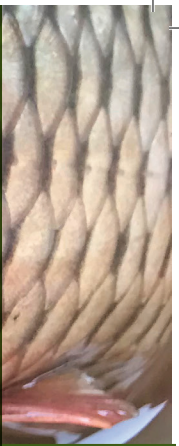




Carp
Management
Program



ANNUAL REPORT

2021-22



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This annual report details the Carp Management Program activities for the financial year 2021 – 22.

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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Executive Summary

Four carp were caught from Lake Sorell this year. All were female with only one fish which was capable of spawning, while the other three possessed advanced gonad deformities. The last male carp with a viable gonad was caught in the summer of 2018-19. There appear to be no fertile males left in the lake.

Focused fishing effort was undertaken from October to early January. The water level in Lake Sorell was high and there were extended periods of warm, sunny weather. These environmental factors promoted carp spawning activity and increased the efficiency of fishing. The continued ideal environmental conditions and low catch rates is very encouraging.

Juveniles carp surveys during and after the spawning season did not detect any sign of recruitment, despite extensive electrofishing and fyke net effort. All water released from Lake Sorell is still being screened as a precautionary measure. No carp were found in Lake Crescent or the River Clyde surveys.

The plan for the coming year is for Lake Sorell to remain open for public recreational use. Carp fishing effort will be focused in November and December this coming year to remove any remaining carp in the lake.

1. Carp Captures and Fish-down Effort

1.1 Carp Captures at a Glance

Table 1. Carp Captures from lakes Sorell and Crescent (2021/22).

Lake	Total 2021/22	Adult / Juvenile	Total 1995 to present
Sorell	4	4 / 0	41, 503
Crescent	0	0	7, 797

1.2 Lake Sorell

Overview

From July to September, maintenance was undertaken at Lake Sorell to prepare for the peak carp spawning season (October to December). This involved inspecting and repairing the barrier fyke nets, as well as the 14 kilometres of barrier net blocking the wetlands. In mid-September, the big fyke nets were sewn into the barrier nets. These were placed in strategic locations to catch mature carp pushing into the shallows seeking spawning habitat. These fyke nets are also an indicator of when carp will begin to push inshore, allowing gill nets to be set to target these movements. Small amounts of gill nets were also set across and within key drainage areas in the marshes behind the barrier nets. Trammel gill nets, which are effective at capturing carp of varying sizes, were used to block off these areas.

In addition to the on-lake preparations of gear, a priority was to get the Inland Fisheries Service (IFS) boat electro-fisher operational again. After 25 years of active service, the generator recently failed. The boat has been an essential tool for the targeting and surveying of carp in lakes Crescent and Sorell. An inspection showed that the generator could not be fixed, and was of a design that could not be easily replaced. The Arthur Rylah Institute for Environmental Research in Victoria (Department of Environment, Land, Water and Planning) were able to assist, offering a suitable reconditioned generator that they had spare. The generator was quickly shipped down, installed and tested successfully. A big and heartfelt thanks goes to our comrades across Bass Strait!



Picture 1. A female carp caught in a barrier fyke net attempting to access Silver Plains marsh.

High rainfall events in October resulted in Lake Sorell rising quickly, and exceeding the full supply level by the end of the month. By the start of November, Lake Sorell was 150mm over the full supply level. The last time the lake had filled to this level was in October 2016, which resulted in 118 carp caught in the barrier fyke nets, and an additional 48 carp breach the barrier net, which were consequently caught in trammel nets. With the temperature also rising throughout this period, these combined environmental factors provided the perfect opportunity to catch any remaining carp in the lake. The strong spawning cues were likely to draw carp into the shallows, making them susceptible to capture. However, it also meant that the Carp Management Program (CMP) had to be on high alert, given the huge expanse of inundated marshes (spawning habitat) which were now present.

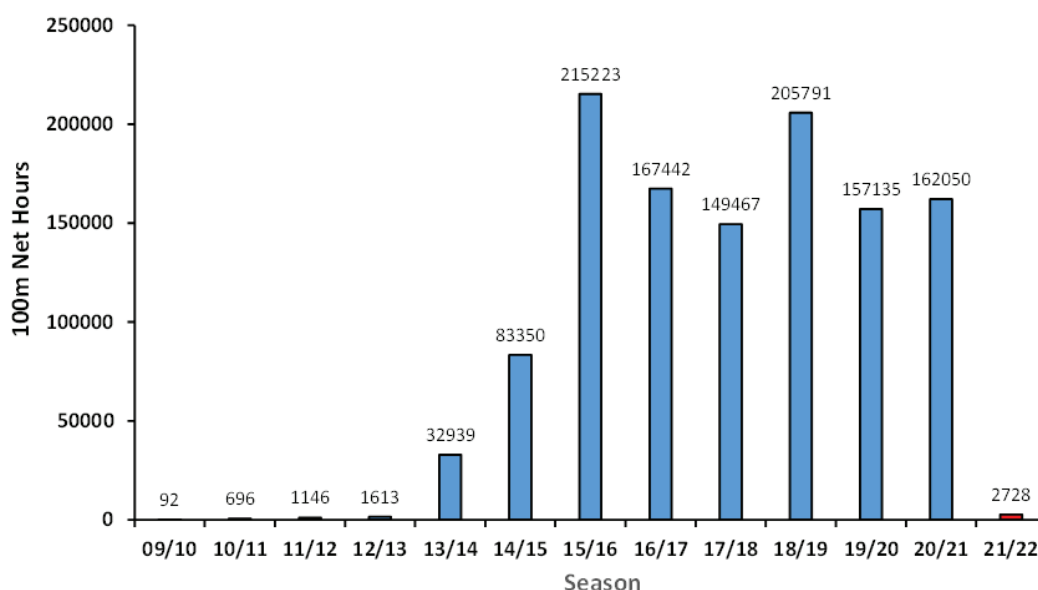


Figure 1. Total seasonal netting effort used in Lake Sorell (2009-2022).

Note: Blue: Non-targeted netting effort; Red: Short term netting effort associated with targeting environmental cues.

Unlike the past six seasons, the main fishing strategy for the 2021/22 season was modified. Rather than relying on intensive gillnet effort which was very labour intensive (Figure 1), and now resulting in low catch per unit effort, the strategy for this season was to focus on spawning related carp movement with short term targeted gill net and electrofishing effort. As a result, the total amount of netting effort employed this season was much less compared to the 2020/21 season (Figure 1). Trammel gillnets were the main type of gill net used due to their high catch efficiency. During periods of ideal spawning conditions in spring and early summer (warm temperatures and rising lake levels), approximately two 450m trammel gill nets were used to target preferred carp habitat. These nets were used in combination with the boat electro-fisher. The nets were then either left to soak for a few hours or pulled immediately, and moved to a new area. Once the weather event had ended (usually no more than five days), all trammel gill nets were removed and active fishing activities were ceased).

Table 2. Total carp captured from all methods used in Lake Sorell (2021/22).

