

Inland Fisheries Service

Fisheries Performance Report

Woods Lake



November 2024

Inland Fisheries Service

Fisheries Performance Assessment – Woods Lake

Author:

Rob Freeman

Approved by:

Dr Ryan Wilkinson

Version number:

Final

Date:

September 2025

© Crown in Right of the State of Tasmania December 2023

Contents

Introduction	1
FPA Survey Methodology	2
In-Lake Population Survey	2
Annual Postal Survey	2
Analysis methods	2
Results	3
In-Lake Population Survey 2024	3
CPUE	3
Weight and Length Information	3
Angler Postal Survey	5
Discussion	8
Recommendations	9
Appendix	10

Introduction

Woods Lake was originally a natural lake that was enlarged in 1911 with the construction of a levee across the upper Lake River. This remained until the establishment of the Arthurs Lake dam in 1962, resulting in cessation of natural flows into Woods Lake. To meet downstream irrigation requirements, a seven metre high rock fill dam was constructed, increasing the size of Woods Lake to around 1,250 ha.

The lake is an important brown trout fishery with around 4,000 – 5,000 anglers fishing this water per season. Presently it is the fifth most popular freshwater fishery in the State.

Brown trout naturally recruit from the upper Lake River between Woods Lake and the Arthurs Lake dam. The lake has never been stocked with brown trout. Evidence from past surveys and by-catch collected during the annual monitoring for galaxiids, indicates consistent annual recruitment maintains a healthy and resilient fishery.

Until 2006, access to the lake was primarily via a high clearance 4WD track. In 2006–07, the track was upgraded to an all-vehicle standard. Since then, fishing effort has increased threefold.

The Woods Lake fishery is regulated with a minimum fish size limit of 300 mm and a daily bag limit of five fish, consisting of only two fish over 500 mm. The fishing season opens on the first Saturday in August and closes the Sunday nearest to the 30 April in the next year, with the lake open to all methods of fishing.

Monitoring of the brown trout population is in accordance with the schedule as outlined in the *Tasmanian Inland Recreational Fishery Management Plan 2018-28* (two surveys over life of the plan). This goal has now been achieved with surveys during 2018 and 2024.

FPA Survey Methodology

In-Lake Population Survey

During 4-6 November 2024, 60 box traps were set each night for two nights (total of 120 box trap sets) with all habitats around the shoreline surveyed (see appendix A). All trout captured were identified as female, male or indeterminate/immature and weighed to the nearest 10 grams and measured to the nearest millimetre (fork length). Captured fish were not marked but were released away from the trap site after being processed. At the time of the survey the lake level was 0.6 metres (737.15 m ASL) from full supply (see Appendix B). Weather details during the survey are presented in Appendix C.

Annual Postal Survey

Since 1986, the IFS has conducted an annual postal survey seeking information about anglers' catches. The survey comprises a form sent to 10 per cent of all categories of anglers, asking set questions about their angling (catch of trout) for the past season. This information is entered into a database and information on catch per day, harvest and angling effort is extrapolated. This provides a long term overview of individual fishery performance in addition to characterising effort. Additionally, commencing at the completion of the 2024-25 season, the postal send out of survey forms was switched to sending forms via email, with responses digitally entered by participants. A comparison of postal and email returns for all waters are examined in a separate report. In this report, only records post 2000 are assessed.

Analysis methods

Condition factor for all fish was calculated using the basic formula of $K=10^5 \times \text{weight}/\text{length}^3$. This provides a basic generalised result that can be used to compare other fish and fisheries. In general, these results may not reflect the perception of anglers.

Growth equation was generated by fitting a standard linear equation to the log weight against log length data.

Results

In-Lake Population Survey 2024

During 4-6 November 2024, an in-lake survey was conducted at Woods Lake to examine:

- Catch Per Unit Effort (CPUE) for brown trout,
- population structure,
- the condition of fish, and
- to compare the 2018 survey results to this surveys data.

CPUE

In total, 133 brown trout were captured from 120 box trap sets. This equates to a CPUE of 1.1 fish per trap. This result represents a 52 per cent decline in CPUE compared to similar survey during October 2018 at 2.3 fish per trap (n=368).

Weight and Length Information

The total catch consisted of 36 per cent females, 25 per cent males with the remaining 39 per cent being immature or indeterminate fish. Table 1 shows the summary statistics for these fish separated by sex. On average, male fish were notably heavier than female fish by around 268 g.

