

Carp Management Program Annual Report 2011-12



© Inland Fisheries Service, July 2012, ISSN 1832-9586

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This annual report details carp management activities for the financial year 2011 – 12, as part of the lakes Sorell and Crescent Carp Management Program.

The objective of the program is: - To eradicate carp from Tasmanian waters and, in the meantime, to minimise the impact of carp on Tasmania from economic, recreational and ecological points of view.

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An increased level of effort was applied throughout the 2011/12 season due to the successful application for funding through the Federal Government's Caring for Our Country (CFOC) program. This will provide two years of funding to match the State Government's annual contribution and ensure additional resources are available to contain carp to Lake Sorell, aid in spawning prevention and protect the threatened golden galaxias and the wetland habitat.

This additional effort has resulted in the removal of over 60% of the remaining carp population in Lake Sorell post the 2009 spawning event. The majority of the captures were juveniles from the 2009 cohort with one adult female carp captured in November. Importantly the increased effort has also aided in the prevention of spawning with no recruitment being detected. Carp removal during the past twelve months has been difficult with the majority of fish being sub adults and having no desire to push into traps bordering the wetlands, only being drawn from open water on the rare occasion when the sun came out for extended periods. This lack of interest to aggregate meant more emphasis was placed on deep water capture methods such as trawl techniques, deep set traps and by trying to draw carp to berley sites. All of these had little or limited success. The Inland Fisheries Service is collaborating with professional fishermen and the Australian Maritime College to establish more successful capture techniques.

The Program held a two day workshop in May to present this year's work to its stakeholder steering committee as well as develop an operational plan for the coming twelve months. A funding application has been resubmitted to FRDC for further sterilisation work which will aim to have sterile carp to use as 'Judas' transmitter fish as the cohort is in the final stages of removal.

I.

Carp Captures and Fish-down Effort

I.1 Carp Captures at a Glance

Table 1. Carp Captures from Lake Sorell and Lake Crescent for the 2011-2012 financial year

Lake	Total 2011 / 2012	Adult / Juvenile	Total 1995 to present
Sorell	6,533	1/6,532	32,736
Crescent	0	0	7797

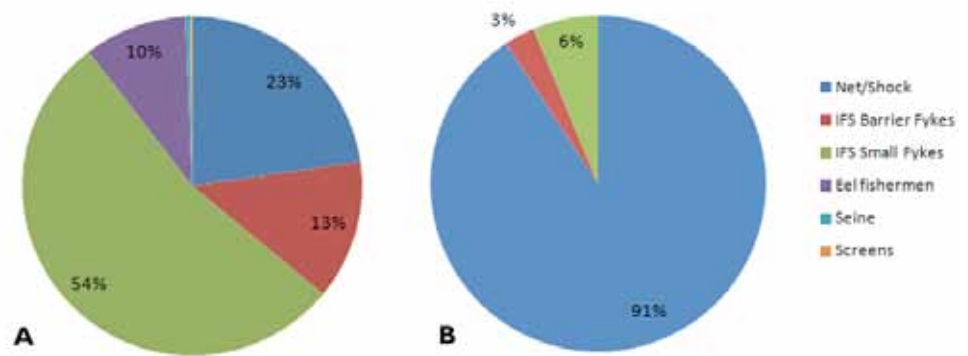


Figure 1 A. Proportion of carp captured per method from July to December 2011

B. Proportion of carp captured per method from January to June 2012

Note: "Net/Shock" includes carp captured using various sized gill nets, backpack shockers, and electro-boat. In most circumstances a variety of methods were used in conjunction with each other for best results.



Figure 2 A member of the carp team checking a fyke net

1.2 Lake Sorell

The 2011/12 season proved to be a difficult and challenging year after the bleak realisation carp numbers in the lake were higher than initially thought. The original estimate of 30,000 juvenile carp from the 2009 spawning event was based on Catch Per Unit Effort (CPUE) data but was re-assessed with an intensive mark-recapture population study in January which pushed the figure up to 50,000 carp. Since the discovery of the juvenile carp in 2009 the carp team has removed approximately 60% of this cohort and aims to eradicate the remaining percentage in the next few years.

Over 6,500 juvenile carp were captured in the 2011/12 season, and overall effort was increased throughout the year. Federal Government funding through the CFOC program matched the State Government contribution of \$400,000, which resulted in extra personnel and additional resources being applied to prevent further carp spawning, contain carp to Lake Sorell and increase the removal rate. This work is seen as the key to protecting the natural values within the area including the threatened golden galaxias (*Galaxias auratus*) and the important wetlands which include the Ramsar listed Interlaken reserve. Only 1 adult carp was caught this year; a large ripe female, which was captured using the electro-boat in November. It was a critical capture at that point in time, and a very successful result for the carp team. The capture of just one adult carp for the year, despite the increased effort suggests that the adult population is very low and likely to be below 10 individuals.



Figure 3. Inland fisheries staff retrieving a gillnet set around a carp aggregation

Gill nets set behind barrier nets, as added spawning prevention, was continued throughout the peak period. The absence of any adult carp captures in these nets along with the juvenile fyke net survey results suggests spawning was prevented. The efficiency of techniques used to catch carp changed dramatically throughout the season. During the first half of the season when water temperatures were low, the passive techniques which include small fyke nets, large barrier fyke nets, and fyke nets used by the commercial eel fishermen, caught the highest proportion of fish (Figure 1. A). In contrast, the active techniques which included the use of gill nets and backpack shockers/ electro-boat accounted for less than 25% of the overall catch (Figure 1. A). However, during the warmer half of the season, the passive techniques became inefficient, and active targeting of carp proved to be the most successful method for targeting. The use of gill nets, backpack shockers, and the electro-boat accounted for 91% of the total catch from January to June 2012, while both the small and barrier fyke nets accounted for less than 25% of fish caught (Figure 1. B).

The colder months have always proven to be a difficult time to catch carp, and this season was no different. From July to September 2011 only 56 juvenile carp were caught, with no adult captures (Figure 4). As the weather began to warm up, catch rates increased steadily, January being the most successful month with numerous periods of consecutive warm (25-35°C) clear sunny days (Figure 4). These weather conditions draw the carp into the warm shallows, and allow effective targeting of aggregations with gill nets and electro-fishing techniques.

