and education. The summer advocacy programme is also supported through the Ministry of Primary Industries (MPI) who contribute funding and “Check Clean Dry” collateral in support of the programme. Most work has focused on the Rotorua area and the Rotorua Te Arawa lakes however attention has been paid to many large river systems such as the Rangitikei and Wairoa (Tauranga) rivers which are also a focus of recreational activities.

Eastern Fish and Game Council has also maintained a high level of advocacy work which is generally executed through existing work programmes and identification of opportunities to engage with licence holders.

All three agencies try to co-ordinate their efforts and geographical coverage as much as possible.

4.2 Weed cordon construction and monitoring

The concept and development of weed cordons came through discussions in the APCG group around 2007/2008. The concept involved construction of netted “cordons” at key launching points of the Rotorua Te Arawa lakes currently still with relatively intact native plant populations and of high vulnerability to pest weed introduction. The idea is that as boats and other craft launch, any fragments of pest weed species transported on the boat or trailer will drop off within the cordon before being transported into the main body of the lake. Trials of the design indicated they were particularly effective at capturing fragments within the cordon area in various conditions (Lass, 2012). Cordons have also been used for “containment” at sites such as Lake Rotoehu which have a large biomass of Hornwort which poses a threat of being picked up by water craft and spread to other lakes. Cordons at these sites enable a low biomass to be contained within the cordon area and any fragments are released from the boat before being trailered. Trailers and vehicles are also less likely to pick up fragments while retrieving boats due to the clear nature of the cordon.

Table 2 summarises the location and timing of the current weed cordons in the Te Arawa lakes.

Lake	Location	Year	Purpose
Rotomā	Merge Lodge boat ramp	2008	Prevent introduction of aquatic pest weeds
Ōkātaina	South west area of lake	2010	Contain a hornwort incursion
Rotomā	Matahi spit boat ramp	2010	Prevent introduction of aquatic pest weeds

Rotoehu	Otautu Bay boat ramp	2011	Prevent spread of aquatic pest weeds from Rotoehu to other lakes - containment
Ōkātina	Boat ramp	2011	Prevent introduction of aquatic pest weeds
Ōkāreka	Acacia Bay boat ramp	2011	Prevent introduction of aquatic pest weeds
Rerewhakaaitu	Homestead Arm boat ramp	2013	Prevent introduction of aquatic pest weeds

Table 2: Weed cordon locations, timing and purpose

Existing cordons are monitored for pest weed presence and checked for maintenance requirements at regular intervals.

Work planned for 2013/2014 includes the construction of another cordon on Lake Rotoehu (Kennedy Bay boat ramp) to prevent the spread of aquatic pest weeds (particularly Hornwort) from Lake Rotoehu to other areas – particularly nearby Lake Rotomā.

4.3 Aquatic pest surveillance, monitoring and control

BOPRC currently carry out monitoring and surveillance of aquatic weeds at eight Rotorua Te Arawa lakes. Most of this work is primarily targeted at the prevention of aquatic weed spread between lakes and is targeted at early detection of new incursions. This work has been undertaken since 2005 and has been a significant part of BOPRC's aquatic biosecurity programme during this time.

The programmes work and methods used in surveillance were reviewed by NIWA in 2009. They were found to be robust in their approach and constituted a targeted method to achieve early warning of aquatic plant incursions and spread. In addition to searching for aquatic pest weed species, work involves the detection of key pest fish species sign as an addition to the program of work.

Two incursions have been detected since 2005 while undertaking this surveillance. Recent incursion summary details are:

Lake Rotomahana – Hornwort and Egeria	2006
Lake Ōkātina – Hornwort	2007, 2009 and 2010
Lake Ōkāreka – Hornwort	2012 (detected by public sighting)

The incursion in Lake Rotomahana was too far advanced to be able to respond with control methods when detected in 2006.

Hornwort was initially detected in Lake Ōkātina in 2007 and a successful control operation was undertaken with individual plants successfully treated at the time. A further Hornwort incursion was found in 2009 and again in 2010. An incursion response plan was developed and implemented.

As a result of control the following outcomes have been achieved in Lake Ōkātina (Bay of Plenty Regional Council, 2013):

“Good control results have been achieved over the past three seasons and this has reduced hornwort infestations in the Lake to four sites. The spraying programme has seen excellent results in six of the eight sites with a 100% kill at four sites and a 95% reduction in the infestation area in the remaining two sites. The remaining two sites continue to pose some

risk of further hornwort spread within the Lake. These sites are the focus of control and surveillance work.

The future actions are to continue the annual surveillance programme at all known sites and high risk areas in Lake Ōkātina. Annual spraying of the remaining hornwort sites will also continue.

This work will continue until either eradication has been achieved or surveillance reveals that in spite of intensive control programme, the pest is continuing to spread and establish within the lake (staff will seek Council's direction prior to abandoning the eradication attempt)".

Presently for Lake Ōkātina, the incursion response is being funded equally by BOPRC and LINZ.

Hornwort was first detected in Lake Ōkāreka in 2012 by a local tourist operator. A delimiting survey was undertaken in March 2013 to evaluate the extent of the incursion. 17.5 hectares of Hornwort beds were found – mostly in the northern area of the Lake. A Management Response Plan was presented to BOPRC Operations, Monitoring and Regulations Committee in May 2013. The recommendation from staff was one of "Containment" of the incursion. The decision reached by the committee was the following:

- Continue with existing management programme and explore all options around detection and targeting eradication
- Request for a report back on alternative options for reduction and what further research may be undertaken

(Bay of Plenty Regional Council, 2013)

To support the Ōkāreka Hornwort incursion management work and follow the direction adopted by the committee, BOPRC have commissioned NIWA to investigate the development of options for control and work around monitoring techniques. This work will assist in guiding the future management of the incursion in the lake.

Information from surveillance activities is also used to inform LINZ in regards to key priorities for annual aquatic weed control for sites with a biosecurity focus.

4.4 Nuisance/amenity aquatic plant control

BOPRC has responsibilities under both its 10-Year Plan and the RPMP to address aquatic pest weed issues in regard to biosecurity however the recreational and amenity impact of aquatic pest weed species was previously not particularly well understood. BOPRC had continued to receive an increasing number of requests for aquatic weed control from both a safety and recreational use perspective. To address these amenity issues, an annual budget of \$50,000 has been allocated in the BOPRC 10-Year Plan. Key sites for control are now identified and funded by BOPRC but control work is carried out under the consent currently held by LINZ.

2012/2013 was the first fully funded year for this type of control by BOPRC. A priority assessment tool has been used to rank amenity sites and target the resource available. As well as general public sites, some landowner specific control is also undertaken within this programme of work. The cost for undertaking landowner requests and control is recovered from the landowner themselves and is not funded by BOPRC. Synergies in work programmes between the amenity weed control and the biosecurity programme are sought where possible in both pre and post spray monitoring and spraying requirements.

4.5 Pest fish

The management of pest fish is conducted primarily through other key work programs such as advocacy and education and aquatic weed monitoring. The size of most of the Rotorua Te Arawa lakes and some of the rivers in the region makes detection of pest fish difficult and generally unreliable. The main source of information comes from recreational users and fishermen in the community who are regularly utilising waterways.

Annual surveys for pest fish were conducted on up to six Rotorua Te Arawa lakes per year until 2010. These surveys were led by the Department of Conservation with assistance from BOPRC. Surveys were resource intensive with the assumed likelihood of detecting an incursion was low given the size and bathymetry of the lakes. There were also limitations on the sampling tools able to be deployed in the Rotorua area with high populations of the threatened New Zealand Dabchick and other diving birds present which are susceptible to bycatch in nets. This made surveying somewhat limited in its ability to detect the presence of pest fish. It was decided at the time to invest greater efforts into advocacy and information which could yield better results on a time and effort ratio. In 2012 with the BOPRC RPMP inclusive of Brown Bullhead Catfish, BOPRC decided to revisit a surveillance programme and instigated the development of a Brown Bullhead Catfish (Bay of Plenty Regional Council, 2012) surveillance plan to replace the original survey work. This work is now undertaken primarily by BOPRC however DOC have contributed to the purchase of equipment to assist in surveys.

Work to implement the plan began in 2012/2013. Table 3 summarises the work undertaken in 2012/2013 and the work planned through until 2016. No Brown Bullhead Catfish were detected in the 2012/13 work.

