



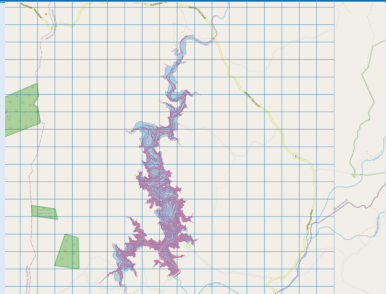
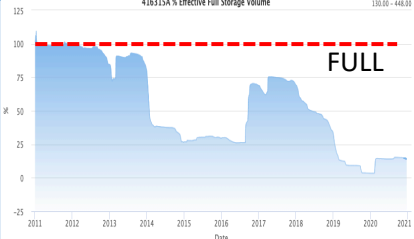
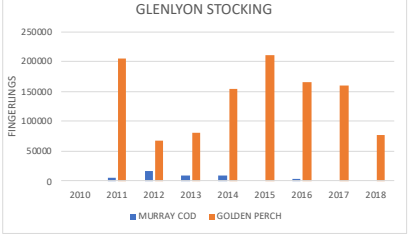
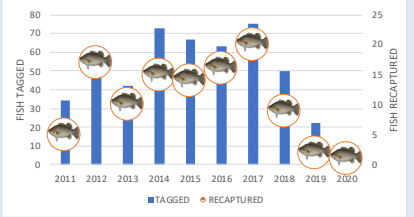
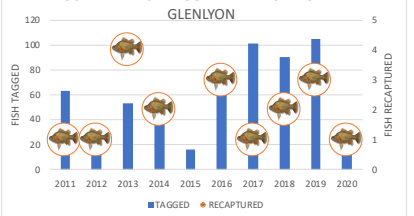
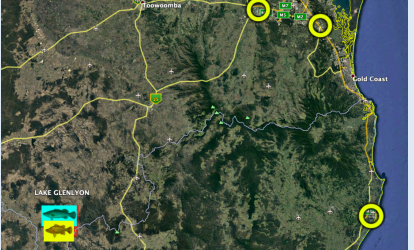
LAKE GLENLYON  
MURRAY COD AND GOLDEN PERCH 2011-2020  
2020 ANNUAL UPDATE

AVAILABLE		AVAILABLE	
Dam capacity	✓	Storage level	✓
Stocked fish numbers	✓	Bathymetry	✓
Tagged fish	✓	Recaptures	✓
Postcodes	✓	Competitions	
Species		Murray Cod	
Catch rates	✓	Fish sizes	✓
Growth	✓	Survival	✓
Tag locations	✓	Fish Movement	✓
Species		Golden Perch	
Catch rates	✓	Fish sizes	✓
Growth		Survival	
Tag locations	✓	Fish Movement	✓

## Summary

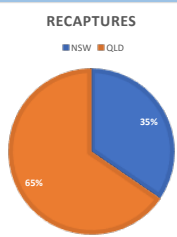
- Dam level reached a low of 3-4% from Oct 2019 – Feb 2020 and was 13.8% at 31 Dec 2020
- From 2011-2018 there were 45,000 Murray Cod and 1.1 million Golden Perch fingerlings stocked with 24.8 times more Golden Perch compared with Murray Cod
- Over the past 10 years there have been 493 Murray Cod tagged for 109 recaptures with a high recapture rate of 22.1% compared with 605 Golden Perch tagged and 18 recaptures for a recapture rate of 3.0%
- The average catch rate over the 10 years was 1.0 fish/fisher day for Murray Cod and was 1.3 for Golden Perch while in 2020 it was 0.7 for Murray Cod and 1.5 for Golden Perch (low catch numbers)
- Over the past 10 years most Murray Cod have been tagged in LGP map grids M14, K17 and M18 while for Golden Perch it was M14, M18, L17 and L14
- Annual growth calculated from tag recaptures for Murray Cod at the end of year 1 is 145mm and at the end of year 5 is 340mm
- Over the past 10 years there were 84 Murray Cod recaptures where movement was calculated with 56 (66.7%) recaptured in the same area as tagged while for Golden Perch there were 15 recaptures with 12 (80%) recaptured in the same area as tagged
- There were 11 Murray Cod tagged prior to the dam being at 3-4% that were recapture since suggesting a high survival rate even at very low water levels
- Most recaptures were by fishers from postcodes 2478 (Ballina area in NSW), 4305 (Ipswich area) and 4207 (Beenleigh area) with 65% from Qld and 35% from NSW