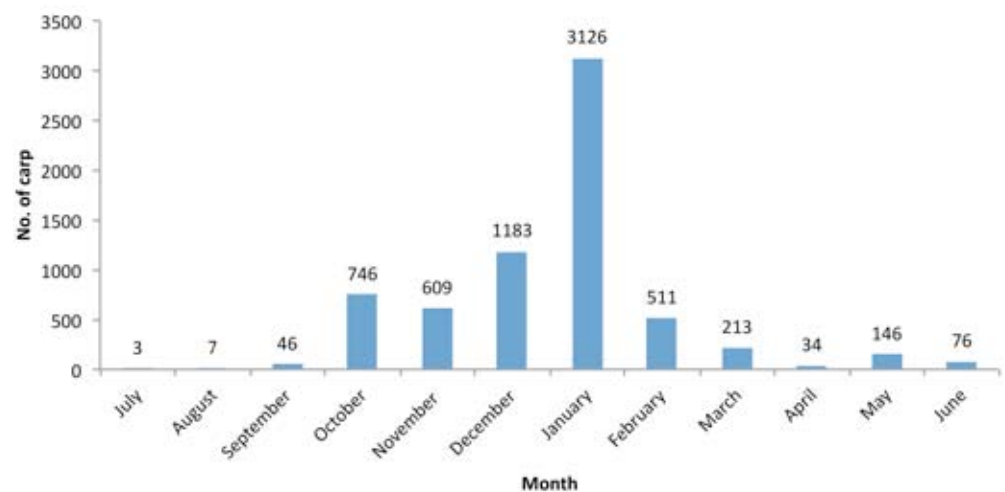


Figure 4. Total monthly carp captures for the 2011-12 financial year

From April 2012 onwards, the weather began to cool down again, and as a result carp captures slowed significantly. However the average catch rate during these months was much higher than previous years. This was a direct result of additional funding allowing effort to be maintained and giving the ability to trial a number of new techniques which included deep set fyke nets, Danish seine netting, berley attractants and trawling.

1.3 Lake Crescent

No carp were captured in Lake Crescent during the 2011-2012 financial year despite continued sampling and monitoring. The last mature female carp was captured in 2007 suggesting carp have now been eradicated from the lake.

Lake Crescent's water quality is also continuing to show increasing signs of improvement (Figure 5). Since the extremely low water levels in 2008, the average total turbidity of Lake Crescent has been improving considerably. This is the direct result of the high water levels flushing the lake after large rainfall events. Currently, the water quality of Lake Crescent is the best it's been for the past 10 years. Higher water levels continue to further improve the water quality, and this will be monitored closely through monthly sampling.

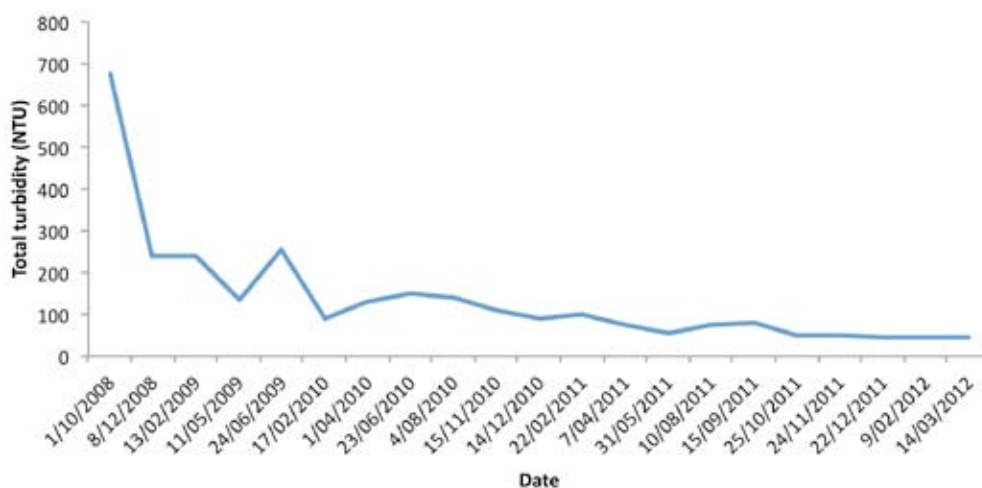


Figure 5. Decreasing turbidity levels in Lake Crescent from 2008 to 2012

The annual carp survey in Lake Crescent conducted in March 2012 found no sign of carp recruitment but showed a rebound in golden galaxias numbers thriving in aquatic vegetation in the wetlands.

2.

Cohorts/ Population Estimate

2.1 Lake Crescent

The last recruitment in Lake Crescent was less than 100 carp in 2000. Despite continued effort no carp have been caught since 2007. Fishing continued until the end of 2009 using transmitter -implanted male tracker carp with many hundreds of hours fishing using gillnets, fish traps and electro-fishing gear resulting in the capture and recapture of tracker fish and no indication of any remaining wild carp. Monitoring the lake for any sign of carp presence continues unabated using juvenile surveys and commercial eel fisher effort. Juvenile fyke-net surveys have been shown to detect even small cohorts (<20) within 2 years of spawning. If any combination of male and female carp existed in the lake the ideal spawning conditions since 2009 would have resulted in a population bounce detectable by juvenile monitoring. As no such bounce has been found it is highly probable that Lake Crescent is carp free.

2.2 Lake Sorell

The recruitment of a large number of juvenile carp in late 2009 was followed by intense fish-down procedures resulting in the removal of over 25,000 of these fish over the following 24 months. Attempts to quantify the size of this new cohort through CPUE based population estimates proved problematic because of the differences in fishing methods compared with the treatment of previous cohorts in lakes Sorell and Crescent e.g. large scale use of IFS and commercial fyke nets and spot rotenone treatments. It was therefore decided to implement a mark-recapture study similar to the 1998-99 Lake Crescent abundance estimate which yielded very accurate results due to close compliance with the assumptions of the Petersen method on which it is based (Donkers et al 2012). The study was initiated after Christmas 2011. During the last week of December as many juvenile carp as possible were caught using a variety of methods including 3" and 4" gillnets, backpack shockers and boat-based electro-fishing, plus small and large fyke-nets. Captured carp were transferred to a central holding pen ready for tagging when time allowed.

Over the first three days of January the captured fish were double tagged and released back into the lake. A total of 803 juvenile carp were tagged and released. The fish were left to randomly mix for several days before the recapture process began. The recapture period to the end of June has yielded 3,286 carp of which 100 were tagged giving an overall ratio of tagged to untagged fish of approximately 1:33.



Figure 6: A recaptured tagged juvenile carp

This ratio has remained reasonably constant on a month to month basis which indicates random mixing of the tagged carp and consequently a reliable estimate (Figure 7). Tag loss has been negligible with all recaptured fish retaining both tags. The Petersen Estimator yields a figure of 22,060 juvenile carp left in Lake Sorell and the Reverse Schnabel indicates 20,096.

This implies an original recruitment of over 50,000 carp in 2009. Originally there appeared to be at least two cohorts of juveniles separated by about 6 weeks in late 2009 however these are now indistinguishable in the length-frequency graphs.