Gear Type	Jul-Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr-Jun	Grand Total
Gill nets	0	1	0	0	0	0	0	0	1
Barrier fyke nets	0	0	2	0	0	0	0	0	2
Backpack electro-fisher	0	0	0	0	0	0	0	0	0
Boat electro-fisher	0	0	0	0	0	0	0	0	0
Gill nets behind barrier nets	0	0	0	1	0	0	0	0	1
Grand Total	0	1	2	1	0	0	0	0	4

This new strategy was a contrast to the intensive netting which had occurred over the past seven years (Figure 1), where nets were set in a variety of habitats and depths across the lake. Big amounts of gill nets (up to 77 nets per day averaging 90 to 250m) were set for long periods of time. In addition to gillnets, other fishing methods were also used (Table 2). These included big fyke nets stitched into barrier nets, the boat electro-fisher and backpack electro-fishers. All these methods select for adult and any potential juvenile carp, where small carp are not susceptible to gillnet capture.

The 2021/22 carp season (July 2021 to June 2022) resulted in four carp caught (Table 1, 2), which brings the total number of carp removed from Lake Sorell to 41 503 since their discovery in 1995. Fishing effort was focused in the months from October to January. The capture of the four carp this season was influenced by the strong environmental cues, which triggered the carp to move actively around the lake to look for spawning opportunities. Two carp were caught in barrier fyke nets, while the other two were caught in gill nets (one in the main body of the lake, the other in the marshes behind the barrier net) (Table 2). Carp were caught in October, November, and December which was closely aligned with the peak of the rising lake levels and increasing water temperature (Table 2). Last season the lake level was high in spring, however it steadily declined from October to February, which was not favorable for triggering spawning activity. This suggests that the environmental conditions this spring resulted in a very strong drive for the remaining carp to spawn, which resulted in the capture of more carp this season than last season (Figure 2), with a significantly lesser amount of fishing effort.

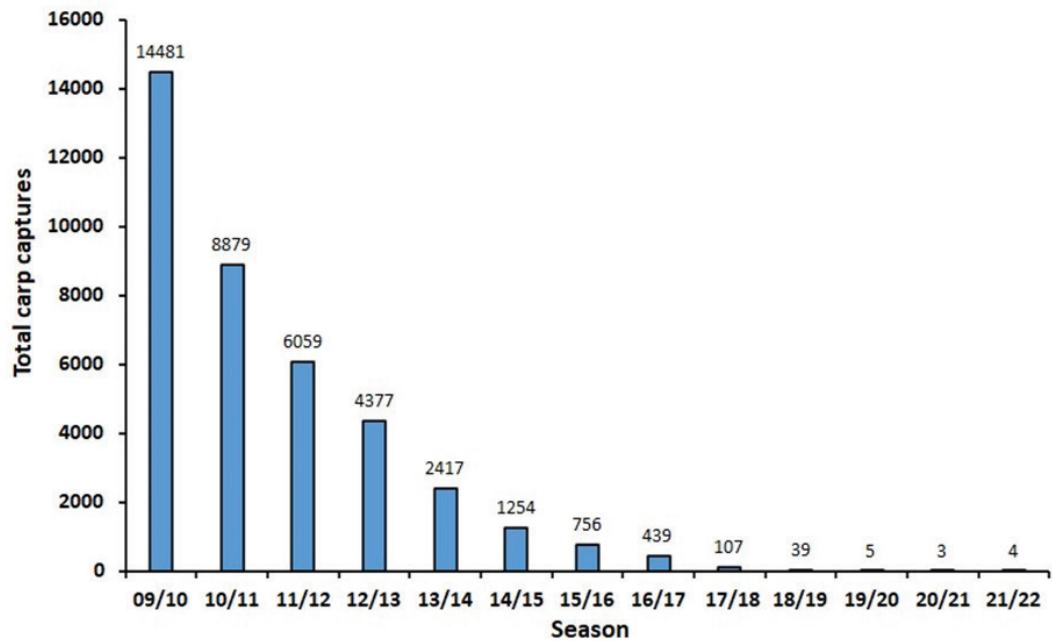


Figure 2. Total seasonal carp captures from Lake Sorell (2009-2022).

The four carp caught this season ranged in size from 800 to 2344gm. All four fish were female, with three possessing gonad abnormalities and tumors, therefore reducing their reproductive capacity (Picture 2). One female carp appeared to be healthy and reproductively viable, carrying 334gm of eggs, with a gonadosomatic index (GSI) of 20%. However, all eggs were completely intact, indicating she had not spawned. Although one carp had managed to breach the barrier net and had access to the marshes, it was found to be in poor reproductive condition, with a tumor present. The last healthy, sexually mature male carp was caught on 16 December 2018, while the last male carp was caught on 14 January 2021 (Figure 3). Given there hasn't been a significant successful spawning event since 2009, and the last three male carp caught have all been affected with the jelly gonad condition (JGC), it is increasingly likely that the remaining carp population is unable to breed (Figure 3).



Picture 2. A large tumor present in the gonads of one of the female carp.

41 503 carp have now been removed from Lake Sorell since their discovery in 1995. It is estimated that there are very few carp remaining from the 2009 population. Taking into account the stunted average size, poor general reproductive condition, and low numbers of males remaining (with a high proportion affected with JGC), the carp population in Lake Sorell is likely to be functionally eradicated. Fishing and monitoring will continue next season, focusing on short term targeted effort around key carp spawning weather events in November and December. The carp spawning areas/marshes will still remain blocked with barrier nets.

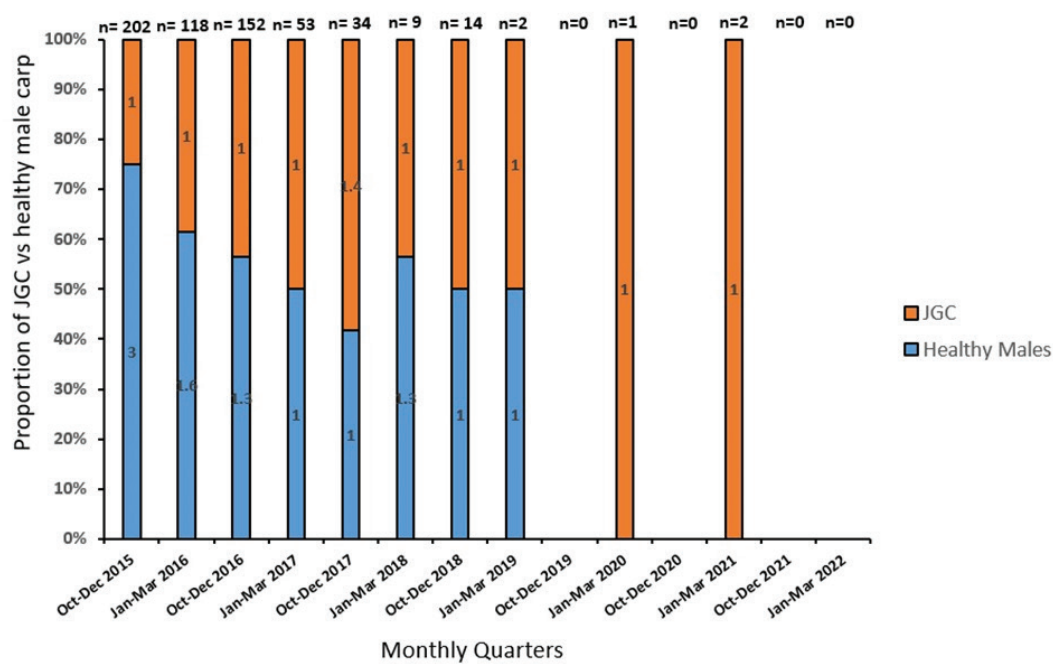


Figure 3. The change in proportion of healthy males to jelly gonad condition (JGC) males from 2015-22, compared by October to December and January to March quarters.