Lake	Method	Timing
Lake Tarawera	Fyke netting (20 nets deployed), dive survey	Completed February 2013
Lake Ōkataina	Fyke netting (20 nets deployed)	Completed February 2013
Lake Rotoiti	Fyke netting	Planned for summer 2013/14
Lake Rotoma	Fyke netting	Planned for summer 2013/14
Lake Ōkareka	Fyke netting	Planned for summer 2013/14
Lake Tikitapu	Fyke netting	Planned for summer 2014/15
Lake Rotorua	Fyke netting	Planned for summer 2014/15
Lake Rotomahana	Fyke netting	Planned for summer 2014/15
Lake Rerewhakaaitu	Fyke netting	Planned for summer 2015/16
Lake Rotoehu	Fyke netting	Planned for summer 2015/16
Lake Okaro	Fyke netting	Planned for summer 2015/16

Table 3: Summary of BOPRC Brown Bullhead catfish surveillance

In addition to surveillance activities, information is distributed to educate people on the issues associated with pest fish, what they look like and how to go about reporting any sightings. Staff from Fish and Game and DOC follow up on these sightings and initiate any action as required. BOPRC maintains a pest fish database where all recordings and actions are entered by the various agencies to enable detection of any continuing trends in particular locations.

BOPRC staff use their annual dive monitoring for aquatic plant pests in eight Rotorua Te Arawa lakes to primarily look for aquatic pest plants but to also look for key pest fish sign which may indicate presence of particular species.

The last response to a pest fish incursion was in 2007 when a large Brown Bullhead catfish washed up dead in Okawa Bay, Lake Rotoiti. After extensive surveying using netting techniques and diving transects no further fish were found. Analysis of the fish (otolith chemistry) was inconclusive as to where it had originated from and if it had been present in Lake Rotoiti for its entire life.

4.6 Pond surveys

During NIWA's review of the efficacy of BOPRC's aquatic pest programmes in 2009, it was identified that there would be benefit to the programme to include surveillance for potential aquatic risks in ponds on private land. This work was added to the portfolio in 2009 and work has focused on high risk catchments. BOPRC use a contractor to identify potential sites, undertake visits to private residences and then audit the aquatic plant and animal species present. There is also a good opportunity for advocacy through interaction with landowners.

A total of approximately 2,500 properties have been visited and over 300 ponds found and examined for aquatic pests throughout the course of this work.

Table 4 summarises the work undertaken to date.

Lake	Year surveyed
Lake Ōkareka	2009
Lake Rotomā, Lake Rotoehu and part Lake Rotoiti	2010
Lake Tarawera	2011
Hamurana - Lake Rotorua	March 2012
Kawaha Point – Lake Rotorua	June 2012
Utuhina Stream - Lake Rotorua	July 2012
Brunswick Park Area - Lake Rotorua	Oct 2012
Waiteti Bay, Ngongotaha, Lake Rotorua	2013
Lynmore – Lake Rotorua	May 2013

Table 4: Pond survey summary

Further surveys are planned for 2013/2014 in high priority sites within the Rotorua catchment and Lake Ōkareka.

4.7 Didymo Sampling

Since Didymo was discovered in New Zealand, BOPRC, DOC and Fish and Game have been responsible for regular sampling at key high risk waterways throughout the BOP to test for Didymo presence. This work is undertaken on behalf of Ministry for Primary Industries (MPI) (formerly Biosecurity New Zealand).

Samples are collected every 3 months from the Kaituna, Motu and Ngongotaha rivers and information entered into a national database administered by MPI with samples sent to Waikato University for analysis for Didymo detection. At the time of writing Didymo has not been detected in these three rivers nor in the North Island.

5. 2012/2013 work undertaken

Please note - for the purposes of this report, figures for both costs and staff hours reported on in the 2012/2013 and 2013/2014 spreadsheets presented in sections 5 and 6 of this report are generally indicative. While attempts have been made to capture all work and costs associated with Aquatic Pest work it is acknowledged that these figures give a representation of what has been spent and what is planned. The work is primarily focused on the Rotorua Area and associated Rotorua Te Arawa lakes however some work programmes span the BOP Region and have been included. There are omissions from some work programmes outside of the Rotorua Area so this must be taken into consideration.

Site	Agency	General Work Programme description	Work completed	Timing	Actual Operational costs (\$)	Actual staff hours	Outputs_Actions	Overarching Strategic Document	Secondary guiding document	Objective_Outcome	Objective met?
General area work											
Rotorua Area											
Rotorua Area	BOPRC	Pest Fish incursions	Support DOC when needed	July 2012- June 2013	0	40	No new incursions	Biosecurity Act	Not applicable	No new incursions	Yes
Rotorua Area	BOPRC	Monitoring aquatic pests	Brown Bullhead Catfish Monitoring	January 2013 - March 2013	12260	80.5	Work undertaken as per Catfish Surveillance Plan. No incursions found	Biosecurity Act	Regional Pest Management Plan	No new incursions	Yes
Rotorua Area	BOPRC	Monitoring aquatic pests	Koi Carp	January 2013 - March 2013	3020	18	No incursions found	Biosecurity Act	Regional Pest Management Plan	No new incursions	Yes
Rotorua Area	BOPRC	Planning_Coordination_Policy Development	APCG coordination, RPMP reporting etc	July 2012- June 2013	0	120	3 meetings organised, held and minuted	Aquatic Pest Co-ordination Group	Regional Pest Management Plan	3 APCG meetings held Report detailing groups activities produced	Yes
Rotorua Area	BOPRC	Complaints_Queries_Reports	Respond to public complaints, queries, sightings of aquatic pests	July 2012- June 2013	0	120	Complaints responded to when required	Regional Pest Management Plan	Not applicable	All complaints and reports responded to	Yes
Rotorua Area	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2012 - March 2013	30000	840	Advocacy material distributed to hotels_motels and retail sites within the Rotorua area. 20 Sporting Events attended 806 surveys of individuals and groups undertaken across the whole region	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased	Yes
Rotorua Area	BOPRC	Monitoring aquatic pests	Surveillance 8 lakes, incursion responses and monitoring (Egeria, Lagarosiphon and Hornwort)	July 2012- June 2013	102000	695	Surveillance and response work undertaken and to standard as planned	Regional Pest Management Plan	Not applicable	Any new Incursions detected prior to widespread establishment	Yes
Rotorua Area	BOPRC	Amenity weed control	Spraying in Feb March 2013	February-March 2013	35700	0	Amenity weed control undertaken as required	Not applicable	Not applicable	Reduction in nuisance weeds	Yes
Rotorua Area	BOPRC	Aquatic plant spray monitoring	Pre and post monitoring of both biosecurity and amenity control programmes	July 2012- June 2013	6042	191	Pre and post monitoring undertaken for both amenity and biosecurity spray programmes	Biosecurity Act	Regional Pest Management Plan	Monitoring undertaken to indicate areas for treatment and monitoring shows spray programme effective	Yes
Rotorua Area	BOPRC	Weed cordon monitoring_maintenance	Monitor cordons for weed incursions and check structures - maintain if necessary	December 2012 - March 2013	9765	58	All existing weed cordons checked and maintained as required	Biosecurity Act	Regional Pest Management Plan	Weed cordons effective, no new incursions, cordons functioning and maintained	Yes
Rotorua Area	BOPRC	Lake SPI	Survey lake using LakeSPI method to assess aquatic plant community (Conducted by NIWA for BOPRC)	April 2013	2971	32	BOPRC Aquatic pest contribution to LakeSPI programme. Total programme funded for monitoring purposes from BOPRC science programme (outside of the scope of this report)	Rotorua Lakes Strategy	Not applicable	Monitoring information gathered for aquatic plant composition and health	Yes
Rotorua Area	Fish & Game	Complaints_Queries_Reports	Respond to angler enquiries/ check samples/ photos, pass on to DOC	1 Sep 2012 - 31 April 2013	N/A	20	A small number of goldfish brought in by anglers for identification (not recorded, but less than 5) DOC worked with on identifying other samples they caught. From Tarawera following koi reports.	Biosecurity Act	Not applicable	All complaints and reports responded to.	Yes