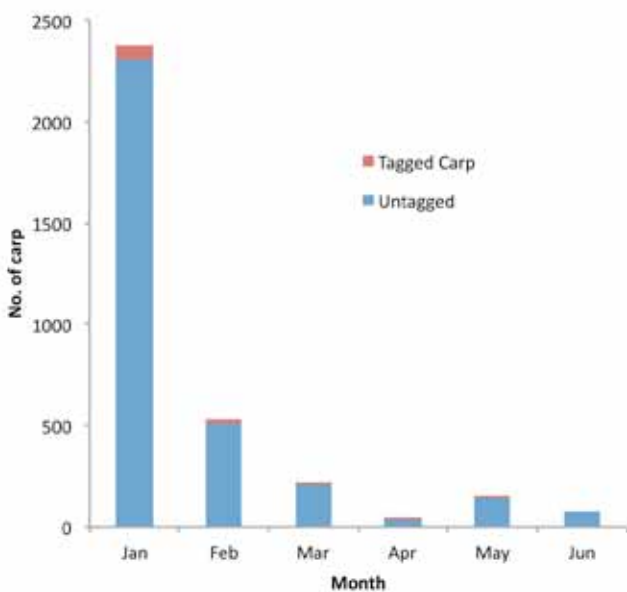


Figure 7: Ratio of tagged/untagged juvenile carp since the mark-recapture
 NOTE: January numbers do not include carp captured during tagging period

Total adult carp numbers are very low and probably less than 10. It is not possible to estimate accurate numbers as these fish are the result of very small recruitments in 2004, 2005 and 2007.

3.

Juvenile Carp Surveys

Juvenile carp fyke net surveys were conducted in Lake Sorell and Lake Crescent this year in conjunction with other comprehensive juvenile sampling techniques. These are conducted each year to detect if there was any juvenile recruitment during the spawning season.

The Lake Sorell fyke net survey ran from the 19th to the 23rd of March 2012 and consisted of 68 fyke nets. Fyke nets were set in historical locations covering all areas of the lake and checked daily. See results in Table 2.

The Lake Crescent fyke net survey ran from 13th to the 16th of March 2012 and consisted of 50 fyke nets. Fyke nets were set in historical locations covering all areas of the lake and checked daily. See results in Table 3.

Table 2. Lake Sorell juvenile fyke net survey results 2012

Date	Carp	Rainbow Trout	Brown Trout	Eels
20/03/2012	6	1	8	41
21/03/2012	1	0	14	13
22/03/2012	0	0	4	11
23/03/2012	1	0	4	0

Table 3. Lake Crescent juvenile fyke net survey results 2012

Date	Carp	Rainbow Trout	Brown Trout	Eels
14/03/2012	0	13	1	30
15/03/2012	0	9	1	81
16/03/2012	0	8	2	104

Intensive Juvenile sampling was undertaken in Lakes Sorell and Crescent during the time of the fyke net surveys to guarantee there had been no juvenile recruitment over the 2011-12 spawning season. All possible juvenile carp habitat was comprehensively sampled using backpack shockers. No new cohorts were found. Refer to table 4 and 5 for juvenile sampling effort in Lakes Crescent and Sorell respectively.

Table 4. Lake Crescent juvenile sampling effort 2012

Date	Method	Location	Effort	Carp
15/03/2012	Backpack	Clyde marsh (site 1)	20min 2xBP	0
15/03/2012	Backpack	Shack corner	10min 2xBP	0
15/03/2012	Backpack	Clyde marsh (drain)	25min 2xBP	0
15/03/2012	Backpack	Canal drain	15min 2xBP	0

Table 5. Lake Sorell Juvenile Sampling Effort

Date	Method	Location	Effort	Carp
21/03/2012	Backpack	Robertson's Marsh (east drain)	10min 2xBP	0
21/03/2012	Backpack	Robinsons Marsh (middle drain)	40min 2xBP	0
21/03/2012	Backpack	Robinsons Marsh (site 3)	30min 2xBP	0
21/03/2012	Backpack	Silver Plains Marsh (main drain)	45min 2xBP	0
21/03/2012	Backpack	Silver Plains Marsh (blind drain)	25min 2xBP	0
22/03/2012	Backpack	Boathouse Bay	25min 1xBP	0
22/03/2012	Backpack	Silver Plains Marsh (south)	20min 2xBP	0
22/03/2012	Backpack	Silver Plains Marsh (creek drain)	15min 2xBP	0
22/03/2012	Backpack	Grassy Point	15min 2xBP	0
26/03/2012	Backpack	Kermodes Marsh (drain)	40min 1xBP	0
26/03/2012	Backpack	Muddy Bay	40min 1xBP	0
26/03/2012	Backpack	Dogs Head Marsh	30min 1xBP	0
26/03/2012	Backpack	Kemps Marsh	45min 1xBP	0
27/03/2012	Backpack	Duck Bay (south)	30min 1xBP	0
27/03/2012	Backpack	Duck Bay (north)	30min 1xBP	0
27/03/2012	Backpack	Meaghers Bay	60min 1xBP	0

4.

Developing New Techniques

Usually fishing intensity reduces over the winter months due to the change in carp behavior brought on by the drop in water temperature. During these months carp are observed loosely aggregating around deeper sections of the lake where the water temperatures do not fluctuate significantly. These deeper areas of the lake are then targeted using gill nets and the electro-boat but with limited success due to the depth and the rocky substrate.

Comprehensive discussions were undertaken over the summer period regarding winter targeting of carp and how the catch rate could be improved over this time. Since the discussions a number of new methods have been brought forward and trialed and will continue to be trialed over the coming months. These new methods include; Danish seine, underwater fyke nets, Chinese box traps, berley trials and paired trawling.

Seine netting has been a standard technique with the program using beach seines for quite some time as an effective shallow water targeting tool. The Danish Seine, on the other hand, are completely different and require the use of vessels. The method requires that a purpose built net is towed through the water herding fish into the “cod-end”. The difference is the gear is set behind a target (tracker fish) in a semi-circular fashion and towed over its path. This method was trialed with the help of Chris Stapleton of Baits Plus Nets but despite catching other species no carp were captured. Further refinements are being undertaken to improve this technique.



Figure 8: The carp team retrieving the Danish seine net during trials

The underwater fyke nets are a string of three small fyke nets joined together and customised with lead weights, anchors, and floats so they take the same shape underwater as they would when fished normally in shallow sites. The fyke nets are held to the bottom using a plough anchor at each end. The nets are deployed in areas where a lot of tracker fish activity has been observed and are checked on a daily basis. Although a large number of trout are being captured no carp have been caught. These nets will be trialed continuously over the coming months.