Note: Actual numbers of male carp caught for each quarter are listed above each bar.



Picture 3. The one carp which managed to breach the barrier net this season, caught in a trammel gill net set in the marshes.

Water turbidity in Lake Sorell has been steadily decreasing since 2009, however over the last few years there have been various short-term spikes and decreases in the total turbidity. This can be attributed to changes in lake levels, combined with wind conditions during the time the water samples were taken. Wind fetch on the lakes can cause a spike of natural silt re-suspension in the water column. Despite the increase in total turbidity at times, the associated colloidal component of the turbidity is relatively stable, and is still declining slowly.

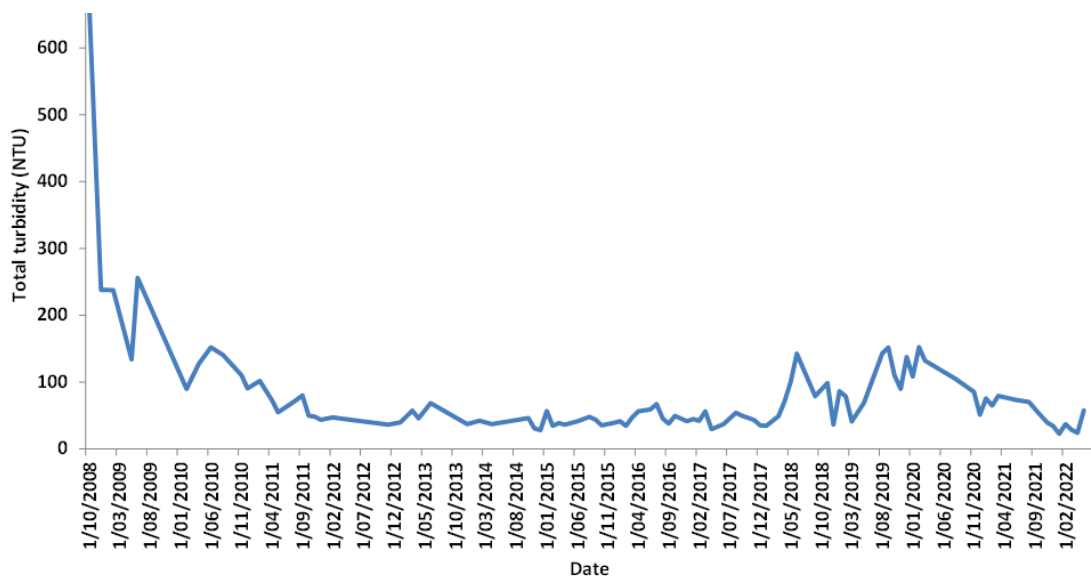


Figure 4. Total turbidity levels in Lake Sorell (2008 to 2022).

1.3 Lake Crescent

No carp were captured in Lake Crescent this year despite continued annual sampling, with the last carp caught in 2007. Since the extremely low water levels in 2008, the average total turbidity of Lake Crescent has improved considerably. This is the direct result of higher water levels flushing the lake after large rainfall events. The various short-term spikes and drops in the total turbidity is explained in the previous section.

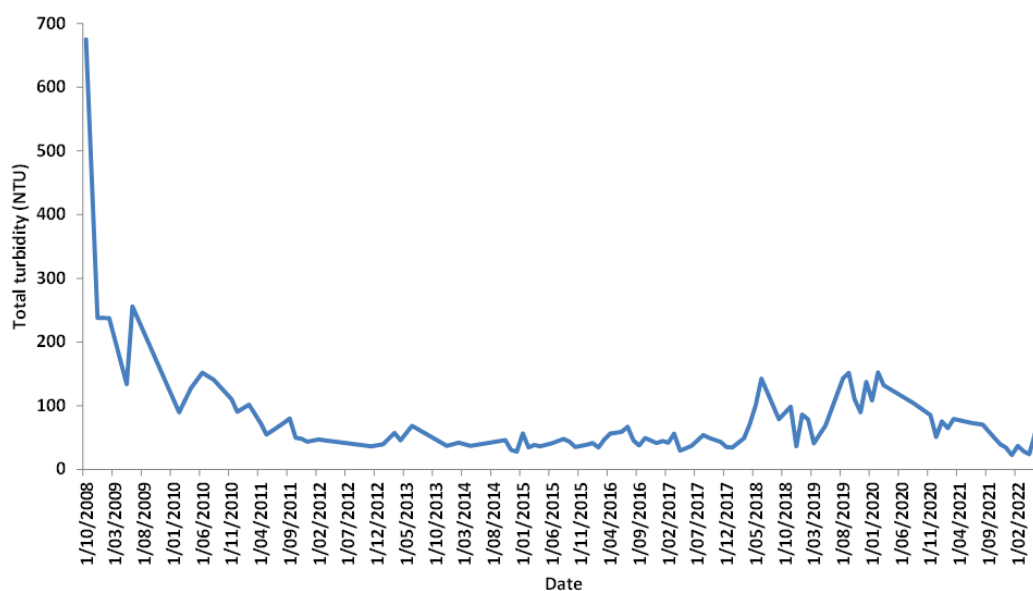


Figure 5. Total turbidity levels in Lake Crescent (2008 to 2022).

2. Juvenile Carp Surveys

The annual Lake Crescent juvenile carp survey took place on 1 - 2 March 2022. The aim of this survey was to ensure carp had not reestablished in Lake Crescent, and to look for any sign of spawning. Carp have not been found in Lake Crescent since 2007, however surveys have still been undertaken annually. Rocky or sandy shores and areas with lots of aquatic plants were the main habitats targeted. 14 sites around the lake were surveyed using backpack electro-fishers, for a minimum of 10 minutes at each location. A total of 218 electrofishing minutes was undertaken, with short-fin eels and golden galaxias making up the majority of the catch. There was no sign of any carp in Lake Crescent.



Picture 4. Fyke nets are set around the margins of Lake Sorell to survey for juvenile carp.

The Lake Sorell juvenile carp survey was conducted from 21 – 25 March 2022. The aim of this survey was to check for any signs of carp spawning. Using the backpack electro-fishers and fine-mesh dip nets, shallow areas were thoroughly surveyed. Fyke nets were set behind and in front of barrier nets, wherever there was suitable habitat. 66 fyke nets were set at 22 locations around the lake, while backpack electro-fishing was also undertaken across 20 sites around the lake. Both fine mesh and standard mesh fyke nets were used to target carp in the 30 to 100mm size range. Electrofishing was undertaken for a minimum of 10 minutes at each location. In total, 6209 fyke net hours were put in over the survey, as well as a total of 368 electrofishing minutes. This resulted in short-fin eels, golden galaxiids, and shrimps being caught, but no sign of any juvenile carp.