Site	Agency	General Work Programme description	Work completed	Timing	Actual Operational costs (\$)	Actual staff hours	Outputs_Actions	Overarching Strategic Document	Secondary guiding document	Objective_Outcome	Objective met?
General area work											
Rotorua Area	Fish & Game	Advocacy	Club visits, events, press releases, web information	1 Sep 2012 - 31 April 2013	0	120	Press releases (in excess of 40), website as required and ezine/newsletter updated monthly. 2 Magazine supplements and newsletters produced (gamebird and fishery), 20 angling and gamebird clubs visited - work undertaken across Eastern Region . Summer angler surveys completed at with 1443 anglers being interviewed. Aquatic pest work part of this programme (approx 44 hours across all 4 lakes)	Biosecurity Act	Not applicable	No new incursions.	Yes
Rotorua Area	Fish & Game	Aquatic plant incursions	Didymo delimiting survey	Quarterly (Mar,Jun, Sep, Dec)	800	8	4 Surveys undertaken in Ngongotaha Stream	Biosecurity Act	Not applicable	No new incursions	Yes
Rotorua Area	Fish & Game	Planning_Coordination_Policy Development	APCG attendance	1 Sep 2012 - 31 Aug 2012	0	4	Input as required	Not applicable	Not applicable	No new incursions, public knowledge increased	Yes
Rotorua Area	TALT	General support and advocacy, landowner	Work with other stakeholders, support and provide input	Ongoing	N/A	40	Support and input provided	Te Arawa Lakes Settlement Act	Not applicable	Support and input provided as required	Yes
Rotorua Area	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2012 - March 2013	16606	772	Events attended, material distributed, general advocacy as required	Biosecurity Act	Not applicable	No new incursions	Yes
Rotorua Area	DOC	Planning_Coordination_Policy Development	APCG attendance	July 2012- June 2013	0	15	Input as required	Not applicable	Not applicable	No new incursions	Yes
Rotorua Area	LINZ	Vector management control	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa Lakes	December 2012 - March 2013	Specific details contained under each lake	160	See individual lakes	Te Arawa Lakes Settlement Act	Regional Pest Management Plan	Intended spraying successful, amenity and biosecurity values maintained	Yes
Rotorua Area	LINZ	Aquatic plant spray monitoring	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa Lakes. Contract BOPRC to undertake pre and post spray control monitoring of spray sites for biosecurity purposes	December 2012 - March 2013	18000	N/A	Pre and post monitoring undertaken for biosecurity spray programmes. Spraying is targeted and successful	Te Arawa Lakes Settlement Act	Regional Pest Management Plan	Intended spraying successful, biosecurity values maintained	Yes
Rotorua Area	RDC	Amenity weed control	Removal of nuisance weed at boat ramps (weekly or fortnightly) and at other sites as required	June 2012 - July 2013	96500	0	Work undertaken as required	Rotorua District Plan	Not applicable	Recreational and amenity values maintained	Yes
Whakatane District											
Whakatane District	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Advocacy material distributed to hotels_motels and retail sites within the Rotorua area. 20 Sporting Events attended 806 surveys of individuals and groups undertaken across the whole region	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased	Yes
Whakatane District	Fish & Game	Advocacy	Club visits, events, press releases, web information, angler checks	1 Sep 2012 - 31 Aug 2012	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Press releases (in excess of 40), website as required and ezine/newsletter updated monthly. 2 Magazine supplements and newsletters produced (gamebird and fishery), 20 angling and gamebird clubs visited - work undertaken across Eastern Region	Biosecurity Act	Not applicable	No new incursions.	Yes

Site	Agency	General Work Programme description	Work completed	Timing	Actual Operational costs (\$)	Actual staff hours	Outputs_Actions	Overarching Strategic Document	Secondary guiding document	Objective_Outcome	Objective met?
General area work											
Whakatane District	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Events attended, material distributed, general advocacy as required	Biosecurity Act	Not applicable	No new incursions	Yes
Tauranga District											
Tauranga District	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Advocacy material distributed to hotels_motels and retail sites within the Rotorua area. 20 Sporting Events attended 806 surveys of individuals and groups undertaken across the whole region	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased	Yes
Tauranga District	Fish & Game	Advocacy	Club visits, events, press releases, web information, angler checks	1 Sep 2012 - 31 Aug 2012	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Press releases (in excess of 40), website as required and ezine/newsletter updated monthly. 2 Magazine supplements and newsletters produced (gamebird and fishery), 20 angling and gamebird clubs visited - work undertaken across Eastern Region	Biosecurity Act	Not applicable	No new incursions.	Yes
Tauranga District	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Events attended, material distributed, general advocacy as required	Biosecurity Act	Not applicable	No new incursions, public knowledge increased	Yes
Specific Lake Work											
Lake Ōkaro											
Lake Ōkaro	BOPRC	Advocacy	Summer Students, public surveys, events	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Advocacy material distributed to hotels_motels and retail sites within the Rotorua area. 20 Sporting Events attended 806 surveys of individuals and groups undertaken across the whole region	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased	Yes
Lake Ōkaro	BOPRC	Monitoring aquatic pests	Surveillance 8 lakes, incursion responses and monitoring (Egeria, Lagarosiphon and Hornwort)	October 2012- May 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Surveillance and response work undertaken and to standard as planned	Regional Pest Management Plan	Not applicable	Any new Incursions detected prior to widespread establishment	Yes
Lake Ōkāreka											
Lake Ōkāreka	BOPRC	Aquatic plant incursions	Surveillance 8 lakes, incursion responses and monitoring (Egeria, Lagarosiphon and Hornwort)	October 2012- May 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Surveillance and response work undertaken and to standard as planned	Biosecurity Act	Regional Pest Management Plan	No new incursions	Yes
Lake Ōkāreka	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Advocacy material distributed to hotels_motels and retail sites within the Rotorua area. 20 Sporting Events attended 806 surveys of individuals and groups undertaken across the whole region	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased	Yes
Lake Ōkāreka	BOPRC	Monitoring aquatic pests	Lake surveillance of aquatic vegetation for spread of hornwort or new incursions of other species - transect dives	October 2012- May 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Surveillance and response work undertaken and to standard as planned	Regional Pest Management Plan	Lake Okareka Action Plan	Any new Incursions detected prior to widespread establishment	Yes

Site	Agency	General Work Programme description	Work completed	Timing	Actual Operational costs (\$)	Actual staff hours	Outputs_Actions	Overarching Strategic Document	Secondary guiding document	Objective_Outcome	Objective met?
General area work											
Lake Ōkāreka	BOPRC	Weed cordon monitoring_maintenance	Monitoring of vegetation in cordon and cordon condition	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	All existing weed cordons checked and maintained as required	Regional Pest Management Plan	Lake Okareka Action Plan	Weed cordons effective, no new incursions, cordons functioning and maintained	Yes
Lake Ōkāreka	BOPRC	Control marginal aquatic pest plants	Control of marginal vegetation - Yellow Flag Iris	November 2012 - February 2013	1378	8	Yellow Flag Iris controlled as required	Regional Pest Management Plan	Lake Okareka Action Plan	Control undertaken and YFI contained	Yes
Lake Ōkāreka	TALT	General support and advocacy, landowner	Support for cordons as landowner	Ongoing	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Support and input provided	Te Arawa Lakes Settlement Act	Not applicable	Support and input provided as required	Yes
Lake Ōkāreka	LINZ	Vector management control	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa Lakes	November 2012, April 2013	3080	N/A	25.4ha boat spraying in total, 2.2ha paid for by LINZ and 23.2ha paid for by BOPRC	Biosecurity Act	Not applicable	Intended spraying successful, amenity and biosecurity values maintained	Yes
Lake Ōkāreka	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Events attended, material distributed, general advocacy as required	Biosecurity Act	Not applicable	No new incursions, public knowledge increased	Yes
Lake Rerewhaakitu											
Lake Rerewhaakitu	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Advocacy material distributed to hotels_motels and retail sites within the Rotorua area. 20 Sporting Events attended 806 surveys of individuals and groups undertaken across the whole region	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased	Yes
Lake Rerewhaakitu	BOPRC	Monitoring aquatic pests	Surveillance 8 lakes, incursion responses and monitoring (Egeria, Lagarosiphon and Hornwort)	October 2012- May 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Surveillance and response work undertaken and to standard as planned	Regional Pest Management Plan	Not applicable	Any new Incursions detected prior to widespread establishment	Yes
Lake Rerewhaakitu	BOPRC	Weed cordon construction	Build and install new weed cordon for ramp at Homestead Arm	March 2013	13396	95	Work on cordon partially complete. Remainder of work undertaken in 2013/14	Regional Pest Management Plan	Not applicable	Weed cordons effective, no new incursions, cordons functioning and maintained	Yes
Lake Rerewhaakitu	TALT	General support and advocacy, landowner	Support for cordons as landowner	Ongoing	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Support and input provided	Te Arawa Lakes Settlement Act	Not applicable	Support and input provided as required	Yes
Lake Rerewhaakitu	LINZ	Vector management control	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa Lakes	November 2012, April 2013	1400	N/A	1ha sprayed	Biosecurity Act	Not applicable	Intended spraying successful, amenity and biosecurity values maintained	Yes
Lake Rerewhaakitu	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Events attended, material distributed, general advocacy as required	Biosecurity Act	Not applicable	No new incursions, public knowledge increased	Yes
Lake Rotorua											
Lake Rotorua	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Advocacy material distributed to hotels_motels and retail sites within the Rotorua area. 20 Sporting Events attended 806 surveys of individuals and groups undertaken across the whole region	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased	Yes
Lake Rotorua	BOPRC	Pond surveys	Survey of ponds on private land for plant and animal aquatic pests	Ongoing	25016	137	Surveys undertaken in Utuhina, Lynmore, Waiteti and Brunswick Park	Biosecurity Act	Regional Pest Management Plan	Pest plants identified and appropriate action taken. Advocacy and education of landowners increased	Yes