The Chinese box traps are similar to the underwater fyke nets in that they are also submerged underwater and fish the bottom. The design of the Chinese trap, on the other hand, is an interesting one and differs quite significantly from the traditional fyke net design. The trial nets currently in use are quite small but if successful larger nets will be ordered. To date these nets have proven successful in catching trout and galaxids but no carp. The traps will continue to be used in conjunction with the underwater fyke net sets.

The program is also continuing to test the use of berley as a form of attractant for carp in Lake Sorell. Although automatic fish food dispensers were trialed over the summer period with minimal results there are still many possibilities to explore. Recently the program received on loan a commercial automatic fish feeder and relevant barge from Huon Aquaculture. This feeder is designed for the marine environment and is very robust also the barge allows the feeder to be placed anywhere in the lake in almost any weather conditions. This will allow the team to continue to comprehensively explore the potential of using berley to catch carp in Lake Sorell.

Towards the end of June the carp team engaged the services of Les Sims, a professional fisherman from Stanley, to advise about the feasibility of trawling in Lake Sorell. Les brought his own 10m trawl net to test the technique using the two IFS Shark Cats. A number of trawls were successfully carried out and 7 carp were captured. The results provide promise that this new fishing method may prove very useful in catching carp that are reluctant to move into gillnets.

5.

Transmitters

5.1 Lake Sorell

The novel concept of juvenile transmitter fish was continued throughout this season, where their movements illustrated both similarities and differences with the previously used juvenile and adult transmitter fish. During the winter months (Fig. 9.), the juvenile transmitter fish behaved similarly to the adult transmitter fish of previous years, in that they mainly favoured the deep water off Diamond Shore, and behind St Georges Island. The observed distribution of transmitter fish at other sites around the lake is likely to be the consequence of high water levels and increased volume limiting the cooling effect of cold winter air temperatures.

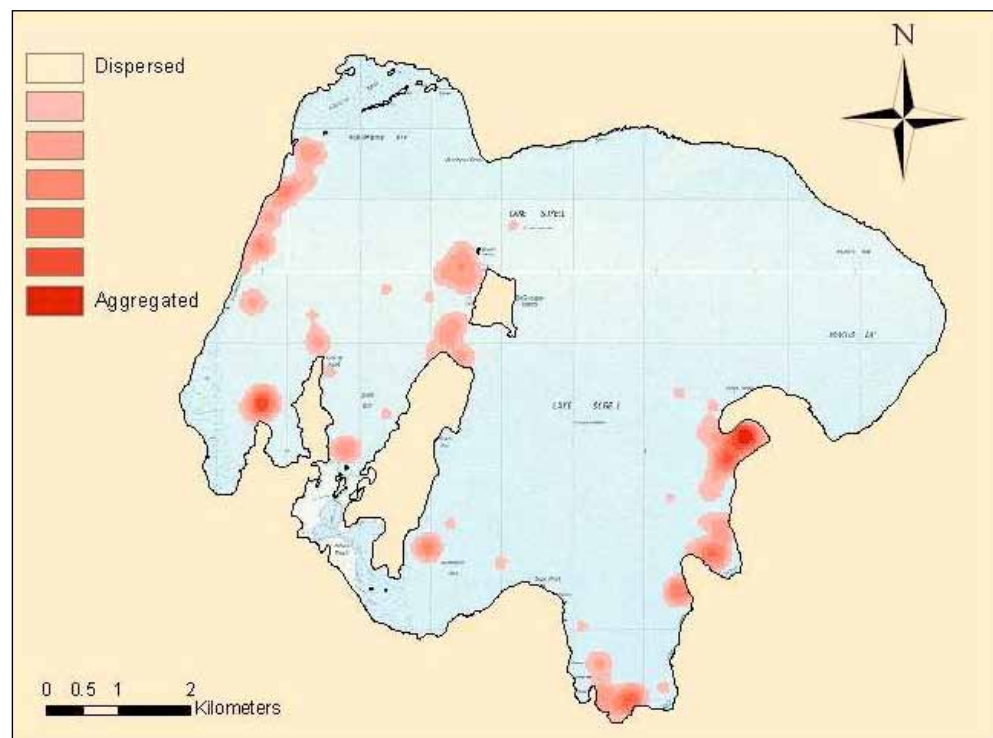


Figure 9. Lake Sorell transmitter fish distribution from June to August 2011

As the season progressed towards the warmer months, the transmitter fish appeared to replicate the movements of previous juvenile and adult transmitter fish (Fig. 10.), with the preferred areas being around the margins of the lake, in particular Point of Chillon and Kermodes Bay. These areas are dominated by rocky substrate, however despite being difficult sites to fish, substantial aggregations were still successfully targeted.

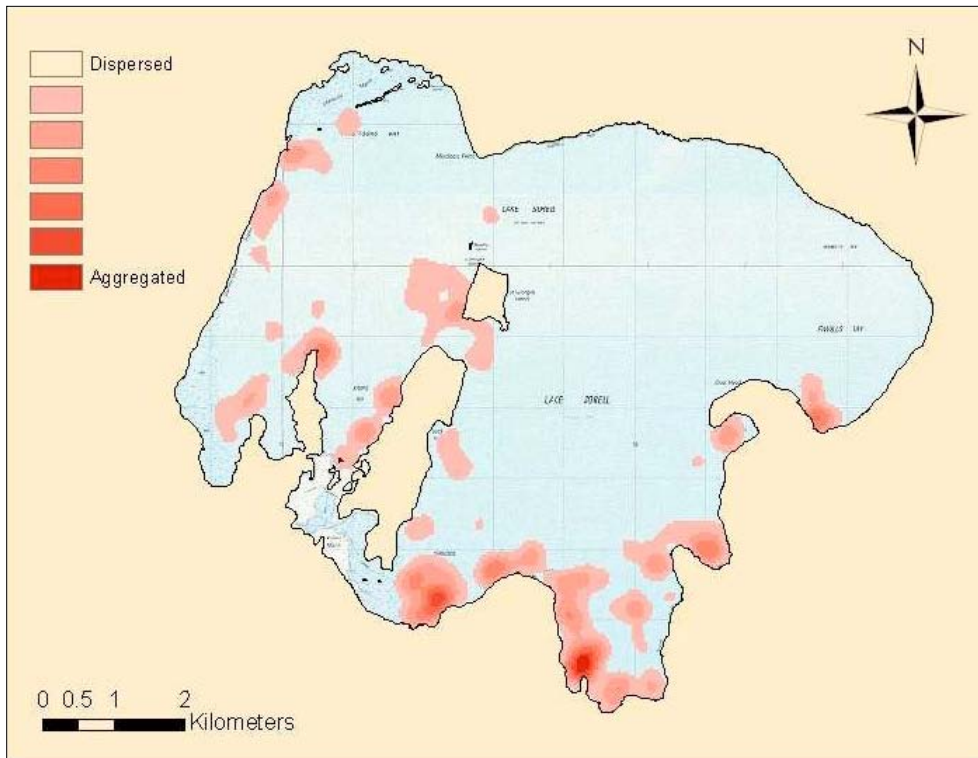


Figure 10. Lake Sorell transmitter fish distribution from September 2011 to January 2012