In addition to the March juvenile survey, monthly surveys were also undertaken in November, December, January, and February. Each survey was undertaken over four days and involved backpack electrofishing, the boat electro-fisher (total of 3586 electrofishing minutes), fine/coarse mesh fyke nets (total of 4820 fyke net hours), as well as fine mesh dip netting weedy areas. The marshes were the main locations surveyed, which included Kermodes, Silver Plains, Duck Bay, and Robertsons. The shallow weedy areas behind the barrier net were the main focus. No juvenile carp were found on any of the surveys.



Picture 5. A large golden galaxias caught in a fyke net during the juvenile carp survey.

3. The River Clyde Survey

In addition to the lakes Sorell and Crescent juvenile carp surveys, a downstream carp survey of the River Clyde was also undertaken. This survey has been undertaken for the last 27 years and focuses on sites with ideal carp habitat around Bothwell and Hamilton. Backpack electrofishing was done at three sites on the River Clyde which included the Nant Bridge (400m stretch), the Bothwell sewage works (100m stretch), and the Hamilton Weir (100m stretch). A total of 77 electrofishing minutes was undertaken, resulting in 80 roach, 16 tench, 35 brown trout, and 15 short-fin eels. Most importantly, no carp were found, which shows that the containment strategy employed since 1995 has been successful.



Picture 6. A tench electrofished in shallow water amongst the weeds, during the River Clyde survey.

4. Golden Galaxias Survey

The annual golden galaxias (*Galaxias auratus*) monitoring survey was conducted during March 2022. This is the 17th consecutive year this action from the lakes Sorell and Crescent Water Management Plan 2005 has been completed.

At lakes Sorell and Crescent, 12 fine mesh fyke nets were set overnight at three locations in each of the lakes. Sets consisted of four fyke nets at each location, with the number of golden galaxias captured per fyke net recorded (Table 3). In addition, the fork lengths of 203 golden galaxias from Lake Crescent and 127 from Lake Sorell were recorded.

Table 3. Captures of golden galaxias in fyke nets, set at three locations in lakes Crescent and Sorell (2022).

Lake	Location	No. Fyke Nets	Number Captured
Crescent	Site 1 Agnew Creek Shore	4	940
	Site 2 Boathouse Shore	4	512
	Site 3 Lower Clyde Marsh	4	156
	Total	12	1,608 (134/net)
Sorell	Site 1 East side of Island	4	548
	Site 2 Inside Grassy Point	4	512
	Site 3 Dogshead Point	4	293
	Total	12	1,353 (113/net)

The total catch of golden galaxias in Lake Crescent was 1,608 (Table 3), for an average catch effort of 134 fish per net. This result was significantly lower than the 2021 catch, which was by comparison, very high (Figure 6).

At Lake Sorell, 1,353 golden galaxias were captured (Table 3), for an average catch effort of 113 fish per net. This was a relatively small decline in the catch compared to the 2021 result and vastly different to the decline at Lake Crescent. (Figure 6).

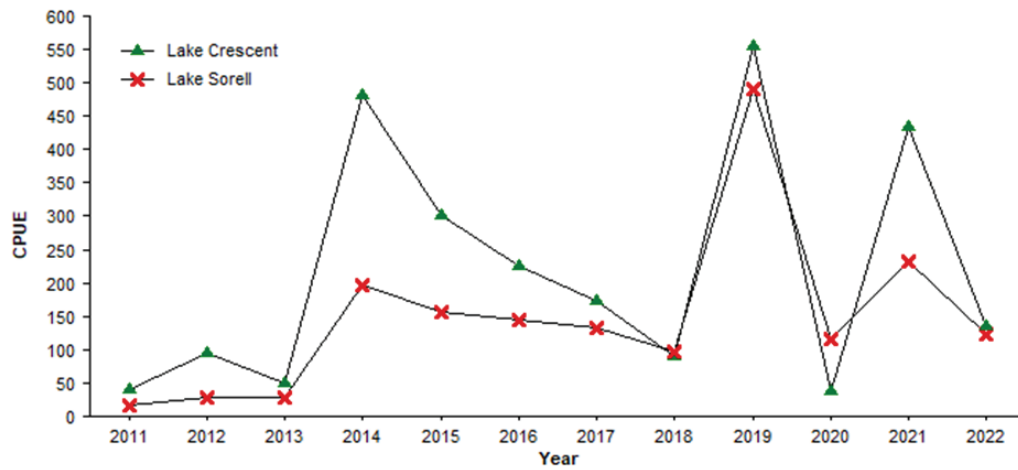


Figure 6. Average (mean) CPUE of golden galaxias for lakes Crescent and Sorell (2011-2022).



Picture 7. The average size of golden galaxias caught during the survey.

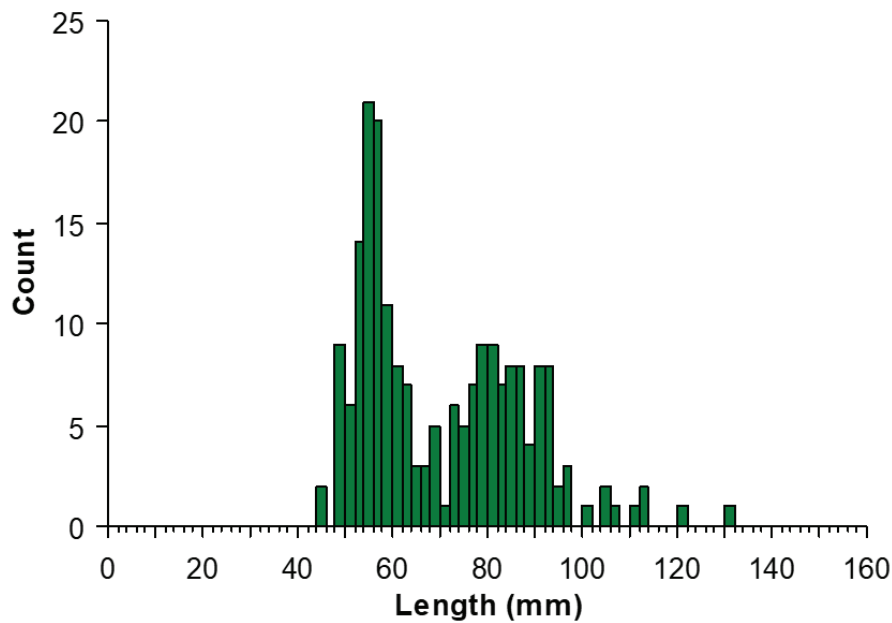


Figure 7. Length frequency of golden galaxias sampled from Lake Crescent 2022 (n=203).

While there was a decrease in total numbers of golden galaxias captured at Lake Crescent, two strong cohorts of fish were present (Figure 7). The larger sized cohort centred around 80 mm that represented around 40 percent of fish, is reflective of good survival of the large young of the year cohort that were observed during 2021. High recruitment was also evident during 2022, with a significant number of fish (57%) in the 45 mm – 75 mm length range (Figure 7).