The average weight for all fish, including immature/indeterminate fish was 586 g. The average weight for fish over 300 mm was 637 g, with 87 per cent of the catch greater than 300 mm length. The average weight of fish over 500 mm was 1.44 kg, with just seven per cent of the catch being greater than 500 mm (see Figures 1 and 2).

Table 1: Length, weight and condition factor for brown trout separated by sex or immature/indeterminate fish.

Grouping	Measurement	Mean	Minimum	Maximum
All brown trout (n=133)	Length (mm)	371	115	600
	Weight (g)	586	16	2,000
	Cond Factor (k)	1.06	0.63	1.52
Male (n=33)	Length (mm)	435	267	600
	Weight (g)	841	200	2000
	Cond Factor (k)	0.96	0.63	1.22
Female (n=48)	Length (mm)	377	277	525
	Weight (g)	573	240	1,340
	Cond Factor (k)	1.04	0.89	1.23
Immature/indeterminate (n=52)	Length (mm)	325	115	413
	Weight (g)	436	16	710
	Cond Factor (k)	1.15	0.84	1.52

The growth of fish was good, with all fish showing a consistent increase in length and weight over time. The 2018 and 2024 survey results for length and weight were similar (see Figure 1), although there was a reduction in the number of brown trout over 500 mm, with seven per cent for the 2024 survey and 19 per cent for 2018. The log linear growth equation parameter for weight against length was 2.72 that was marginally lower than the 2018 at 2.80.

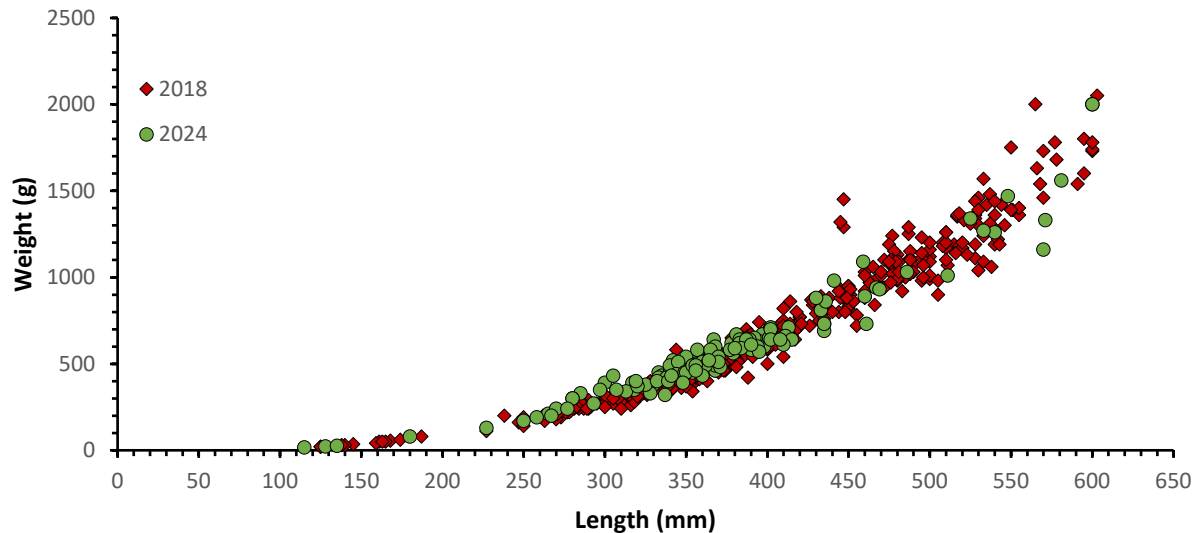


Figure 1: Length/weight regression for brown trout captured during 2018 and 2024 surveys.