A shift in the movements of the juvenile transmitter fish began to occur in the middle of January, and progressively developed throughout February. Contrary to the movements of the previous juvenile and adult transmitter fish, the current transmitter fish spent the majority of time away from the margins, and instead inhabited deeper areas of the lake (Fig 11). This sudden shift in behavior which previously has not been documented, is likely to be related to three main factors; increasing average fish size/ development, high lake levels, and water temperature. Due to the ongoing development of the juvenile carp to a sub adult stage, the fish are no longer reliant on seeking protection, shelter, and food in the shallow vegetated areas around the lake margins. Instead, these fish are now more mobile and are able to graze across the lake. The increased lake levels this year resulted in a greater overall depth, which decreases the temperature gradient between the shallow and deep water. As a result, the carp did not associate with shallow water as much as they have done previously. However, it is expected that next season these sub-adult carp will begin to push back in shore as the urge to spawn increases, thus allowing more opportunities for effective targeting in the shallows.

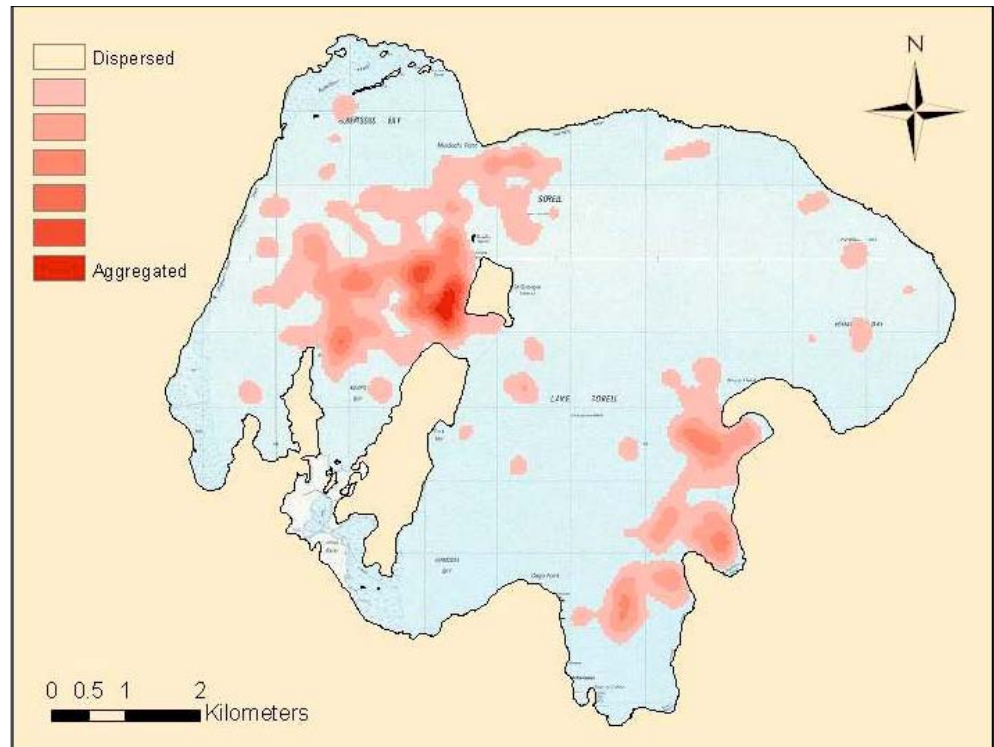


Figure 11. Lake Sorell transmitter fish distribution from February to June 2012



Figure 12. A member of the carp team using a handheld aerial and lotek receiver to pin-point the position of a transmitter fish.

The Carp Management Program (CMP) held its annual two day workshop on 10th - 11th May to look at the past years work and undertake planning for the coming year. Australian Maritime College Associate Professor and Director, John Purser, was secured to provide an independent review and comment on the program over the course of the workshop.

Day one involved presentations from staff on key aspects of the program to the CFOC stakeholder group. This group has representatives from the commercial eel fishery, Shannon/Clyde river irrigators, Anglers Alliance, property owners from Interlaken Estate and the Tasmanian Land Conservancy as well as representatives from the Federal Government. Dr Scott Hardie presented his past 10 years of work on the threatened Golden galaxias and this showed that there is now a good understanding of the environmental requirements that are required to protect this species. The presentations were aimed to give the stakeholders an understanding of how the CMP was progressing while providing a springboard for the team to build an operational plan on day two.

The second day proved very worthwhile and allowed the team, with the valuable assistance of John Purser, to look into the data and investigate opportunities to assist in the eradication of carp from Lake Sorell as well as develop this into an operational plan for the coming year. The results and findings from the workshop were presented to Minister Brian Green during a session at the end of the workshop and it was great for the team to see the support and eagerness from the Minister in achieving a complete eradication of carp from Tasmania.



Figure 13. Members of the carp team with the CFOC steering committee

7.

Water Yields and Deficits

Rainfall of 769.2 mm was recorded at the Lake Crescent field station from 1st July 2011 to 30th June 2012.

Table 6. Rainfall and release data (2011-2012)

Month	Rainfall (mm)	Sorell Release (ML)	Crescent Release (ML)
July	55.4	0	11241
August	144	0	15621
September	50.2	0	15273
October	65.4	0	236
November	72.8	0	607
December	41.6	0	807
January	42.6	0	1491
February	24	0	1178
March	35	0	1099
April	33.6	0	739
May	137.2	0	95
June	67.4	0	49
Total	769.2	0	48,436