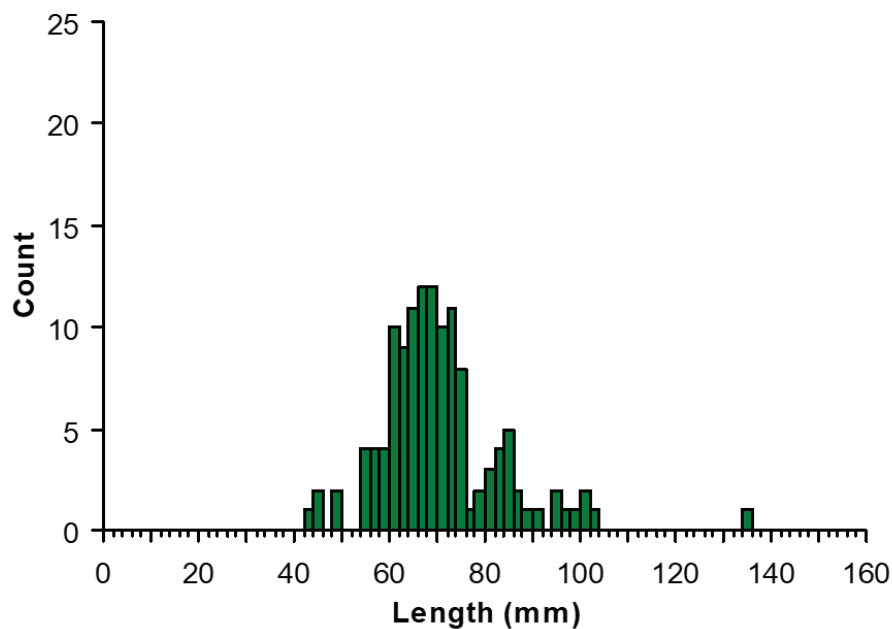


Figure 8. Length frequency of golden galaxias sampled from Lake Sorell 2022 (n=127).

The length frequency plot for Lake Sorell (Figure 8) shows strong recruitment of golden galaxias, with 71 percent of fish in the 40 mm – 75 mm length range. Larger fish greater than 75 mm, represented 25 percent of the catch (Figure 8). There was a significant difference in the average length for young of the year fish between both lakes, with juvenile fish in Lake Sorell being significant longer. This is indicative of the Lake Sorell population having spawned earlier.

While there was a decline in the CPUE across both waters and especially Lake Crescent, the decrease came off a high catch effort result for 2021. Moreover, the results for 2022 remain within the normal long term monitoring range for both populations.

5. Carp Workshop

The Carp Management Program held its yearly workshop on 5 April 2022 at the IFS New Norfolk head office. The day involved presentations and discussions of different aspects of the data collected during the 2021-22 season, and comparing it with historical information. This gave us an understanding of how the carp removal is progressing, whether we can increase catch efficiency, the key findings for the season, and what else can be done to complete the eradication of carp from Tasmania. Dr. Alyssa Marshell, a research fellow/fisheries scientist from the Institute for Marine and Antarctic Studies attended the workshop as an independent reviewer. Dr. Marshell produced a report reviewing the Carp Management Program and included her recommendations going forward.

This report can be found at the link below:

[Review_of_the_IFS_Carp_Management_Program_eradication_efforts_in_Lake_Sorell_.pdf](#)

Key points from the workshop:

- The fishing strategy this year was different to previous years, with short term netting effort focused on ideal weather and conditions for carp spawning, to target associated carp movement.
- Due to the perfect weather and conditions for carp spawning this spring, four carp were caught this season.
- All four carp were female, with only one of the four carp possessing a healthy gonad.
- 41 503 carp have been removed from Lake Sorell since 1995.
- Carp are contained to Lake Sorell.
- There was no sign of spawning found in Lake Sorell this season.
- We estimate that there are very few carp remaining in Lake Sorell.
- No carp were found in Lake Crescent.

Future strategies:

- Lake Sorell will be open for the coming trout season.
- Continue to block carp spawning areas with barrier nets.
- Actively target carp spawning weather in November and December to see if any carp remain.
- In order to rebuild the Lake Sorell trout fishery, access to the spawning grounds at Mountain and Silver Plains creeks will be monitored and maintained. Intensive gill netting for carp is not planned for the coming year so the trout fishery can continue to recover.



Picture 8. The 2021/22 Carp Management Program workshop.

6. Water Yields and Deficits

Total rainfall of 737.4 mm was recorded at the Lake Crescent field station from 1 July 2021 to 30 June 2022.

Table 4. Rainfall and water release data (2021/22).

Month	Rainfall (mm)	Sorell Release (ML)	Crescent Release (ML)
July	58.8	-	44.1
August	57.4	-	48.5
September	57.2	-	56.9
October	213.4	-	5125.1
November	54.4	-	12983.4
December	8.4	-	893.4
January	99.2	-	1327.8
February	18.8	-	1119.2
March	33.2	-	812.8
April	29	-	403.7
May	60.6	-	34.4
June	47	-	7.1
Total	737.4	-	22856.4

*Note: There is no continuous flow monitoring on the Lake Sorell release. Only spot checks are done.

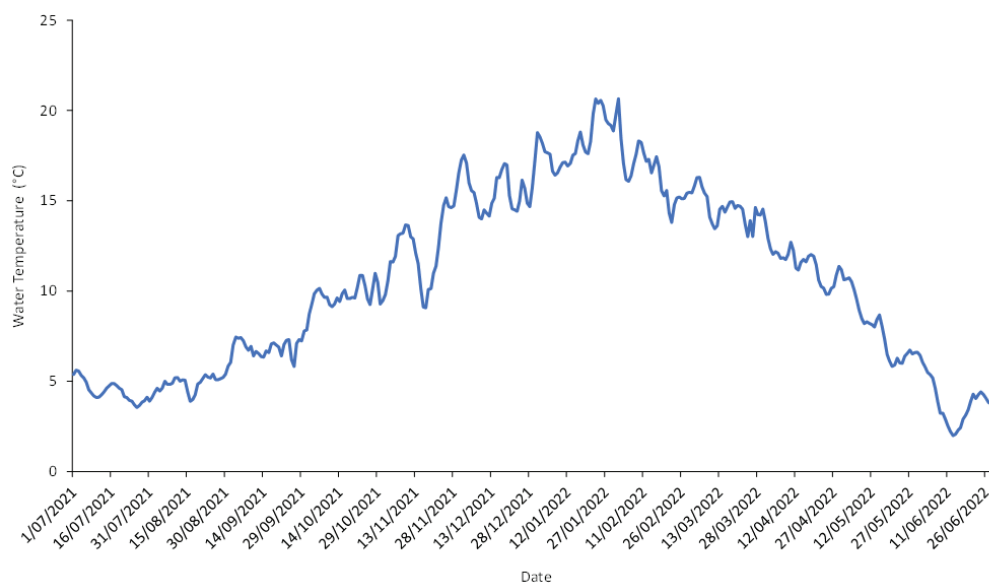


Figure 9. Lake Sorell water temperature from Diamond Shore deep site (July 2021 – June 2022).