Infotish Australia  
 March 2021

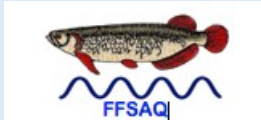
LAKE GLENLYON	LOCATION	BATHYMETRY
		
MEASURE	ACTUAL	GRAPH or MAP
Surface area Lake capacity	Surface area 18.0km <sup>2</sup> Level at 22 Dec 2020 13.9% For latest level <a href="https://realtime.data.water.nsw.com.au/">https://realtime.data.water.nsw.com.au/</a>	
Fingerlings stocked 2011-2018	HIGHEST    LOWEST    TOTAL MURRAY COD 2012       2018       TOTAL 16.8K       0       45.1K GOLDEN PERCH 2015       2018       TOTAL 210K       77.5K       1.1M	
Murray Cod tagged and recaptured 2011-2020	TAGGED       RECAPTURED 493            109  RECAPTURE RATE 22.1%	
Golden Perch tagged and recaptured 2011-2020	TAGGED       RECAPTURED 605            18  RECAPTURE RATE 3.0%	
Postcodes of recapture fishers 2011-2020	Fishers with postcodes 63 POSTCODE       FISHERS 2478            12 (19%) 4305            9 4207            7	

**Postcodes of recapture  
fishers  
2011-2020**

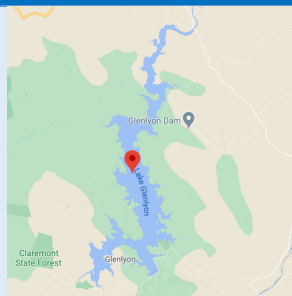


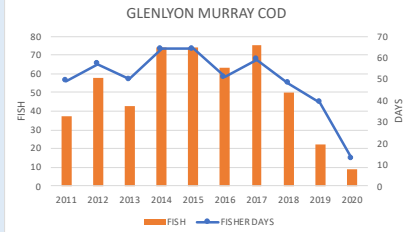
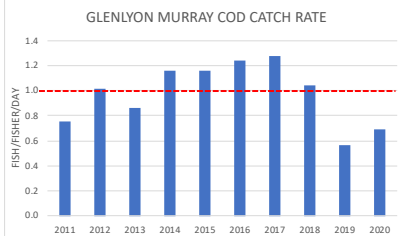
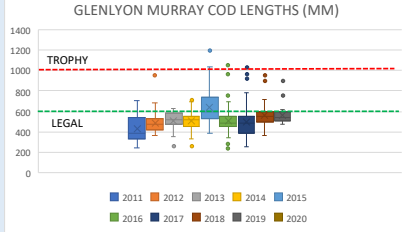
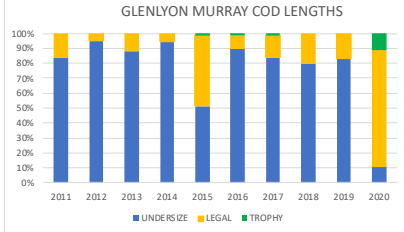
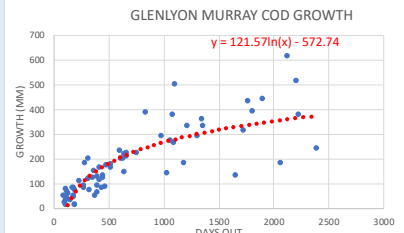
Most postcodes	
STATE	FISHERS
QLD	41 (65%)
NSW	22 (35%)
No code	49 (42%)



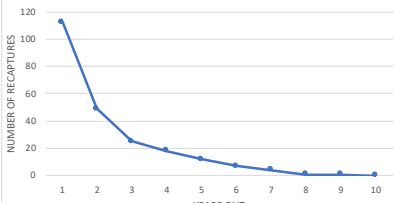
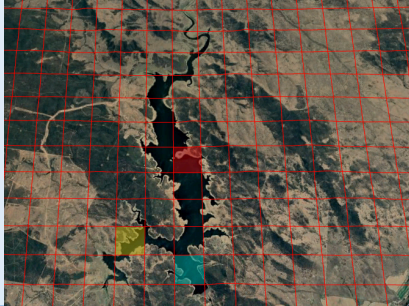
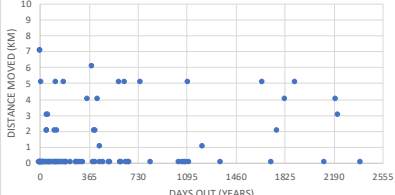
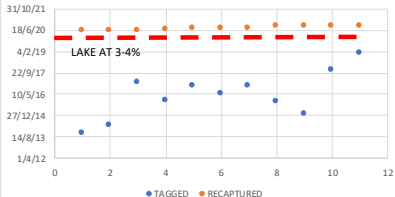
Product of Infofish Australia