Figure 14. Lifting the height of the Lake Sorell screens

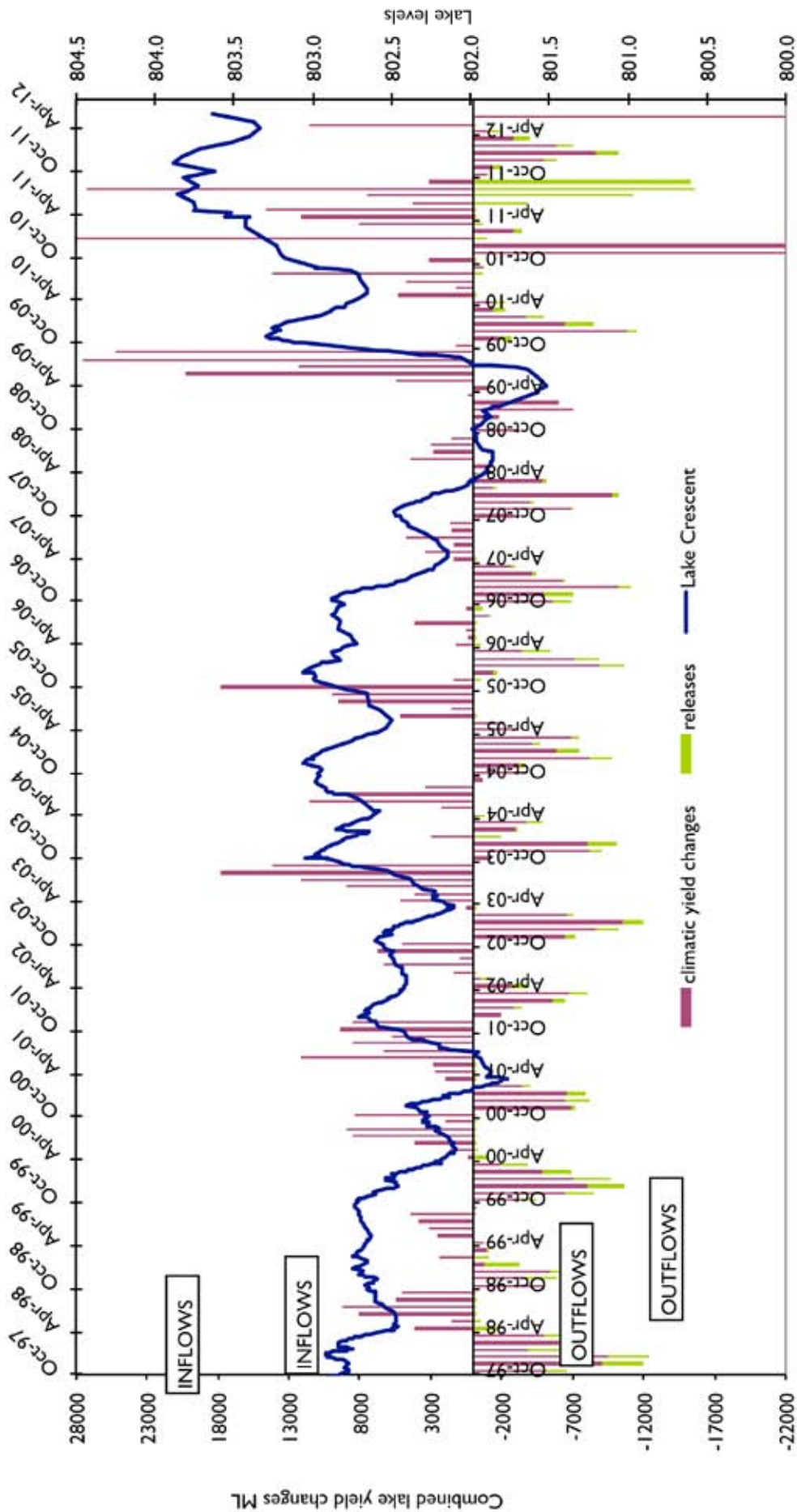


Figure 15. Lake Crescent lake levels, water yields and deficits (1997 – July 2012)

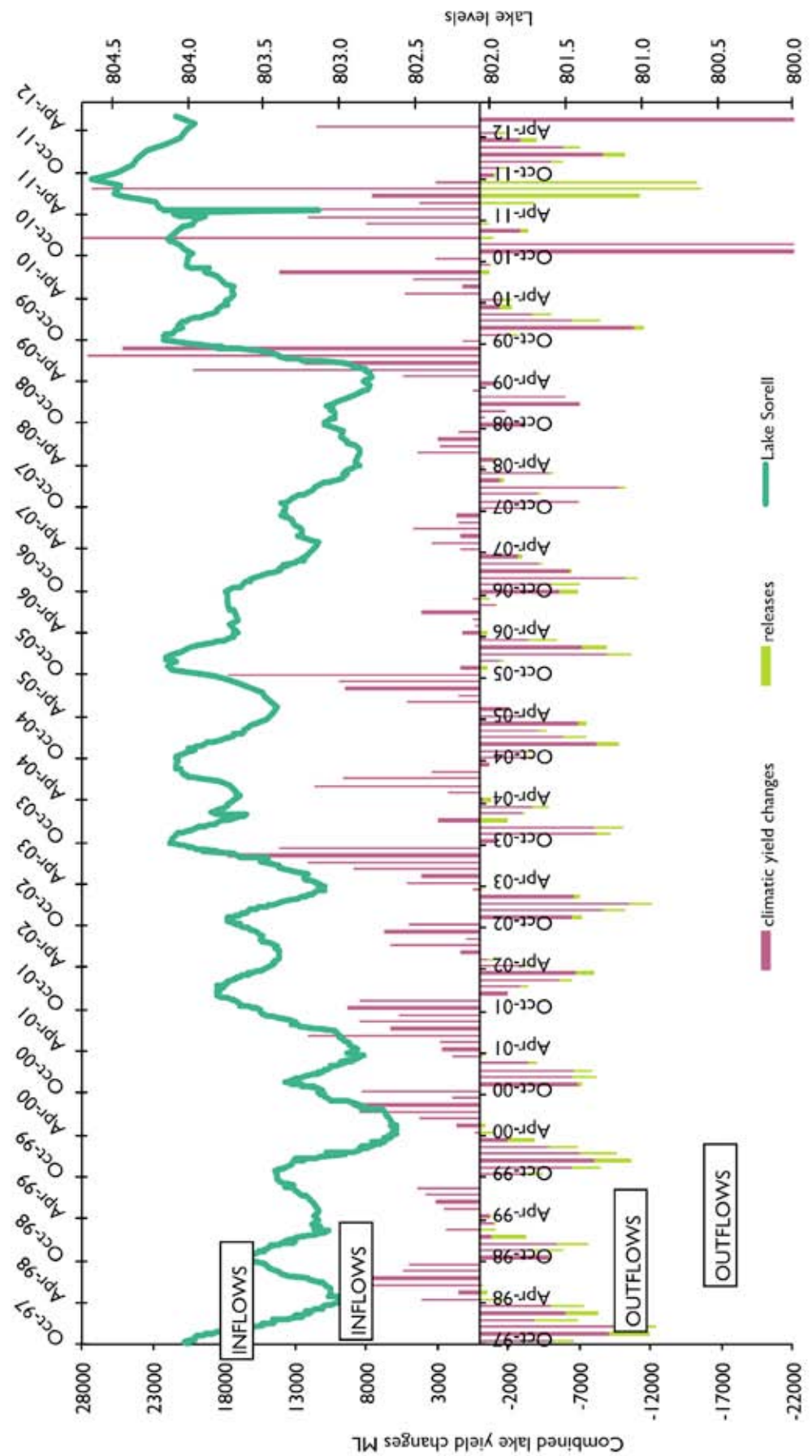


Figure 16. Lake Sorell lake levels, water yields and deficits (1997 – July 2012)

8.1 Staff Positions

Robert Keeley, Jonah Yick and Brock Cuthbertson were re-instated with another one year contract for the positions of Technical Officer. Due to the increased funding by the federal government, 6 casual field officers were employed to assist with fishing during Spring and Summer.