Site	Agency	General Work Programme description	Work completed	Timing	Actual Operational costs (\$)	Actual staff hours	Outputs_Actions	Overarching Strategic Document	Secondary guiding document	Objective_Outcome	Objective met?
General area work											
Lake Rotorua	Fish & Game	Aquatic plant incursions	Didymo delimiting survey-Ngongotaha Stm)	Quarterly (Mar,Jun, Sep ,Dec)	Work included in total for Rotorua Area	Work included in total for Rotorua Area	4 Surveys undertaken in Ngongotaha Stream	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased	Yes
Lake Rotorua	Fish & Game	Advocacy	Summer Survey and angler communications (Face to Face).	1 Sep 2012 - 31 Aug 2012	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Summer angler surveys completed at with 1443 anglers being interviewed. Aquatic pest work part of this programme (approx 44 hours across all 4 lakes - Tarawera, Okataina, Rotoiti and Rotorua	Biosecurity Act	Not applicable	No new incursions, public knowledge increased	Yes
Lake Rotorua	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Events attended, material distributed, general advocacy as required	Biosecurity Act	Not applicable	No new incursions, public knowledge increased	Yes
Lake Rotorua	DOC	Aquatic plant incursions	Didymo delimiting survey-Kaituna River	Quarterly (Mar,Jun, Sep ,Dec)	Work included in total for Rotorua Area	Work included in total for Rotorua Area	4 Surveys undertaken in Kaituna	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased	Yes
Lake Rotorua	LINZ	Vector management control	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa Lakes	November 2012, April 2013	77000	N/A	55ha sprayed	Biosecurity Act	Not applicable	Intended spraying successful, amenity and biosecurity values maintained	Yes
Lake Rotoiti											
Lake Rotoiti	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Advocacy material distributed to hotels_motels and retail sites within the Rotorua area. 20 Sporting Events attended 806 surveys of individuals and groups undertaken across the whole region	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased	Yes
Lake Rotoiti	BOPRC	Control marginal aquatic pest plants	Hinehopu properties_ Yellow flag iris	November 2012 - February 2013	Work not completed	0	Work not completed	Regional Pest Management Plan	Not applicable	Work not completed – objective not met	No
Lake Rotoiti	BOPRC	Vector management control	Response to report of Water poppy in ornamental pond	February 2013	3400	Hours included in operational total	Water Poppy removed from ornamental pond successfully in Lake Rotoiti catchment - no spread found	Biosecurity Act	Regional Pest Management Plan	Risk of spread reduced and pond treated	
Lake Rotoiti	Fish & Game	Advocacy	Lake creel surveys and angler communication (Opening Day, Summer and Winter creel surveys).	1 Sep 2012 - 31 Aug 2012	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Summer angler surveys completed at with 1443 anglers being interviewed. Aquatic pest work part of this programme (approx 44 hours across all 4 lakes - Tarawera, Okataina, Rotoiti and Rotorua	Biosecurity Act	Not applicable	No new incursions, public knowledge increased	Yes
Lake Rotoiti	LINZ	Vector management control	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa Lakes	November 2012, April 2013	31640	N/A	22.6ha sprayed	Biosecurity Act	Not applicable	Intended spraying successful, amenity and biosecurity values maintained	Yes
Lake Rotoiti	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Events attended, material distributed, general advocacy as required	Biosecurity Act	Not applicable	No new incursions, public knowledge increased	Yes
Lake Tarawera											
Lake Tarawera	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Advocacy material distributed to hotels_motels and retail sites within the Rotorua area. 20 Sporting Events attended 806	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased	Yes

Site	Agency	General Work Programme description	Work completed	Timing	Actual Operational costs (\$)	Actual staff hours	Outputs_Actions	Overarching Strategic Document	Secondary guiding document	Objective_Outcome	Objective met?
General area work											
							surveys of individuals and groups undertaken across the whole region				
Lake Tarawera	BOPRC	Monitoring aquatic pests	Surveillance 8 lakes, incursion responses and monitoring (Egeria, Lagarosiphon and Hornwort)	October 2012- May 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Surveillance and response work undertaken and to standard as planned	Regional Pest Management Plan	Not applicable	Any new Incursions detected prior to widespread establishment	Yes
Lake Tarawera	Fish & Game	Advocacy	Lake creel surveys and angler communication (Opening Day, Summer and Winter creel surveys).	1 Sep 2012 - 31 Aug 2012	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Summer angler surveys completed at with 1443 anglers being interviewed. Aquatic pest work part of this programme (approx 44 hours across all 4 lakes - Tarawera, Okataina, Rotoiti and Rotorua	Biosecurity Act	Not applicable	No new incursions, public knowledge increased	Yes
Lake Tarawera	LINZ	Vector management control	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa Lakes	November 2012, April 2013	6300	N/A	4.5ha sprayed	Biosecurity Act	Regional Pest Management Plan	Intended spraying successful, amenity and biosecurity values maintained	Yes
Lake Tarawera	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Events attended, material distributed, general advocacy as required	Biosecurity Act	Not applicable	No new incursions, public knowledge increased	Yes
Lake Tikitapu											
Lake Tikitapu	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Advocacy material distributed to hotels_motels and retail sites within the Rotorua area. 20 Sporting Events attended 806 surveys of individuals and groups undertaken across the whole region	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased	Yes
Lake Tikitapu	BOPRC	Monitoring aquatic pests	Surveillance 8 lakes, incursion responses and monitoring (Egeria, Lagarosiphon and Hornwort)	October 2012- May 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Surveillance and response work undertaken and to standard as planned	Regional Pest Management Plan	Not applicable	Any new Incursions detected prior to widespread establishment	Yes
Lake Tikitapu	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Events attended, material distributed, general advocacy as required	Biosecurity Act	Not applicable	No new incursions, public knowledge increased	Yes
Lake Rotokakahi											
Lake Rotokakahi	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Advocacy material distributed to hotels_motels and retail sites within the Rotorua area. 20 Sporting Events attended 806 surveys of individuals and groups undertaken across the whole region	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased	Yes
Lake Rotokakahi	BOPRC	Monitoring aquatic pests	Lake surveillance of aquatic vegetation for new aquatic plant incursions - transect dives	October 2012- May 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Surveillance and response work undertaken and to standard as planned	Regional Pest Management Plan	Not applicable	Any new Incursions detected prior to widespread establishment	Yes
Lake Rotomahana											
Lake Rotomahana	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Advocacy material distributed to hotels_motels and retail sites within the Rotorua area. 20 Sporting Events attended 806 surveys of individuals and groups undertaken across the whole region	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased	Yes