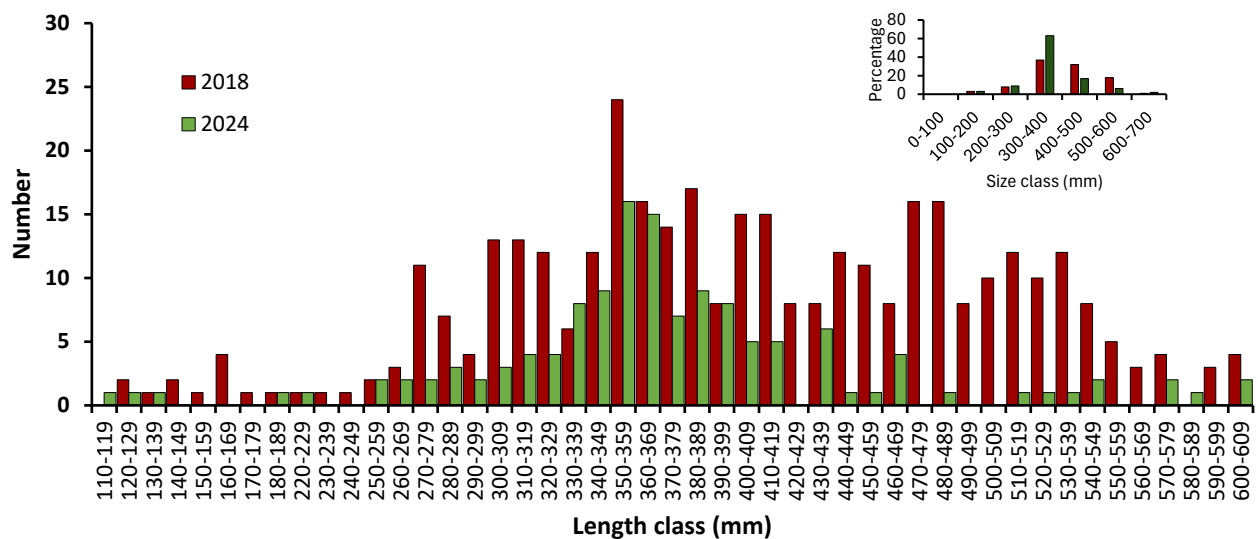


Figure 2: Length frequency for brown trout 2018 (n=368) and 2024 (n=133) comparison, with insert showing percentage of fish in each 100 mm length class.

By comparison to the length frequency data from the 2018 survey where there was evidence of recruitment and multiple length classes (see Figure 2), the 2024 result shows lower numbers of fish under 300 mm and substantially lower numbers over 420 mm. There was just one dominant group of fish between 300 - 400 mm that was significantly larger compared to 2018 (insert Figure 2).

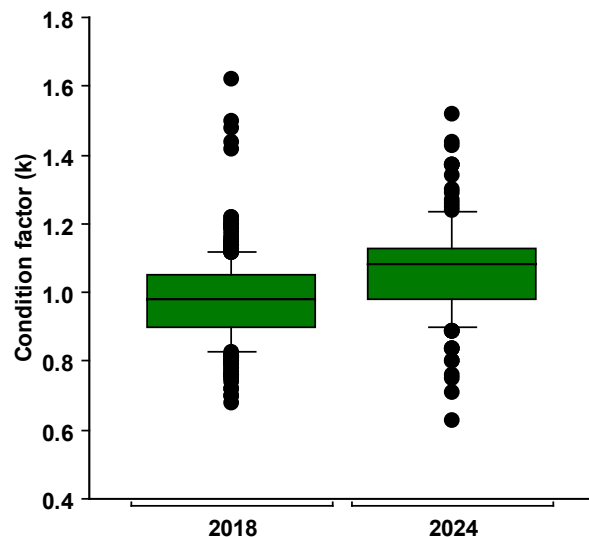


Figure 3: Box plots for condition factor for brown trout 2018 and 2024 (P -value < 0.05).

The overall condition of brown trout for the 2024 survey was significantly higher relative to the 2018 result (see Figure 3a and b). The average k -factor for 2014 was 1.06 k compared to 0.98 for 2018. There was some evidence from 2024 of larger fish over 500 mm being in poorer condition relative to smaller fish.

Angler Postal Survey

Average (mean) fishing effort in the period 2000–18 was 9,097 angler days per season, with a low of 1,033 days in 2000–01 and a high of 18,994 days during 2017–18 (see Figure 4). Overall, the increase in angling effort post 2005–06 is related to the upgrading of the access track. The increase in fishing effort during 2008–10 was a consequence of drought conditions during 2006–08 affecting other major fisheries. During this time, a large influx of anglers elected to fish Woods Lake and Little Pine Lagoon. The drought broke in 2009, and anglers have continued to fish at Woods Lake, until 2022–23, with a decline below the long-term average over the period 2022 to 2025.

Figure 5 shows the average number of days reported by questionnaire respondents who fished at Woods Lake each season. This result has fluctuated around the long-term average of 3.8 days (see Figure 5).