Table 7. Staff positions (2011/2012).

Technical Officers	Robert Cordwell (1fte) Terry Byard (0.5fte) Robert Keeley (1fte) Brock Cuthbertson (1fte) Jonah Yick (1fte)
Casual Field Officers	Mike Johnson, Joe Mangan, Reece Pennicott, Russell Matheson, Samuel Manning, Bernard Creed
Senior Technical Officer	Paul Donkers (0.8fte)
Consulting Scientist	Dr Jawahar Patil
Section Manager	Chris Wisniewski (1fte)
Section Manager	Chris Wisniewski (1fte)

8.2 Staff Requirements as per Industrial Agreement

IFS staff are required to undertake weekend work and hours beyond general conditions of service as part of the industrial agreement. The following table outlines the work undertaken by CMP staff for the year:

Table 8. Weekend work, public holidays and extra hours.

Staff Member	Saturday	Sunday	Public Holidays	Extra Hours
Jonah Yick	9	7	0	148.90
Brock Cuthbertson	10	9	3	164.49
Paul Donkers	7	8	0	106.5
Robert Keeley	7	7	1	129.85
Terry Byard	14	15	-	-

9.

Activities

9.1 Carp Sightings

27 September 2011 – Quamby Estate Golf Course – Large goldfish

11 December 2011 – Tungatinah Lagoon - Tench

9.2 Public presentations

During the course of the year staff from the Carp Management Team gave presentations to the following organisations.

Table 9. Weekend work, public holidays and extra hours.

Date	Organisation
25th March 2012	Hamilton Show
2nd April 2012	New Norfolk High Presentation
19th -20th May 2012	Trout Weekend Liawenee
19th -20th June 2012	IACRC National Carp Workshop - Melbourne

9.3 Timeline of major events

Table 10. Timeline of major events 2011 / 2012

Date	Event
6th Oct 2011	Eel fishermen commences fishing in Lake Sorell
28th Nov 2011	Eel fishermen commences fishing in Lake Crescent
17th Nov 2011	First and only adult female carp captured in Lake Sorell
5th Jan 2012	CFOC MERI planning session
2nd Jan – 27th Apr 2012	Berley /Feeder attraction trial
10th Jan 2012	Eel fishermen removes gear from Lake Sorell and Crescent
3rd Feb 2012	Submitted CFOC MERI report
13th March 2012	Lake Crescent annual golden galixid fyke net survey
13th – 16th Mar 2012	Lake Crescent juvenile carp fyke net survey
19th March 2012	Lake Sorell annual golden galixid fyke net survey
19th – 23rd Mar 2012	Lake Sorell juvenile carp fyke net survey
19th – 23rd Mar 2012	Automation of the mesh height of Lake Sorell screens
7th May – 12th July 2012	Sunken fyke net trial
10th – 11th May 2012	Carp Workshop
27th June 2012	First paired trawl trial

9.4 Media Articles

10th January 2012 – *ABC News Tasmania* – “Carp eradication steps up”.

10th January 2012 – *The Mercury* – “\$820,000 thrown in the pool to help eradicate carp”.

11th January 2012 – *The Examiner* – “Carp-free future has strong lure”.

February-March 2012. *Issue 96 – Tasmanian Fishing and Boating News* – “Federal Funding for Carp Management”.

June-July 2012, *Issue 98 – Tasmanian Fishing and Boating News* – “Carp Workshop in May”.

21 June 2012 - *ABC TV Landline* – “Carp Wars”.

March 2012 – *Victoria and Tasmania Fishing and Boating Monthly* – “IFS makes progress in the carp battle”.

9.5 Publications

Diggle J, Patil JG, and Wisniewski C (2012). A manual for carp control: The Tasmanian model. PestSmart Toolkit publication, Invasive Animals Cooperative Research Centre, Canberra, Australia.

Donkers P (2004). Age, growth, and maturity of the common carp (*Cyprinus carpio*) in Lakes Sorell and Crescent. Technical Report No. 4, Inland Fisheries Service, Hobart. Revised 2011.

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Macdonald A and Wisniewski C (2003). The use of biotelemetry in controlling the common carp (*Cyprinus carpio*) in Lakes Crescent and Sorell. Technical Report No. 1, Inland Fisheries Service, Hobart. Revised 2011.

Patil JG and Wisniewski C (2006). Hypophysation: A technique for deployment of odour donor fish for control of the common carp (*Cyprinus carpio*). Technical Report No. 5, Inland Fisheries Service, Hobart. Revised 2011.

Taylor AH, Tracey SR, Hartmann K, and Patil JG (2012). Exploiting seasonal habitat use of the common carp, *Cyprinus carpio*, in a lacustrine system for management and eradication. *Marine and Freshwater Research*. 63, 587-597.

Walker RM and Donkers P (2003). An examination of the selectivity of fishing equipment in relation to controlling the common carp (*Cyprinus carpio*) in Lakes Crescent and Sorell. Technical Report No. 2, Inland Fisheries Service, Hobart. Revised 2011.