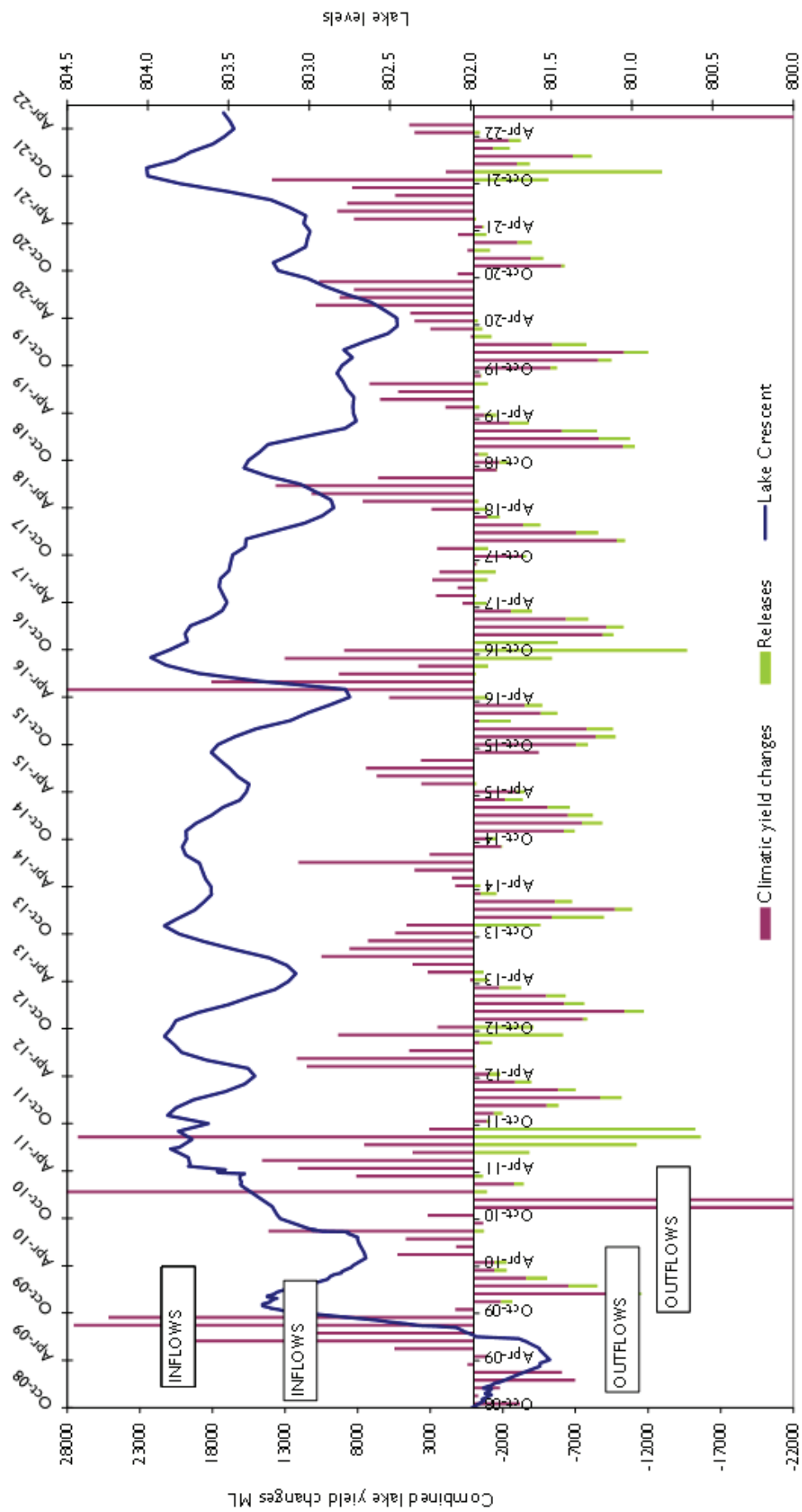


Figure 10. Lake Crescent lake levels, water yields and deficits (2008 – June 2022).

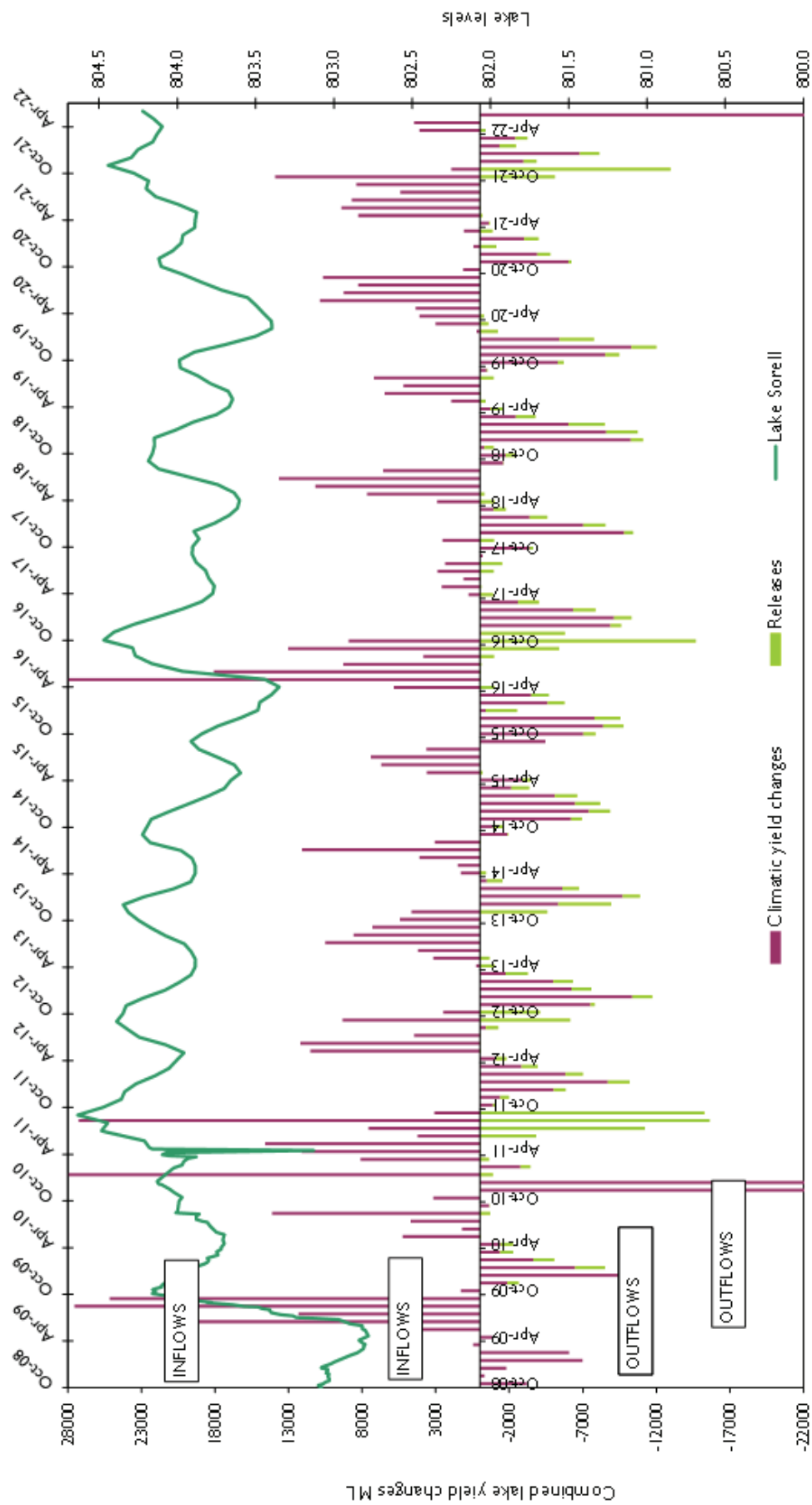


Figure 11. Lake Sorell lake levels, water yields and deficits (2008 – June 2022).