Site	Agency	General Work Programme description	Work completed	Timing	Actual Operational costs (\$)	Actual staff hours	Outputs_Actions	Overarching Strategic Document	Secondary guiding document	Objective_Outcome	Objective met?
General area work											
Lake Rotomahana	BOPRC	Monitoring aquatic pests	Surveillance 8 lakes, incursion responses and monitoring (Egeria, Lagarosiphon and Hornwort)	October 2012- May 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Surveillance and response work undertaken and to standard as planned	Regional Pest Management Plan	Not applicable	Any new Incursions detected prior to widespread establishment	Yes
Lake Ōkātina											
Lake Ōkātina	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area		Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased	Yes
Lake Ōkātina	BOPRC	Monitoring aquatic pests	Surveillance 8 lakes, incursion responses and monitoring (Egeria, Lagarosiphon and Hornwort)	October 2012- May 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Surveillance and response work undertaken and to standard as planned	Regional Pest Management Plan	Not applicable	Any new Incursions detected prior to widespread establishment	Yes
Lake Ōkātina	BOPRC	Weed cordon monitoring_maintenance	Monitoring of vegetation in cordon and cordon condition	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	All existing weed cordons checked and maintained as required	Regional Pest Management Plan	Not applicable	Weed cordons effective, no new incursions, cordons functioning and maintained	Yes
Lake Ōkātina	TALT	General support and advocacy, landowner	Support for cordons as landowner	Ongoing	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Support and input provided	Te Arawa Lakes Settlement Act	Not applicable	Support and input provided as required	Yes
Lake Ōkātina	Fish & Game	Advocacy	Lake creel surveys and angler communication (Opening Day, Summer and Winter creel surveys).	1 Sep 2012 - 31 Aug 2012	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Summer angler surveys completed at with 1443 anglers being interviewed. Aquatic pest work part of this programme (approx 44 hours across all 4 lakes - Tarawera, Ōkātina, Rotoiti and Rotorua	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased	Yes
Lake Ōkātina	LINZ	Vector management control	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa Lakes	April 2013	21000	N/A	15ha boat spraying completed	Biosecurity Act	Not applicable	Intended spraying successful, amenity and biosecurity values maintained	Yes
Lake Ōkātina	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Events attended, material distributed, general advocacy as required	Biosecurity Act	Not applicable	No new incursions, public knowledge increased	Yes
Lake Rotomā											
Lake Rotomā	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Advocacy material distributed to hotels_motels and retail sites within the Rotorua area. 20 Sporting Events attended 806 surveys of individuals and groups undertaken across the whole region	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased	Yes
Lake Rotomā	BOPRC	Monitoring aquatic pests	Surveillance 8 lakes, incursion responses and monitoring (Egeria, Lagarosiphon and Hornwort)	October 2012-May 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Surveillance and response work undertaken and to standard as planned	Regional Pest Management Plan	Not applicable	Any new Incursions detected prior to widespread establishment	Yes
Lake Rotomā	BOPRC	Weed cordon monitoring_maintenance	Monitoring of vegetation in cordon and cordon condition	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	All existing weed cordons checked and maintained as required	Regional Pest Management Plan	Not applicable	Weed cordons effective, no new incursions, cordons functioning and maintained	Yes
Lake Rotomā	TALT	General support and advocacy, landowner	Support for cordons as landowner	Ongoing	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Support and input provided	Te Arawa Lakes Settlement Act	Not applicable	Support and input provided as required	Yes
Lake Rotomā	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Events attended, material distributed, general advocacy as required	Biosecurity Act	Not applicable	No new incursions, public knowledge increased	Yes

Site	Agency	General Work Programme description	Work completed	Timing	Actual Operational costs (\$)	Actual staff hours	Outputs_Actions	Overarching Strategic Document	Secondary guiding document	Objective_Outcome	Objective met?
General area work											
Lake Rotomā	LINZ	Vector management control	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa Lakes	April 2013	4900	N/A	3.5ha sprayed	Biosecurity Act	Not applicable	Intended spraying successful, amenity and biosecurity values maintained	Yes
Lake Rotoehu											
Lake Rotoehu	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Advocacy material distributed to hotels_motels and retail sites within the Rotorua area. 20 Sporting Events attended 806 surveys of individuals and groups undertaken across the whole region	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased	Yes
Lake Rotoehu	BOPRC	Weed cordon monitoring_maintenance	Monitoring of vegetation in cordon and cordon condition	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	All existing weed cordons checked and maintained as required	Regional Pest Management Plan	Not applicable	Weed cordons effective, no new incursions, cordons functioning and maintained	Yes
Lake Rotoehu	BOPRC	Lake Nutrient reduction	Hornwort Harvesting undertaken for nutrient removal, amenity, recreational, and biodiversity values	March - June 2013	90000	20	Harvesting undertaken with removal of 3.9 tonne of Nitrogen and 0.518 tonne of Phosphorous	Rotorua Lakes Strategy	Lake Rotoehu Action Plan	Nutrients reduced through removal of hornwort. Amenity, recreational and biodiversity values increased	Yes
Lake Rotoehu	TALT	General support and advocacy, landowner	Support for cordons as landowner	Ongoing	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Support and input provided	Te Arawa Lakes Settlement Act	Not applicable	Support and input provided as required	Yes
Lake Rotoehu	LINZ	Vector management control	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa Lakes	April 2013	8400	N/A	6ha Boat Spraying undertaken	Biosecurity Act	Not applicable	Intended spraying successful, amenity and biosecurity values maintained	Yes
Lake Rotoehu	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Events attended, material distributed, general advocacy as required	Biosecurity Act	Not applicable	No new incursions, public knowledge increased	Yes
Lake Ngāpouri											
Lake Ngāpouri	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Events attended, material distributed, general advocacy as required	Biosecurity Act	Not applicable	No new incursions, public knowledge increased	Yes

Table 5: Summary of 2012/2013 APCG agency work

6. 2013/2014 planned work

Please note - for the purposes of this report, figures for both costs and staff hours reported on in the 2012/2013 and 2013/2014 spreadsheets presented in sections 5 and 6 of this report are generally indicative. While attempts have been made to capture all work and costs associated with Aquatic Pest work it is acknowledged that these figures give a representation of what has been spent and what is planned. The work is primarily focused on the Rotorua Area and associated Rotorua Te Arawa lakes however some work programmes span the BOP Region and have been included. There are omissions from some work programmes outside of the Rotorua Area so this must be taken into consideration.

Site	Agency	General Work Programme description	Planned work	Timing	Planned Operational costs (\$)	Planned staff hours	Overarching Strategic Document	Secondary guiding document	Objective_Outcome
General area work									
Rotorua Lakes Area									
Rotorua Area	BOPRC	Pest Fish incursions	Support DOC when needed	July 2013-June 2014	0	40	Biosecurity Act	Not applicable	No new incursions
Rotorua Area	BOPRC	Monitoring aquatic pests	Brown Bullhead Catfish Monitoring	January 2014 - March 2014	10000	80	Biosecurity Act	Regional Pest Management Plan	Work undertaken as per Catfish Surveillance Plan. No new incursions
Rotorua Area	BOPRC	Planning_Coordination_Policy Development	APCG coordination, RPMP reporting etc	July 2013-June 2014	0	120	Aquatic Pest Co-ordination Group	Regional Pest Management Plan	3 APCG meetings held Report detailing groups activities produced
Rotorua Area	BOPRC	Complaints_Queries_Reports	Respond to public complaints, queries, sightings	July 2013-June 2014	0	120	Regional Pest Management Plan	Not applicable	All complaints and reports responded to
Rotorua Area	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2013 - March 2014	30000	840	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased
Rotorua Area	BOPRC	Monitoring aquatic pests	Surveillance 8 lakes, incursion responses and monitoring (Egeria, Lagarosiphon and Hornwort)	October 2013- May 2014	100000	700	Regional Pest Management Plan	Not applicable	Any new Incursions detected prior to widespread establishment
Rotorua Area	BOPRC	Amenity weed control	Respond to amenity requirements for aquatic weed control as required	February_March 2014	50000	20	Not applicable	Not applicable	Reduction in nuisance weeds
Rotorua Area	BOPRC	Aquatic plant spray monitoring	Pre and post monitoring of both biosecurity and amenity control programmes	July 2013- June 2014	6000	200	Biosecurity Act	Regional Pest Management Plan	Pre and post monitoring undertaken for both amenity and biosecurity spray programmes
Rotorua Area	BOPRC	Weed cordon monitoring_maintenance	Monitor cordons for weed incursions and check structures - maintain if necessary	December 2013 - March 2014	10000	60	Biosecurity Act	Regional Pest Management Plan	Weed cordons effective, no new incursions, cordons functioning and maintained
Rotorua Area	BOPRC	Lake SPI	Survey lake using LakeSPI method to assess aquatic plant community (Conducted by NIWA for BOPRC). Small component of biosecurity work in this programme	April 2014	3000	30	Rotorua Lakes Strategy	Not applicable	Monitoring information gathered for aquatic plant composition and health
Rotorua Area	Fish & Game	Complaints_Queries_Reports	Respond to angler enquiries/ check samples/ photos, pass on to DOC	1 Sep 2013 - 31 April 2014	N/A	20	Biosecurity Act	Not applicable	All complaints and reports responded to
Rotorua Area	Fish & Game	Advocacy	Club visits, events, press releases, web information	1 Sep 2012 - 31 April 2013	0	80	Biosecurity Act	Not applicable	No new incursions
Rotorua Area	Fish & Game	Aquatic plant incursions	Didymo delimiting survey	Quarterly (Mar,Jun,Sep,Dec)	800	8	Biosecurity Act	Not applicable	No new incursions
Rotorua Area	Fish & Game	Planning_Coordination_Policy Development	APCG attendance	1 Sep 2013 - 31 Aug 2014	0	4	Not applicable	Not applicable	Support and input provided as required
Rotorua Area	TALT	General support and advocacy, landowner	Work with other stakeholders, support and provide input as required	Ongoing	N/A	40	Te Arawa Lakes Settlement Act	Not applicable	Support and input provided as required
Rotorua Area	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2013 - March 2014	20100	692	Biosecurity Act	Not applicable	No new incursions
Rotorua Area	DOC	Planning_Coordination_Policy Development	APCG attendance	July 2013-June 2014	0	15	Not applicable	Not applicable	Support and input provided as required