10. Budget

Natural Account	Total Prds	Period 0	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Period 7	Period 8	Period 9	Period 10	Period 11	Period 12	Period 13
1202 - MV Acc Dep	3,296.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,296.56
1203 - Vessels Asset	18,916.60	0.00	0.00	0.00	18,916.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1204 - Vessels Acc Dep	14,987.82	0.00	0.00	0.00	14,987.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1205 - Plant & Eq Asse	22,900.00	0.00	0.00	0.00	0.00	0.00	22,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5101 - Salaries	222,323.74	0.00	14,694.63	23,278.53	16,212.05	18,922.16	18,882.01	19,719.95	13,879.60	25,226.45	18,410.18	15,312.72	21,198.97	16,586.49	0.00
5102 - Lump Sum Leave	28,191.90	0.00	4,387.46	6,374.72	2,178.33	1,240.26	508.44	0.00	2,311.25	3,008.57	1,334.58	4,747.86	198.40	1,902.03	0.00
5106 - Superannuation	30,348.79	0.00	2,266.83	3,431.62	2,104.58	2,322.54	2,393.46	2,538.94	2,134.66	3,538.99	2,725.94	2,305.21	2,484.88	2,101.14	0.00
5107 - Otime-Penalties	15,261.29	0.00	695.50	271.77	89.89	89.89	1,438.32	2,292.30	2,878.88	2,819.57	4,235.35	231.37	218.45	0.00	0.00
5109 - Allowances	23,439.19	0.00	1,782.16	2,737.73	1,803.06	1,803.06	1,803.06	1,803.43	1,479.73	2,715.60	1,810.40	1,995.92	1,848.88	1,856.16	0.00
5110 - Sitting Fees	21.77	0.00	0.00	0.00	0.00	21.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5111 - Payroll Tax	6,076.18	0.00	60.16	94.98	167.05	232.33	380.39	202.34	186.65	4,191.26	204.95	95.77	74.60	174.40	11.30
5112 - Work Comp Prem	3,710.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,637.38	0.00	0.00	0.00	0.00	72.75	0.00
5201 - Market & Promo	72.73	0.00	0.00	0.00	0.00	72.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5203 - Training	5,856.59	0.00	0.00	467.13	0.00	1,918.18	173.18	0.00	0.00	0.00	0.00	0.00	2,518.18	400.01	379.91
5204 - Cons Fees	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,500.00	0.00
5205 - Prof Fees	20,566.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	292.00	20,174.00	0.00	0.00
5207 - Equip Hire/Lse	27,077.83	0.00	2,435.63	2,240.20	2,240.20	2,240.20	2,240.20	2,240.20	2,240.20	2,240.20	2,240.20	2,240.20	2,240.20	2,240.20	0.00
5208 - Equipment Maint	1,513.04	0.00	37.50	0.00	0.00	0.00	0.00	0.00	550.00	236.36	573.63	0.00	20.55	95.00	0.00
5209 - General Ins	583.22	0.00	0.00	81.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	286.21	0.00	216.00	0.00
5212 - Printing/Pubs	1,305.36	0.00	0.00	0.00	0.00	588.00	717.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5214 - Vehicle Fuel	37,524.22	(1,463.81)	1,726.70	1,918.40	1,599.68	1,980.23	2,979.04	3,889.52	3,563.10	5,771.98	4,636.41	3,312.35	1,986.60	3,707.12	1,916.90
5217 - Vehicle Maint	3,681.70	0.00	0.00	343.23	165.00	1,023.42	2,150.00	508.00	474.19	0.00	22.00	0.00	930.86	0.00	0.00
5218 - Phones & Fax	867.27	0.00	77.47	67.28	64.05	64.98	66.12	66.33	62.60	64.79	64.39	61.55	71.84	66.20	69.67
5219 - Postage/Freight	953.59	0.00	0.00	0.00	0.00	517.40	21.41	0.00	0.00	208.60	108.00	0.00	98.18	0.00	0.00
5223 - Network Costs	330.00	0.00	30.00	30.00	0.00	60.00	30.00	0.00	30.00	60.00	30.00	0.00	60.00	0.00	0.00
5227 - Gas & Oxygen	1,818.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,818.18	0.00	0.00	0.00	0.00
5228 - Mob Phones Rads	5,273.80	0.00	402.25	369.46	466.28	655.43	377.63	367.03	421.63	412.60	451.87	363.46	289.03	412.14	284.99
5229 - Equip Purchases	22,733.07	0.00	1,370.00	3,573.54	0.00	992.52	0.00	586.36	7,196.36	3,818.13	0.00	1,793.07	581.36	2,821.73	0.00
5230 - Equipment Depn	14,263.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14,643.20	(379.91)

Budget continued

Natural Account	Total Prds	Period 0	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Period 7	Period 8	Period 9	Period 10	Period 11	Period 12	Period 13
5231 - MV Depn	15,820.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12,350.96	3,469.65
5232 - Vessel Depn	10,437.85	0.00	0.00	0.00	34.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10,403.28	0.00
5234 - Op Supplies	33,279.39	0.00	3,519.64	2,750.09	591.59	5,207.95	11,036.42	1,661.66	1,058.58	1,063.73	3,024.15	887.10	2,381.04	97.44	0.00
5235 - Analysis	35.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.00	0.00	0.00	0.00	0.00
5236 - Cont Services	166,737.51	(712.50)	6,553.30	10,009.00	750.00	12,789.74	9,879.69	3,185.05	27,247.95	27,599.34	22,637.05	11,947.37	23,701.66	11,149.86	0.00
5238 - OH & S	1,749.10	0.00	0.00	0.00	0.00	0.00	490.00	178.12	55.00	245.79	45.00	178.12	378.95	178.12	0.00
5240 - Meetings & Conf	131.73	0.00	0.00	0.00	0.00	0.00	0.00	53.27	78.46	0.00	0.00	0.00	0.00	0.00	0.00
5242 - Entermnt NO FBT	982.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	198.46	109.64	0.00	674.89	0.00	0.00
5243 - Misc Expenditur	83.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.46	0.00	0.00	0.00	0.00	0.00	0.00
5246 - Prop Maint	3,047.18	0.00	0.00	29.00	0.00	1,035.00	1,088.18	895.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5253 - Vessel Maint	20,472.84	(508.53)	508.53	1,138.07	109.09	5,086.77	1,076.54	1,910.24	5,841.01	3,286.31	194.73	1,276.36	141.32	362.40	0.00
5254 - Interstate Trav	(1,233.79)	0.00	0.00	0.00	0.00	(208.15)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1,025.64)	0.00
5255 - Intrastate Trav	36,029.22	(771.07)	1,423.87	1,557.30	2,738.50	4,412.90	6,235.60	3,316.95	3,059.55	4,863.02	3,357.90	1,569.60	1,222.80	2,857.05	185.25
5256 - Overseas Travel	190.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(2,500.00)	2,690.45	0.00	0.00
5258 - Prot Clothing	5,456.79	(22.73)	606.37	327.76	0.00	1,010.76	595.33	276.64	118.18	256.76	293.64	354.55	1,287.48	352.05	0.00
5260 - Fish Feed	138.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	105.45	0.00	0.00	33.14	0.00	0.00
5264 - Fish Health Exp	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,500.00	0.00
5267 - Vessel Outboard	9,141.46	0.00	2,784.55	0.00	1,630.00	4,348.73	0.00	0.00	0.00	0.00	0.00	0.00	378.18	0.00	0.00
5268 - Staff Fuel Allo	228.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	144.00	0.00	0.00	84.00	0.00
5269 - Office Printing	318.25	0.00	4.86	0.00	0.00	175.02	0.00	0.00	25.64	0.00	112.73	0.00	0.00	0.00	0.00
5270 - WDV Disp Assets	24,275.40	0.00	0.00	0.00	2,977.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21,297.79
	867,165.89	(3,478.64)	45,367.41	61,190.82	69,825.95	68,603.82	85,527.38	45,691.33	78,614.06	91,931.96	68,619.92	46,750.79	87,884.89	90,104.09	30,532.11





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