7. Staffing

7.1 Staff Positions

Two casual workers were employed to assist with carp management activities during the season.

Table 5. Staff positions (2021/22).

Field Officers	Robert Cordwell (0.6fte) Terry Byard (0.5fte)
Technical Officers	Brock Cuthbertson (1fte)
Program Leader	Jonah Yick (1 fte)
Section Manager	Chris Wisniewski (1fte)

Table 6. Casual positions (2021/22).

Name	Background	Timeline
Kim Clark	Interlaken Shack Owner	10th Aug – 20th May
Craig Burgess	Huon Aquaculture	17th Aug – 22nd Dec

7.2 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 7. Weekend work, public holidays and extra hours (2021/22).

Staff Member	Saturdays	Sundays	Public Holidays	Extra Hours
Jonah Yick	4	3	2	155.50
Brock Cuthbertson	7	6	0	170.50
Terry Byard	2	2	0	-
Robert Cordwell	5	5	2	113.2

8. Activities

8.1 Carp Sightings

- 20 September 2021 – Craighourne Dam – Redfin Perch
- 24 November 2021 – Farm Dam, Needles – Goldfish
- 28 January 2022 – Eastwood Reserve Pond, Burnie – Goldfish
- 31 January 2022 – Pond, Hagley – Tench
- 28 April 2022 – Meadowbank Dam - Tench

8.2 Public Presentations

During the course of the year staff from the CMP gave presentations to the following organisations.

Table 8. Public presentations (2021/22).

Date	Organisation
21 September 2021	2021 World Fisheries Congress
21 January 2022	IFISH with Tackleworld, season 17, episode 17.
15 February 2022	University of Tasmania Field Ecology unit
26 April 2022	Bridgewater Anglers' Association
21-22 May 2022	Liawenee Trout Weekend

8.3 Timeline of Major Events

Table 9. Timeline of major events (2021/22).

Date	Event
July	
20th	Started checking and repairing barrier nets for holes and tears
August	
16th- 18th	Lake Crescent shack inventory and clean up

Date	Event
September	
8th	All barrier net checks and repairs completed
14th	Lake Crescent reaches and exceeds full supply level (803.800 mAHD)
29th	Big fyke nets installed into barrier nets but left closed
30th	Boat electro-fisher repairs commence
October	
12th	Boat electro-fisher repairs complete, new loan generator installed. Boat tested on River Derwent successfully
15th	First significant rain event
15th	Lakes Sorell and Crescent reach and exceed combined full supply amount (201 000ML)
15th	Big fyke nets in barrier nets opened up
19th	River Clyde Trust begin releasing approximately 300ML a day to reduce the combined full supply level. Flow is soon increased to 500ML a few days later
24th	Second significant rain event
25th	Lake Sorell reaches and exceeds full supply level (804.360 mAHD)
27th	Active fishing with gill nets/boat electro-fisher commences for the season
27th	First carp caught for the season: trammel gill net in combination with boat electro-fisher at Silver Plains, 470mm, 2344gm, female, GSI 8%
28th	Third significant rain event
29th	Short pieces of gill nets installed behind barrier nets at high risk locations
30th	Lake Crescent reaches peak lake level height for the season (804.113 mAHD)
31st	Lakes Sorell and Crescent reach peak combined volume above full supply (215 048ML)
November	
2nd	Lake Sorell reaches peak lake level height for the season (804.508 mAHD)
8th	Second carp caught for the season: big fyke net at Kermodes Marsh, 379mm, 913gm, female
12th	Third carp caught for the season: big fyke net at Silver Plains, 410mm, 1689gm, female, GSI 20%
29 - 30th	Monthly Lake Sorell juvenile carp survey

Date	Event
December	
1st – 2nd	Monthly Lake Sorell juvenile carp survey
2nd	Fourth carp caught for the season: trammel gill net behind barrier net at Robertsons Marsh, 315mm, 805gm, female
20th – 23rd	Monthly Lake Sorell juvenile carp survey
January	
12th	Active fishing with gill nets/boat electro-fisher finished for the season
19th	All short pieces of gill nets behind barrier nets removed
17th- 20th	Monthly Lake Sorell juvenile carp survey
27th	Lake Sorell field station site inspection
February	
21st – 24th	Monthly Lake Sorell juvenile carp survey
23rd	All big fyke nets removed from barrier nets
March	
1st – 2nd	Annual Lake Crescent juvenile carp survey
3rd	River Clyde downstream survey
7th	Lake Crescent carp containment spillway structure dismantled and removed
7th – 9th	Annual Lake Crescent and Sorell golden galaxias survey
21st – 25th	Annual Lake Sorell juvenile carp survey
April	
5th	Carp Workshop
May	
3rd	Lake Sorell field station test and tag of electrical equipment
6th	Lake Sorell field station site inspection

8.4 Media Articles

- 7th October 2021 – Tasmanian Government Media Release, Guy Barnett, Minister for Primary Industries and Water – “Carp eradication program achieving very positive results”.
- 8th October 2021 – Inland Fisheries Service website – “Carp Management Program achieving positive results”.
- 11th October 2021 – DPIPWWE Pod news and events – “The IFS Carp Management Program annual report has good news for inland waters, bad news for carp”.
- 28th October 2021 – Inland Fisheries Service website – “Carp caught!”.
- 3rd November 2021 – The Derwent Valley Gazette– “Carp on the move”.
- 5th November 2021 – The Examiner – “Rains plays havoc with some waterways”.
- 5th November 2021 – The Mercury– “Carl Hyland”.
- 9th November 2021 – Inland Fisheries Service website – “Victoria comes to the rescue for Tasmanian Carp Management Program”.
- 9th November 2021 – DPIPWWE Pod news and events – “Victoria comes to the rescue for Tasmanian Carp Management Program”.
- 11th November 2021 – The Advocate – “Female carp in Lake Sorell”.
- 12th November 2021 – Vibes Under the Sea Podcast, Episode 25 – “Jonah Yick (Inland Fisheries Service)”.
- December 2021 – Australian Society for Fish Biology Newsletter, Lateral lines – “State Reports: Tasmania, Inland Fisheries Service: Carp Management Program”.
- December 2021 – Fishes – “Eradication of the Invasive Common Carp, *Cyprinus carpio* from a Large Lake: Lessons and Insights from the Tasmanian Experience” in the book “Biology and Control of Invasive Fishes”.
- 4th January 2022 – Inland Fisheries Service website – “Lake Sorell Carp Eradication Update”.
- 6th January 2022 – Inland Fisheries Service website – “NEW BOOK: Biology and Control of Invasive Fishes”.
- 11th January 2022 - DPIPWWE Pod news and events – “Tasmanian carp eradication efforts recognized internationally”.
- 14th January 2022 – The Mercury– “Carl Hyland”.
- 3rd February 2022 – The Examiner – “Brown Dun”.
- 21st February 2022 – Inland Fisheries Service website – “University of Tasmania field ecology students visit Lake Sorell”.
- March 2022 – The Highland Digest – “More fishing sites cleaned up”.
- March 2022 – The Highland Digest – “University of Tasmania field ecology students visit Lake Sorell”.
- 13th May 2022 – The Mercury– “Carl Hyland”.
- 30th May 2022 – Inland Fisheries Service website – “Tasmanian Carp Management Program Update”.
- June 2022 – Australian Society for Fish Biology Newsletter, Lateral lines – “State Reports: Tasmania, Inland Fisheries Service: Carp Management Program Report”.