Site	Agency	General Work Programme description	Planned work	Timing	Planned Operational costs (\$)	Planned staff hours	Overarching Strategic Document	Secondary guiding document	Objective_Outcome
General area work									
Rotorua Area	DOC	Aquatic plant incursions	Didymo delimiting survey	Quarterly (Mar,Jun,Sep,Dec)	From advocacy budget above	From advocacy budget above	Biosecurity Act	Not applicable	No new incursions
Rotorua Area	LINZ	Vector management control	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa Lakes	November 2013- April 2014	114000	160	Te Arawa Lakes Settlement Act	Regional Pest Management Plan	Intended spraying successful, amenity and biosecurity values maintained
Rotorua Area	LINZ	Aquatic plant spray monitoring	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa Lakes. Contract BOPRC to undertake pre and post spray control monitoring of spray sites for biosecurity purposes	December 2013 - March 2014	18000	N/A	Te Arawa Lakes Settlement Act	Regional Pest Management Plan	Pre and post monitoring undertaken for biosecurity spray programmes. Spraying is targeted and successful
Rotorua Area	RDC	Amenity weed control	Removal of nuisance weed at boat ramps (weekly or fortnightly) and at other sites as required	July 2013-June 2014	50000	25	Rotorua District Plan	Not applicable	Recreational and amenity values maintained
Whakatane District									
Whakatane District	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased
Whakatane District	Fish & Game	Advocacy	Club visits, events, press releases, web information, angler checks	1 Sep 2013 - 31 Aug 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Not applicable	No new incursions
Whakatane District	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Not applicable	No new incursions
Tauranga District									
Tauranga District	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased
Tauranga District	Fish & Game	Advocacy	Club visits, events, press releases, web information, angler checks	1 Sep 2013 - 31 Aug 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Not applicable	No new incursions, public knowledge increased
Tauranga District	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Not applicable	No new incursions, public knowledge increased
Specific Lake Work									
Lake Ōkaro									
Lake Ōkaro	BOPRC	Advocacy	Summer Students, public surveys, events	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased
Lake Ōkaro	BOPRC	Monitoring aquatic pests	Surveillance 8 lakes, incursion responses and monitoring (Egeria, Lagarosiphon and Hornwort)	October 2013- May 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Regional Pest Management Plan	Not applicable	Any new Incursions detected prior to widespread establishment
Lake Okareka									
Lake Ōkāreka	BOPRC	Aquatic plant incursions	Development of response management plan, options and monitoring techniques for treatment of Okareka Hornwort incursion - underway by NIWA for BOPRC	July 2013-June 2014	70000	20	Biosecurity Act	Regional Pest Management Plan	Incursion dealt with according to plan and contained
Lake Ōkāreka	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries)	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased
Lake Ōkāreka	BOPRC	Monitoring aquatic pests	Surveillance 8 lakes, incursion responses and monitoring (Egeria, Lagarosiphon and Hornwort)	October 2013- May 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Regional Pest Management Plan	Lake Okareka Action Plan	Any new Incursions detected prior to widespread establishment

Site	Agency	General Work Programme description	Planned work	Timing	Planned Operational costs (\$)	Planned staff hours	Overarching Strategic Document	Secondary guiding document	Objective_Outcome
General area work									
Lake Ōkāreka	BOPRC	Weed cordon monitoring_maintenance	Monitoring of vegetation in cordon and cordon condition	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Regional Pest Management Plan	Lake Okareka Action Plan	Weed cordons effective, no new incursions, cordons functioning and maintained
Lake Ōkāreka	BOPRC	Control marginal aquatic pest plants	Control of marginal vegetation - Yellow Flag Iris	November 2013 - February 2014	5000	10	Regional Pest Management Plan	Lake Okareka Action Plan	Control undertaken and YFI contained
Lake Ōkāreka	BOPRC	Pond surveys	Survey of ponds on private land for plant and animal aquatic pests - high risk sites	Ongoing	5000	20	Biosecurity Act	Regional Pest Management Plan	Pest plants identified and appropriate action taken. Advocacy and education of landowners increased
Lake Ōkāreka	LINZ	Vector management control	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa Lakes - boat spraying planned	November 2013, April 2014	Work included in total for Rotorua Area	N/A	Biosecurity Act	Not applicable	Intended spraying successful, amenity and biosecurity values maintained
Lake Ōkāreka	TALT	General support and advocacy, landowner	Support for cordons as landowner and other work as required	Ongoing	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Te Arawa Lakes Settlement Act	Not applicable	Support and input provided as required
Lake Ōkāreka	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Not applicable	No new incursions, public knowledge increased
Lake Rerewhaakitu									
Lake Rerewhaakitu	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased
Lake Rerewhaakitu	BOPRC	Monitoring aquatic pests	Surveillance 8 lakes, incursion responses and monitoring (Egeria, Lagarosiphon and Hornwort)	October 2013- May 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Regional Pest Management Plan	Not applicable	Any new Incursions detected prior to widespread establishment
Lake Rerewhaakitu	BOPRC	Weed cordon construction	Complete construction of the Weed Cordon at Homestead Arm	July 2013-June 2014	15890	98	Regional Pest Management Plan	Not applicable	Weed cordons effective, no new incursions, cordons functioning and maintained
Lake Rerewhaakitu	TALT	General support and advocacy, landowner	Support for cordons as landowner and other work as required	Ongoing	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Te Arawa Lakes Settlement Act	Not applicable	Support and input provided as required
Lake Rerewhaakitu	LINZ	Vector management control	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa Lakes - boat spraying planned	November 2013, April 2014	N/A	N/A	Biosecurity Act	Not applicable	Intended spraying successful, amenity and biosecurity values maintained
Lake Rerewhaakitu	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Not applicable	No new incursions, public knowledge increased
Lake Rotorua									
Lake Rotorua	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased
Lake Rotorua	BOPRC	Pond surveys	Survey of ponds on private land for plant and animal aquatic pests - high risk sites	Ongoing	5000	20	Biosecurity Act	Regional Pest Management Plan	Pest plants identified and appropriate action taken. Advocacy and education of landowners increased
Lake Rotorua	Fish & Game	Aquatic plant incursions	Didymo delimiting survey-Ngongotaha Stream	Quarterly (Mar,Jun,Sep,Dec)	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased
Lake Rotorua	Fish & Game	Advocacy	Summer Survey and angler communications (Face to Face).	1 Sep 2013 - 31 Aug 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Not applicable	No new incursions, public knowledge increased
Lake Rotorua	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Not applicable	No new incursions, public knowledge increased
Lake Rotorua	LINZ	Vector management control	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa	November 2013, April 2014	Work included in total for Rotorua Area	N/A	Biosecurity Act	Not applicable	Intended spraying successful, amenity and biosecurity values