Very high angling effort occurred during the 2017–18 season at 18,994 days, resulting in a record estimated harvest (see Figure 6). This high harvest was essentially driven by increased fishing effort, assisted by a continued improvement in water quality.

Since 2000, the average daily catch rate for Woods Lake is 2.6 brown trout (see Figure 7). The highest daily catch rate of 4.1 fish was recorded for the 2005–06 season, which was related to the initial upgrading of the access track and the uptake of latent fishing effort.

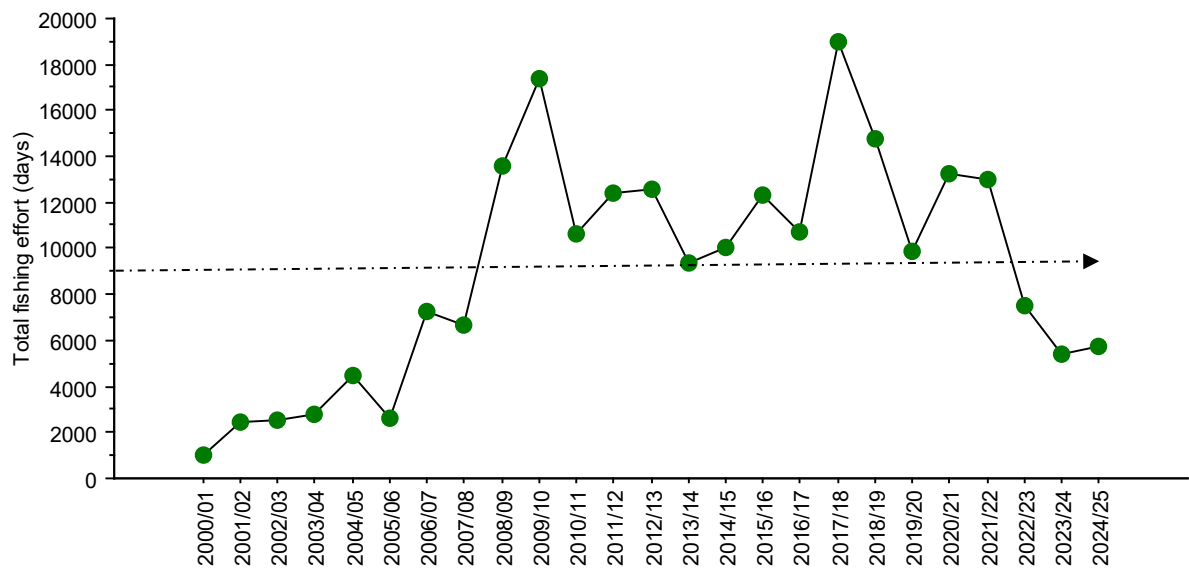


Figure 4: Average (mean) fishing effort 2000 – 25 (dotted line indicates long-term average).