9. 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
1201 - Motor Vehicles	(27,467.52)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(27,467.52)	0.00	0.00
1202 - MV Acc Dep	8,221.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8,221.44	0.00	0.00
4310 - Refunds-Ins	(137.17)	0.00	(137.17)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4528 - Misc Rev GST	(681.82)	0.00	(681.82)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4601 - Gross disposals	(30,054.55)	0.00	(30,054.55)	0.00	0.00	0.00	0.00	0.00	0.00	(42,781.82)	0.00	0.00	42,781.82	0.00	0.00
5101 - Salaries	183,440.53	0.00	13,523.29	13,475.66	22,446.75	11,401.40	15,930.71	15,244.63	12,866.09	14,253.89	21,941.92	14,590.07	15,803.11	11,963.01	0.00
5102 - Lump Sum Leave	16,373.23	0.00	1,196.80	1,287.36	1,172.00	3,347.02	0.00	214.56	2,421.74	1,468.55	1,469.94	489.98	0.00	3,305.28	0.00
5106 - Superannuation	22,581.80	0.00	1,664.18	1,669.47	2,674.99	1,668.02	1,803.77	1,758.87	1,726.50	1,769.96	2,637.76	1,705.71	1,788.34	1,714.23	0.00
5107 - Otime-Penalties	583.84	0.00	0.00	0.00	233.54	0.00	175.15	175.15	0.00	0.00	0.00	0.00	103.08	(103.08)	0.00
5109 - Allowances	25,419.37	0.00	1,921.55	1,931.68	2,897.52	1,931.68	1,931.68	1,954.37	1,977.06	1,977.06	2,965.59	1,977.06	1,977.06	1,977.06	0.00
5118 - Super Gap Payme	7,790.79	0.00	289.50	575.98	1,207.54	575.47	622.30	606.82	595.64	610.63	910.03	588.48	616.98	591.42	0.00
5207 - Equip Hire/Le	5,494.20	0.00	457.85	457.85	457.85	457.85	457.85	457.85	457.85	457.85	457.85	457.85	457.85	457.85	0.00
5209 - General Ins	454.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	454.55	0.00
5212 - Printing/Pubs	1,120.12	0.00	0.00	143.30	0.00	320.00	501.82	0.00	0.00	0.00	0.00	0.00	0.00	155.00	0.00
5213 - Library	212.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	212.44	0.00	0.00	0.00	0.00	0.00	0.00
5214 - Vehicle Fuel	5,764.36	(169.00)	169.01	199.09	430.57	44.91	938.62	458.82	1,238.88	1,095.04	1,041.67	420.36	450.76	560.63	0.00
5215 - Vehicle Hire	21.35	0.00	0.00	0.00	21.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5217 - Vehicle Maint	2,111.99	0.00	0.00	0.00	1,043.77	0.00	390.23	0.00	69.99	0.00	0.00	608.00	454.55	(454.55)	0.00
5219 - Postage/Freight	(265.26)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(265.26)	0.00
5223 - Network Costs	676.76	0.00	0.00	590.5	0.00	62.80	590.5	590.5	127.75	0.00	0.00	129.46	590.5	120.55	0.00
5228 - Mob Phones Rads	2,911.09	0.00	171.52	305.08	182.18	242.41	237.44	242.89	385.10	170.97	243.90	238.94	245.62	245.04	0.00
5229 - Equip Purchases	40.00	0.00	0.00	0.00	0.00	0.00	40.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5230 - Equipment Deprn	5,960.22	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	5,960.22
5231 - MV Deprn	11,967.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	197.54	0.00	11,770.09
5232 - Vessel Deprn	6,473.67	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	6,473.67
5234 - Op Supplies	715.81	0.00	0.00	72.68	0.00	128.36	101.41	194.61	22.72	0.00	0.00	25.32	0.00	170.71	0.00
5236 - Cont Services	22,731.74	0.00	308.70	583.10	737.36	492.09	1,363.37	2,989.11	2,315.86	343.00	9,107.55	1,063.30	240.10	3,188.20	0.00
5238 - OH & S	1,515.46	0.00	194.2	436.04	360.91	35.00	35.00	135.00	35.00	304.09	70.00	70.00	0.00	15.00	0.00
5240 - Meetings & Conf	693.59	0.00	0.00	462.30	0.00	0.00	(30.00)	0.00	0.00	0.00	0.00	0.00	206.74	54.55	0.00
5246 - Prop Maint	179.96	0.00	0.00	73.81	47.70	0.00	0.00	0.00	0.00	0.00	0.00	58.45	0.00	0.00	0.00
5253 - Vessel Fuel	5,434.84	0.00	0.00	171.61	321.32	4,339.35	(2,289.02)	1,152.79	954.90	0.00	319.79	0.00	0.00	464.10	0.00
5255 - Intrastate Trav	9,079.85	0.00	5,480.5	797.85	157.20	944.45	3,376.30	1,362.05	1,079.95	0.00	423.15	390.85	0.00	0.00	0.00
5257 - Klim Allowance	186.39	0.00	0.00	150.40	0.00	0.00	0.00	0.00	35.99	0.00	0.00	0.00	0.00	0.00	0.00
5258 - Prot Clothing	1,307.45	0.00	72.73	396.37	0.00	144.55	0.00	0.00	30.00	0.00	50.00	356.46	257.34	0.00	0.00
5267 - Vessel Maintena	17,268.77	0.00	0.00	1,545.45	0.00	486.21	6,624.73	6,895.98	0.00	1,114.68	199.91	0.00	0.00	401.81	0.00
5269 - Office Printing	2.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.63	0.00	0.00	0.00	0.00	0.00
5270 - WDV Disp Assets	19,048.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19,048.54	0.00	0.00
5280 - Signage	60.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5288 - Infrastruc Depr	571.42	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	571.42
State/IFS Contribution	327,809.51														
Total Expenditure	327,809.51	(169.00)	(9,711.95)	23,975.14	34,452.55	26,621.57	32,270.41	33,902.55	25,438.46	(19,213.47)	41,839.06	23,170.29	65,442.40	25,016.10	24,775.40



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