Site	Agency	General Work Programme description	Planned work	Timing	Planned Operational costs (\$)	Planned staff hours	Overarching Strategic Document	Secondary guiding document	Objective_Outcome
General area work									
			Lakes - boat spraying planned		Area				maintained
Lake Rotoiti									
Lake Rotoiti	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased
Lake Rotoiti	BOPRC	Control marginal aquatic pest plants	Hinehopu properties_ Yellow flag iris	November 2013 - February 2014	5000	8	Regional Pest Management Plan	Not applicable	Intended spraying successful, amenity and biosecurity values maintained
Lake Rotoiti	Fish & Game	Advocacy	Lake creel surveys and angler communication (Opening Day, Summer and Winter creel surveys).	1 Sep 2013 - 31 Aug 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Not applicable	No new incursions, public knowledge increased
Lake Rotoiti	LINZ	Vector management control	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa Lakes - boat spraying planned	November 2013, April 2014	Work included in total for Rotorua Area	N/A	Biosecurity Act	Not applicable	Intended spraying successful, amenity and biosecurity values maintained
Lake Rotoiti	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Not applicable	No new incursions, public knowledge increased
Lake Tarawera									
Lake Tarawera	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased
Lake Tarawera	BOPRC	Monitoring aquatic pests	Surveillance 8 lakes, incursion responses and monitoring (Egeria, Lagarosiphon and Hornwort)	October 2013- May 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Regional Pest Management Plan	Not applicable	Any new Incursions detected prior to widespread establishment
Lake Tarawera	LINZ	Vector management control	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa Lakes - boat spraying planned	November 2013, April 2014	Work included in total for Rotorua Area	N/A	Biosecurity Act	Regional Pest Management Plan	Intended spraying successful, amenity and biosecurity values maintained
Lake Tarawera	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Not applicable	No new incursions, public knowledge increased
Lake Tikitapu									
Lake Tikitapu	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased
Lake Tikitapu	BOPRC	Monitoring aquatic pests	Surveillance 8 lakes, incursion responses and monitoring (Egeria, Lagarosiphon and Hornwort)	October 2013- May 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Regional Pest Management Plan	Not applicable	Any new Incursions detected prior to widespread establishment
Lake Tikitapu	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2012 - March 2013	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Not applicable	No new incursions, public knowledge increased
Lake Rotokakahi									
Lake Rotokakahi	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased
Lake Rotokakahi	BOPRC	Monitoring aquatic pests	Surveillance 8 lakes, incursion responses and monitoring (Egeria, Lagarosiphon and Hornwort)	October 2013- May 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Regional Pest Management Plan	Not applicable	Any new Incursions detected prior to widespread establishment
Lake Rotomahana									
Lake Rotomahana	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased
Lake Rotomahana	BOPRC	Monitoring aquatic pests	Surveillance 8 lakes, incursion responses and monitoring (Egeria, Lagarosiphon and Hornwort)	October 2013- May 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Regional Pest Management Plan	Not applicable	Any new Incursions detected prior to widespread establishment
Lake Ōkātina									

Site	Agency	General Work Programme description	Planned work	Timing	Planned Operational costs (\$)	Planned staff hours	Overarching Strategic Document	Secondary guiding document	Objective_Outcome
General area work									
Lake Ōkātina	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased
Lake Ōkātina	BOPRC	Monitoring aquatic pests	Surveillance 8 lakes, incursion responses and monitoring (Egeria, Lagarosiphon and Hornwort)	October 2013- May 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Regional Pest Management Plan	Not applicable	Any new Incursions detected prior to widespread establishment
Lake Ōkātina	BOPRC	Weed cordon monitoring_maintenance	Monitoring of vegetation in cordon and cordon condition	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Regional Pest Management Plan	Not applicable	Weed cordons effective, no new incursions, cordons functioning and maintained
Lake Ōkātina	TALT	General support and advocacy, landowner	Support for cordons as landowner and other work as required	Ongoing	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Te Arawa Lakes Settlement Act	Not applicable	Support and input provided as required
Lake Ōkātina	Fish & Game	Advocacy	Lake creel surveys and angler communication (Opening Day, Summer and Winter creel surveys).	1 Sep 2013 - 31 Aug 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased
Lake Ōkātina	LINZ	Vector management control	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa Lakes - boat spraying planned	April 2014	Work included in total for Rotorua Area	N/A	Biosecurity Act	Not applicable	Intended spraying successful, amenity and biosecurity values maintained
Lake Ōkātina	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Not applicable	No new incursions, public knowledge increased
Lake Rotomā									
Lake Rotomā	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries for this work)	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased
Lake Rotomā	BOPRC	Monitoring aquatic pests	Surveillance 8 lakes, incursion responses and monitoring (Egeria, Lagarosiphon and Hornwort)	October 2013-May 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Regional Pest Management Plan	Not applicable	Any new Incursions detected prior to widespread establishment
Lake Rotomā	BOPRC	Weed cordon monitoring_maintenance	Monitoring of vegetation in cordon and cordon condition	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Regional Pest Management Plan	Not applicable	Weed cordons effective, no new incursions, cordons functioning and maintained
Lake Rotomā	TALT	General support and advocacy, landowner	Support for cordons as landowner and other work as required	Ongoing	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Te Arawa Lakes Settlement Act	Not applicable	Support and input provided as required
Lake Rotomā	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Not applicable	No new incursions, public knowledge increased
Lake Rotomā	LINZ	Vector management control	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa Lakes - boat spraying planned	April 2014	Work included in total for Rotorua Area	N/A	Biosecurity Act	Not applicable	Intended spraying successful, amenity and biosecurity values maintained
Lake Rotoehu									
Lake Rotoehu	BOPRC	Advocacy	Summer Students, public surveys, events (contribution of funding from Ministry of Primary Industries)	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Regional Pest Management Plan	No new incursions, public knowledge increased
Lake Rotoehu	BOPRC	Weed cordon monitoring_maintenance	Monitoring of vegetation in cordon and cordon condition	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Regional Pest Management Plan	Not applicable	Weed cordons effective, no new incursions, cordons functioning and maintained
Lake Rotoehu	BOPRC	Weed cordon construction	Construction of new cordon planned at Kennedy Bay	December 2013 - March 2014	20000	80			
Lake Rotoehu	BOPRC	Lake Nutrient reduction	Hornwort Harvesting up to 3000 tonnes programmed	March - June 2013	100,000	40	Rotorua Lakes Strategy	Lake Rotoehu Action Plan	Nutrients reduced through removal of hornwort
Lake Rotoehu	BOPRC	Lake Nutrient reduction	Work being undertaken on cost/benefit analysis for purchase of Weed harvester	July 2013 - June 2014	3,500	10	Rotorua Lakes Strategy	Lake Rotoehu Action Plan	Nutrients reduced through removal of hornwort
Lake Rotoehu	LINZ	Vector management control	Management of biosecurity weed issues on behalf of the Crown in the Te Arawa Lakes - boat spraying planned	April 2014	Work included in total for Rotorua Area	N/A	Biosecurity Act	Not applicable	Intended spraying successful, amenity and biosecurity values maintained
Lake Rotoehu	TALT	General support and advocacy, landowner	Support for cordons as landowner and other work as required	Ongoing	Work included in total for Rotorua Area	Work included in total for	Te Arawa Lakes Settlement Act	Not applicable	Support and input provided as required

Site	Agency	General Work Programme description	Planned work	Timing	Planned Operational costs (\$)	Planned staff hours	Overarching Strategic Document	Secondary guiding document	Objective_Outcome
General area work									
					Area	Rotorua Area			
Lake Rotoehu	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Not applicable	No new incursions, public knowledge increased
Lake Ngapouri									
Lake Ngāpouri	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Not applicable	No new incursions, public knowledge increased
Lake Ngahewa									
Lake Ngāhewa	DOC	Advocacy	Advocacy distribution at high profile sites/events/businesses. Surveys and talks.	December 2013 - March 2014	Work included in total for Rotorua Area	Work included in total for Rotorua Area	Biosecurity Act	Not applicable	No new incursions, public knowledge increased

Table 6: Summary of Planned 2013/2014 APCG agency work

7. Summary

A range of activities in relation to aquatic pests are undertaken by members of the APCG group. These activities fit within a variety of legislation and mandates. The amount of work and funding for work within the aquatic pest area also varies between each of the APCG members and relates to this range of mandates and responsibilities.

The APCG group of activities has a particular focus on the Rotorua Te Arawa lakes although some activities, particularly advocacy are conducted throughout the entire BOP Region.

Many of the work programmes are now well established and the APCG itself has clear terms of reference for the functioning of this group. The collation of this annual report will help to add cohesion to this group and their activities and enable the work and expenditure to be tracked for the group over time.

The initial tracking of the collective value of APCG agency work can be seen in summary in Table 7 below.