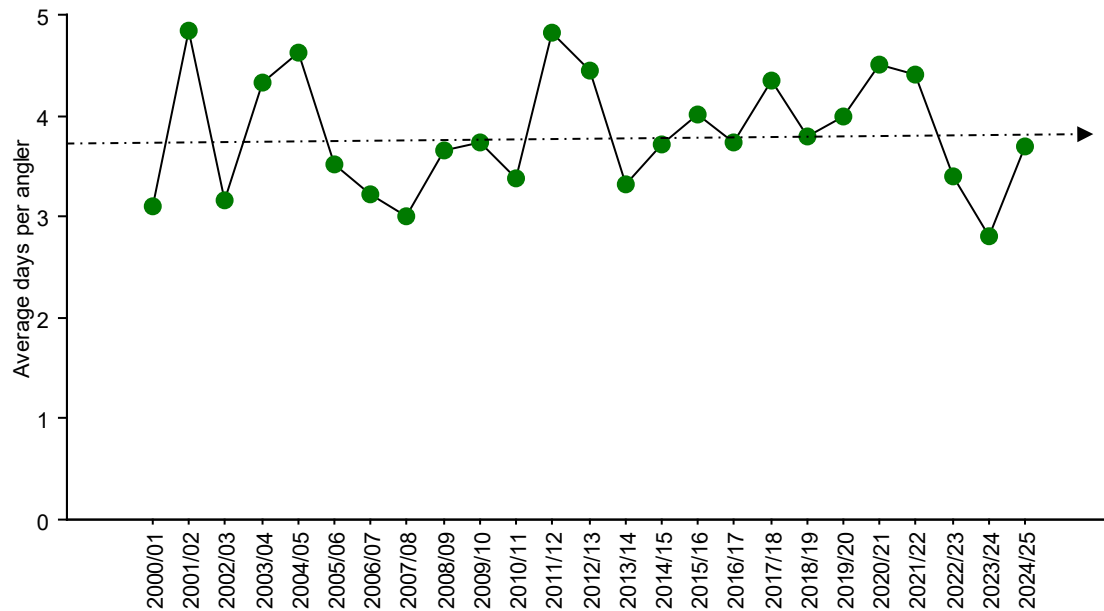


Figure 5: Average number of days fished per survey respondent for each season 2000 – 25 (dotted line indicates long-term average).

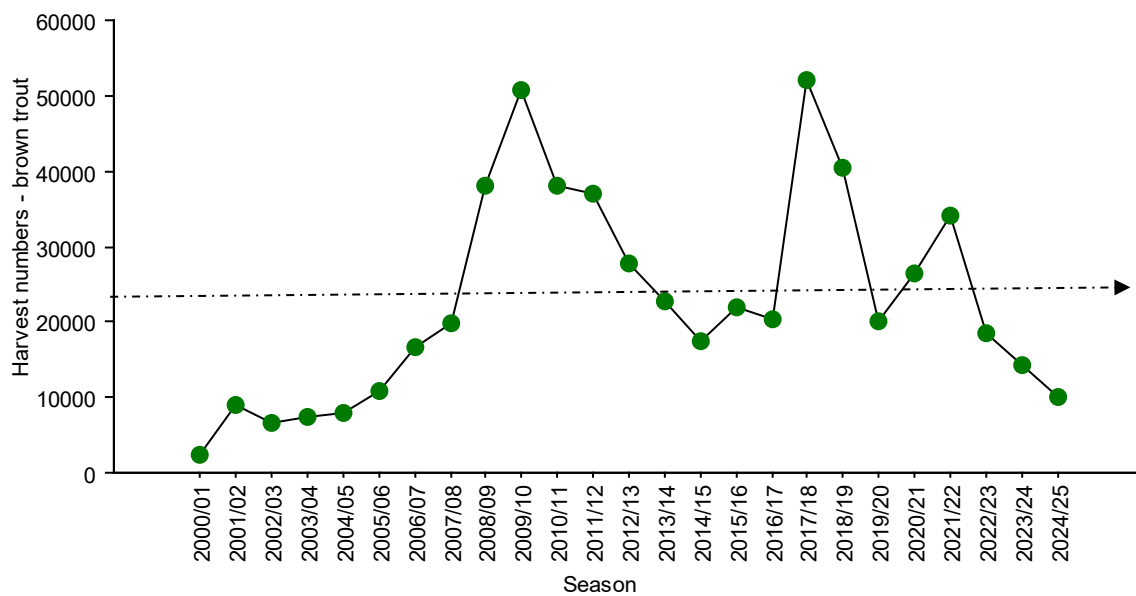


Figure 6: Estimated annual harvest of brown trout 2000 – 25 (dotted line indicates long-term average).