Financial Year	Operational expenditure	Staff hours
2011/2012	\$395,400	3343
2012/2013	\$617,174	3618
Planned 2013/2014	\$641,290	3560

Table 7: Summary of APCG agency expenditure and staff hours

A large increase in operational expenditure can be seen between the 2011/2012 and 2012/2013 years. A portion of this increase can be attributed to Hornwort harvesting at Lake Rotoehu (\$100,000) being reported during the 2012/2013 year and not being reported in 2011/2012. Other differences can be partially attributed to the initiation of the Brown Bullhead surveillance work in 2012/2013 and increased expenditure by RDC in clearance of weed at boat ramps and weed strandings. It must also be noted that hours for LINZ administration of the Rotorua Te Arawa lakes spray programme were included in 2012/2013 and were not reported on in 2011/2012.

Table 8 summarises the percentage of expenditure and hours by agency for 2011/2012 and 2012/2013

Agency	Operational funds 11/12	Staff hours 11/12	Operational funds 12/13	Staff hours 12/13
BOPRC	53%	67%	54%	71%
DOC Rotorua Lakes Area Office (excludes Opotiki and Tauranga Area offices) ¹	3%	27%	2.5%	23%
Eastern Fish and Game	1%	3%	1%	5%
TALT	0%	1%	0%	1%
RDC	13%	1%	15%	0%

¹ These areas and offices no longer apply from September 2nd 2013 when DOC changed structure. Changes in boundaries and relevant offices will be addressed in the 2013/2014 reporting year

LINZ	30%	0%	27.5%	0%
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Table 8: Summary of operational expenditure and staff hours by agency for 2011/12 and 2012/13 (rounded figures)

As this APCG reporting continues, the total commitment from the agencies in both operational and staff hours will be able to be tracked and provide a picture of the level of importance this area of work has in the BOP region.

Table 9 summarises APCG activities for 2012/2013 against group objectives as outlined in the APCG terms of reference.

Objective	Activities undertaken to achieve objective
1. To facilitate communication and liaison regarding aquatic pest issues between the representative organisations	Meetings held every 4 months and information shared Liaison between various members on particular issues and work undertaken
2. To act as a forum to promote further discussion and input on technical issues from relevant organisations	Technical issues have been discussed where appropriate and expertise of members drawn on when required.
3. To plan, implement and report on operational activities in regard to aquatic pests within the Rotorua Lakes	Formulation of this annual report and planning for the coming year has been completed – all agencies contributed
4. To raise awareness and understanding of aquatic pest issues in the Rotorua Lakes	All agencies are doing this within their relevant mandates when opportunity arises Significant resources have been used to raise awareness through advocacy programmes from several of the APCG agencies
5. To promote consistency of policy and strategic direction between agencies for the management of aquatic pests within the Rotorua Lakes	Information sharing contributes to achieving this objective. Each agency the ability to comment on planning and policy documents from other agencies and APCG provides a forum for discussion of these policies and direction
6. Regularly review these objectives, how they will be achieved and the overall effectiveness of the group	Review is ongoing and would benefit from being part of the annual reporting and planning cycle.

Table 9: Summary of key activities undertaken to meet APCG objectives

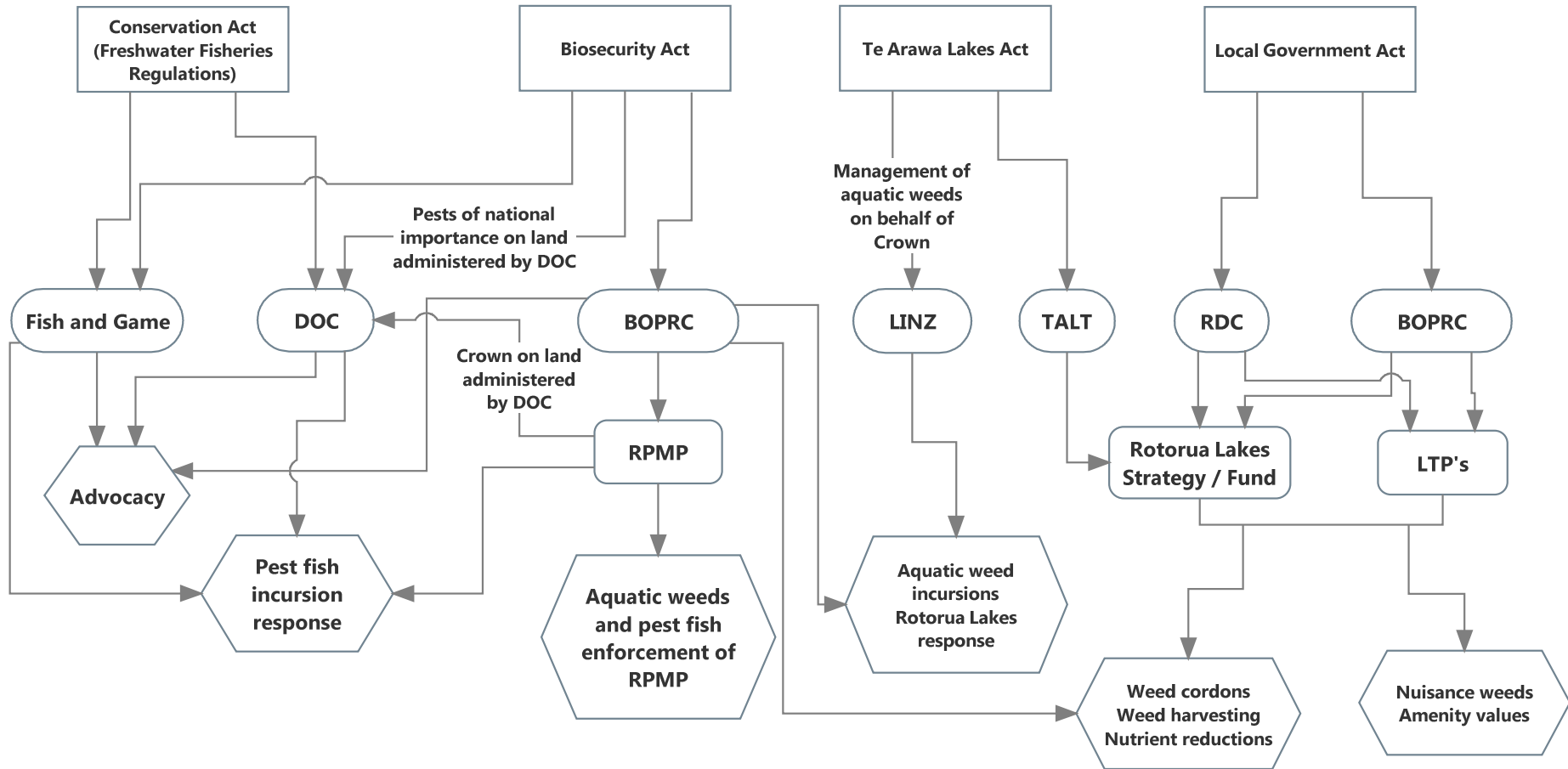
8. Recommendations

During the this work some areas have been identified where improvements could be made in regard to aquatic pest work in the BOP region and the APCG group. Recommendations for future reporting are:

- That the APCG objectives be reviewed during this financial year to ensure they continue to be relevant. Ensure that new opportunities for further collaboration between agencies or more targeted use of resource are utilised by a full review of the planned activities within this reporting document.

- Financial reporting mechanisms within BOPRC allow little ability to break expenditure down by individual lake and financial codes are kept at a high level. It would be beneficial for BOPRC staff to assess the reporting requirements at this level and whether further breakdown of costings would be beneficial.
- For BOPRC to continue to work on collation and updating the master lakes spreadsheet to bring all work areas together for each Rotorua Te Arawa lake to provide a cohesive summary of both recent and current work within the extensive BOPRC work programmes.
- Continue to look for opportunities to develop a more holistic approach to include work and issues relevant to Lakes Ngāpouri, Ngāhewa and Tutaeinanga which fall within the Waikato Region boundaries. These lakes may be at risk from aquatic pests or pose a risk to other Rotorua Te Arawa lakes. It would be worthwhile to liaise with Waikato Regional Council in regards to activities as well as the work currently being undertaken by DOC Rotorua District on wetland restoration at Lake Ngāhewa.
- Continue to report annually on the APCG work programme to recognise the resource and effort invested in aquatic pest management. Use this information to provide support to further development of the programme and promote the continued goals of the group.

Appendix 1: Legislative linkage diagram



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