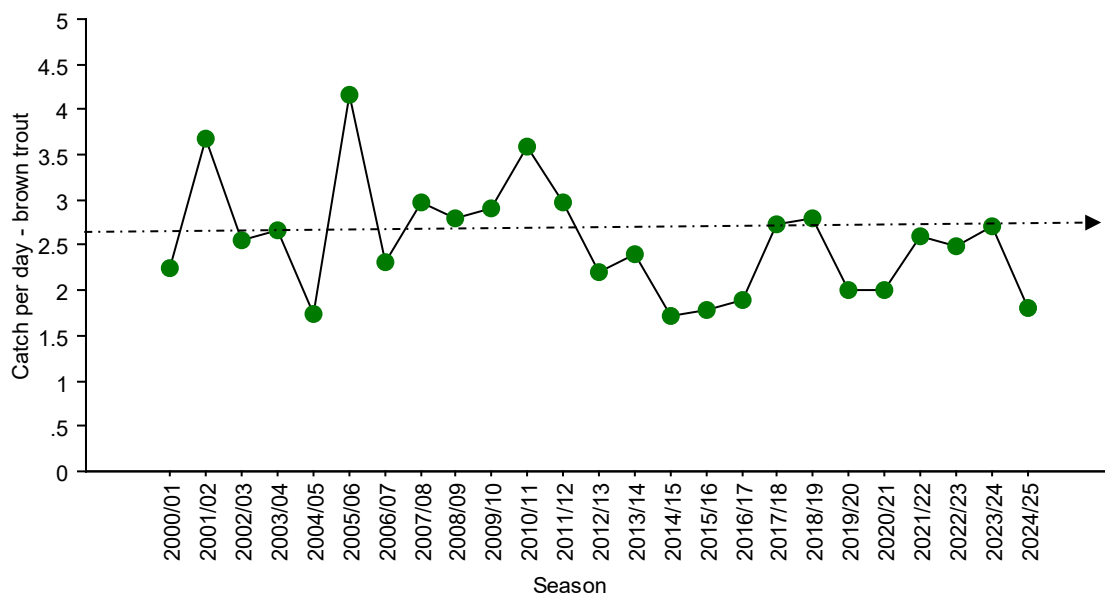


Figure 7: Daily catch rate for brown trout 2000 – 25 (dotted line indicates long-term average).

Discussion

Between the 2018 and 2024 surveys, catch per unit effort (CPUE) for brown trout at Woods Lake declined by 52 per cent. This reduction was reflected in fewer fish over 420 mm in length and to a lesser extent, fewer fish under 300 mm. In contrast, most fish captured were between 300 and 400 mm, representing a 70 per cent increase in this size range relative to the 2018 survey. This strong cohort reflects high recruitment during 2021–2022, with large numbers of three-year-old and some two year old fish present.

Cormorant predation and its effect on trout behaviour has contributed to the lower observed abundance, a pattern observed at other fisheries assessed during the 2024–25 season i.e., Arthurs Lake and Little Pine Lagoon.

Brown trout growth at Woods Lake remains strong, with the 2018 and 2024 surveys showing a similar growth pattern. This suggests the lake's productivity for trout has remained relatively stable, despite the persistence of a blue-green algal bloom from February 2023 until February 2025.

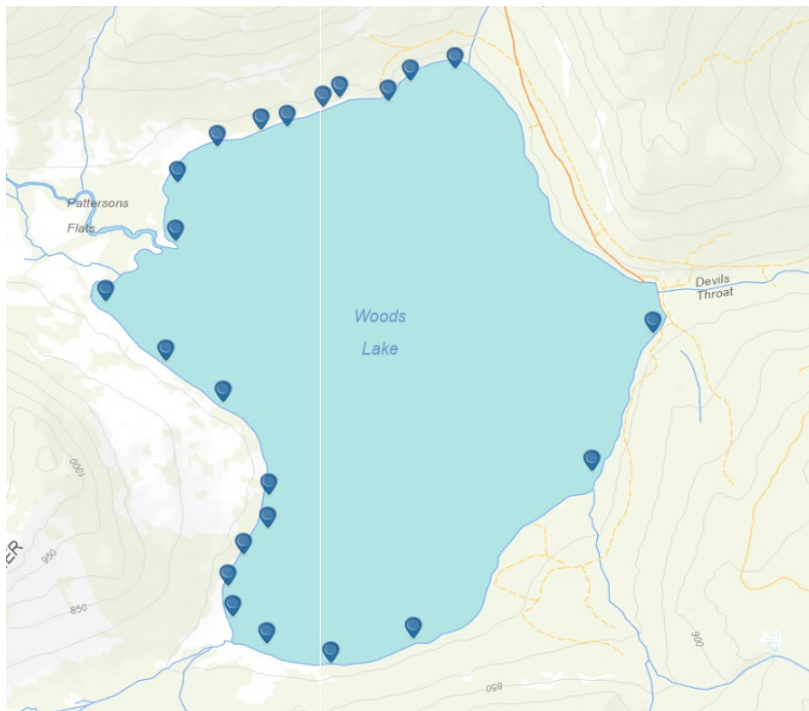
Compared to the 2018 result, the average condition factor in 2024 was significantly higher, despite similar growth rates. This improvement is largely attributed to the absence of longer/older fish, which typically exhibit poorer condition and would otherwise lower the average. As the current large cohort of three year old fish continues to age, their condition will play a significant role in shaping future mean condition factor outcomes.

Over the long term, fishing activity at Woods Lake has averaged approximately 9,000 angler days per season. However, during the past three seasons, this figure has declined to between 6,500 and 7,000 angler days. This reduction in fishing effort is attributed to a slightly below average daily catch rate for brown. This result has been influenced by the persistence of a blue-green algal bloom throughout 2023–24 and into early 2025. As a result of reduced angler participation and moderation in catch rates, the overall harvest of brown trout has decreased. Nevertheless, the presence of younger fish in the population means the Woods Lake trout fishery will remain sustainable and continue to offer acceptable angling opportunities over the next two to three seasons.

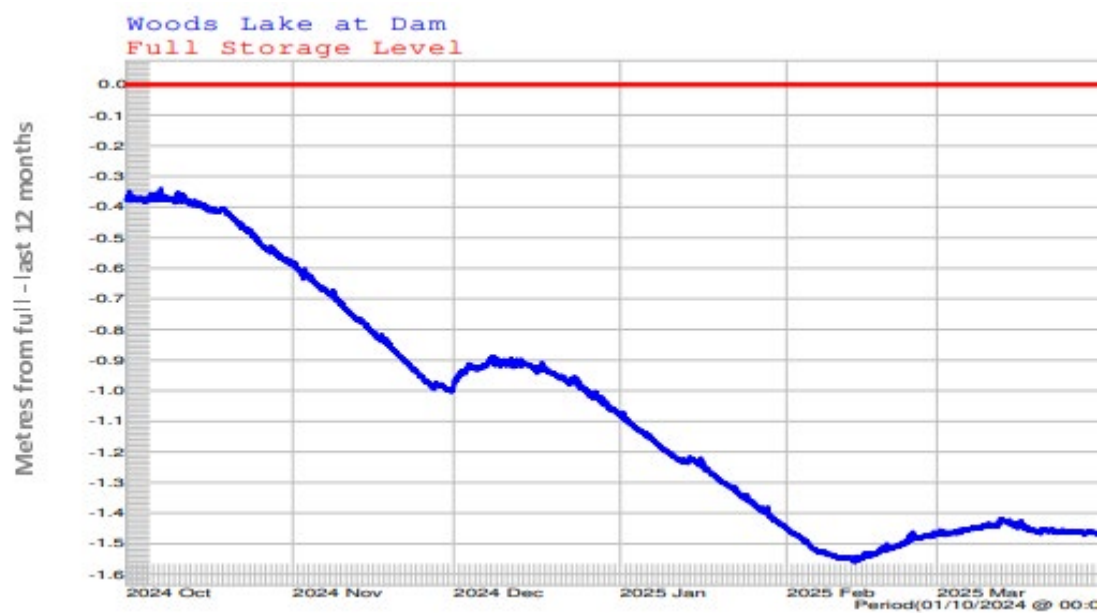
Recommendations

- The trout fishery at Woods Lake continues to be managed by way of adjustment to bag and size limits. Presently, the minimum size limit of 300 mm with a daily bag limit of five fish consisting of only two fish over 500 mm length is appropriate. However, it will be necessary to monitor the fishery in terms of future recruitment and fish growth.
- Monitoring of future angling effort and harvest will be achieved by the collection of creel data and assessment via an annual angler survey, and a review of angler diary information.
- To assist with on-going fishery management, it may be advantageous to establish an index of annual recruitment for Woods Lake as this has a strong influence fishery performance.

Appendix



Appendix A: Box trap string sets Woods Lake survey, November 2024 (60 box traps/night).



Appendix B: Lake level plot over time Woods Lake (Hydro Tasmania www.hydro.com.au/water/lake-levels).

Liawenee, Tasmania November 2024 Daily Weather Observations

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9 am					3 pm						
		Min	Max				Dir	Spd	Time	Temp	RH	Cld	Dir	Spd	MSLP	Temp	RH	Cld	Dir	Spd	MSLP
		°C	°C				mm	mm	hours	km/h	local	°C	%	g th	km/h	hPa	°C	%	g th	km/h	hPa
1	Fr	-2.3	9.7	0.8			WSW	59	14:58	4.1	74		WSW	31	1013.3	8.4	40		WSW	37	1014.9
2	Sa	-4.0	12.2	0			N	57	14:41	5.9	69		NNE	19	1018.2	9.7	35		N	30	1011.7
3	Su	5.4	11.8	3.8			NNW	83	00:41	7.4	68		W	31	999.4	11.0	59		W	33	1001.9
4	Mo	2.4	13.5	0			WSW	48	10:57	5.3	78		WSW	24	1007.1	12.0	50		WSW	30	1009.7
5	Tu	-3.0	19.1	0			NW	35	17:49	11.0	40		SW	4	1013.7	17.7	46		NNW	17	1012.1
6	We	4.8	19.6	0			NNW	65	11:08	13.4	56		N	26	1005.5	18.6	54		NNW	30	1001.3
7	Th	-0.7	15.5	0			SW	41	10:33	7.8	47		W	31	1006.4	13.3	39		ENE	20	1004.4
8	Fr	4.0	8.3	0.8			W	74	13:11	4.9	89		NW	26	998.1	6.5	70		W	46	1001.7
9	Sa	0.3	10.7	1.8			WNW	52	08:18	6.1	71		W	30	1012.5	9.0	63		W	28	1012.5
10	Su	1.2	14.6	0.2			W	52	01:38	5.4	67		W	28	1018.6	12.6	39		E	17	1019.9
11	Mo	-1.7	17.9	0.2			SW	35	14:57	8.2	49		NNW	9	1019.6	16.9	37		NW	13	1017.7
12	Tu	-2.1	18.5	0			NW	37	13:32	11.5	31		NNE	13	1017.6	16.0	31		NNW	19	1015.1
13	We	8.3	15.7	0			WSW	43	12:51	13.0	76		WNW	19	1008.7	12.7	74		SW	31	1008.6
14	Th	-1.3	13.3	5.8			WSW	41	15:03	5.9	73		WSW	17	1015.6	12.3	51		WSW	24	1015.2
15	Fr	-1.9	12.5	0			NNE	33	14:02	5.4	83		NE	15	1021.3	10.6	63		NNE	20	1021.0
16	Sa	5.3	18.1	0			NNE	63	07:00	10.2	76		NNE	30	1016.8	17.8	55		N	13	1015.7
17	Su	10.1	15.3	0			W	67	15:18	13.6	88		N	30	1001.1	5.4	94		W	24	998.7
18	Mo	2.1	9.4	11.8			WSW	56	10:36	4.9	82		WSW	30	1006.2	8.4	77		WSW	39	1010.8
19	Tu	0.1	16.5	0.6			WSW	35	23:58	5.9	71		SW	13	1021.1	14.8	50		SSE	11	1020.5
20	We	-1.3	17.3	0			NNE	30	17:32	3.5	93		SSW	9	1024.5	16.2	39		ENE	15	1024.1
21	Th	3.4	17.5	0						8.6	81		NNE	13	1026.8	16.6	45		NNW	15	1024.0
22	Fr	3.2	24.6							13.6	64		Calm		1022.3	23.4	24		SW	24	1020.6
23	Sa	9.2	23.9	0			NNW	44	08:25	18.7	30		NNW	22	1018.8	23.9	49		NW	19	1015.7
24	Su	6.3	22.8	0.4			NW	39	11:30	19.1	48		W	11	1017.5	22.1	50		NNW	19	1016.5
25	Mo	6.2	21.8	0.2			N	30	12:06	17.1	63		NNW	15	1016.7	21.2	50		NNW	15	1014.4
26	Tu	6.1	22.2	0			ENE	26	13:22	13.5	82		SW	7	1012.0	20.5	57		NE	17	1009.3
27	We	8.0	17.9	0.2			NE	31	06:49	14.3	90		ENE	13	1005.1	15.3	94		NE	7	1002.7
28	Th	7.8	10.8	38.8			ESE	41	03:45	8.0	98		SE	20	1017.2	7.9	98		SE	17	1021.5
29	Fr	4.4	12.8	10.0			ESE	30	23:39	10.7	73		ESE	11	1025.4	11.8	73		SSE	19	1024.3
30	Sa	7.5	17.1	0.4			E	57	22:49	12.4	90		NE	15	1019.4	13.6	91		E	22	1014.4
Statistics for November 2024																					
Mean		2.9	16.0							9.6	70			18	1014.2	14.2	56			22	1013.4
Lowest		-4.0	8.3	0						3.5	30		Calm		998.1	5.4	24		NE	7	998.7
Highest		10.1	24.6	38.8			NNW	83		19.1	98		#	31	1026.8	23.9	98		W	46	1024.3
Total				75.8																	

IDCJDW7027.202411 Prepared at 13:03 UTC on Saturday 9 August 2025

Appendix C: Weather details for survey period, November 2024.

Inland Fisheries Service

Phone:
1300 463 474

Email:
infish@ifs.tas.gov.au

www.ifs.tas.gov.au