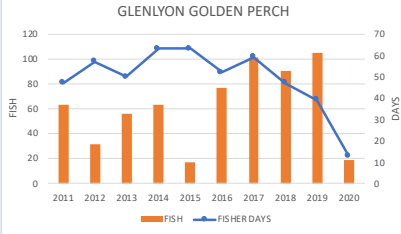
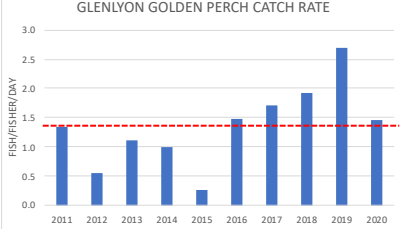
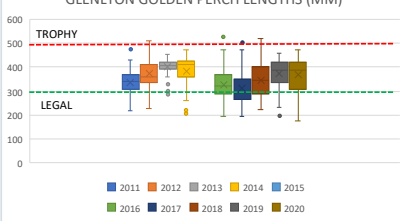
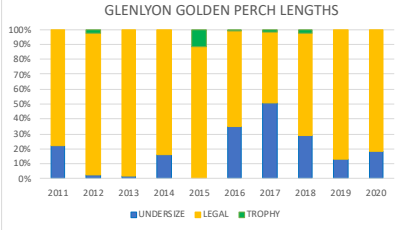
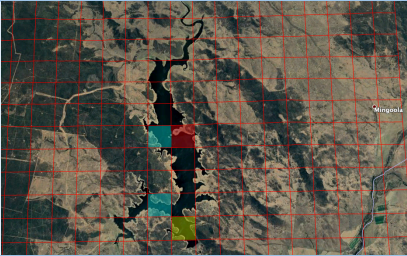
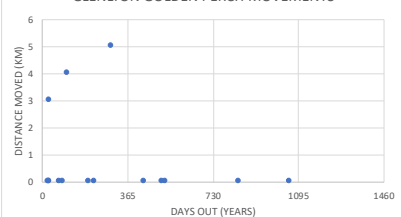


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LAKE GLENLYON		MURRAY COD																						
																								
MEASURE	ACTUAL	GRAPH or MAP																						
<b>Catch and effort</b> <b>number of fish</b> <b>fisher days</b> <b>T20 taggers</b> <b>2011-2020</b> <b>2020 low fisher days</b>	<table><tr><th>HIGHEST</th><th>LOWEST</th><th>NOW</th></tr><tr><td>CATCH</td><td></td><td></td></tr><tr><td>2017</td><td>2019</td><td>2020</td></tr><tr><td>75</td><td>22</td><td>10</td></tr><tr><td>EFFORT</td><td></td><td></td></tr><tr><td>2015</td><td>2019</td><td>2020</td></tr><tr><td>64</td><td>39</td><td>15</td></tr></table>	HIGHEST	LOWEST	NOW	CATCH			2017	2019	2020	75	22	10	EFFORT			2015	2019	2020	64	39	15		
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<b>Murray Cod growth at end of each year based on all recaptures since 2011</b>	<table><tr><td>Recaptures</td><td>70</td></tr><tr><td>GROWTH</td><td></td></tr><tr><td>Year 1</td><td>145mm</td></tr><tr><td>Year 2</td><td>229mm</td></tr><tr><td>Year 3</td><td>278mm</td></tr><tr><td>Year 4</td><td>313mm</td></tr><tr><td>Year 5</td><td>340mm</td></tr></table>	Recaptures	70	GROWTH		Year 1	145mm	Year 2	229mm	Year 3	278mm	Year 4	313mm	Year 5	340mm									
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<b>Murray Cod survival based on recaptures by years out after tagging</b>	<div>Survival rate by years out</div> <table><thead><tr><th>Year</th><th>Recaptures</th></tr></thead><tbody><tr><td>1</td><td>112</td></tr><tr><td>5</td><td>12</td></tr><tr><td>Longest time out (years)</td><td></td></tr><tr><td>9.6</td><td>1</td></tr></tbody></table>	Year	Recaptures	1	112	5	12	Longest time out (years)		9.6	1	<div>GLENLYON MURRAY COD SURVIVAL</div>  <table><caption>GLENLYON MURRAY COD SURVIVAL Data</caption><thead><tr><th>YEARS OUT</th><th>NUMBER OF RECAPTURES</th></tr></thead><tbody><tr><td>1</td><td>112</td></tr><tr><td>2</td><td>50</td></tr><tr><td>3</td><td>25</td></tr><tr><td>4</td><td>18</td></tr><tr><td>5</td><td>12</td></tr><tr><td>6</td><td>8</td></tr><tr><td>7</td><td>5</td></tr><tr><td>8</td><td>3</td></tr><tr><td>9</td><td>2</td></tr><tr><td>10</td><td>1</td></tr></tbody></table>	YEARS OUT	NUMBER OF RECAPTURES	1	112	2	50	3	25	4	18	5	12	6	8	7	5	8	3	9	2	10	1
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<b>Murray Cod movement 2011-2020</b>	<div>Recaptures</div> <div>84</div> <div>Recaptured same area</div> <div>56 (66.7%)</div> <div>Longest distance in lake</div> <div>7</div> <div>Outside lake</div> <div>0</div>	<div>GLENLYON MURRAY COD MOVEMENT</div>  <table><caption>GLENLYON MURRAY COD MOVEMENT Data</caption><thead><tr><th>DAYS OUT (YEARS)</th><th>DISTANCE MOVED (KM)</th></tr></thead><tbody><tr><td>0</td><td>0</td></tr><tr><td>365</td><td>0</td></tr><tr><td>730</td><td>0</td></tr><tr><td>1095</td><td>0</td></tr><tr><td>1460</td><td>0</td></tr><tr><td>1825</td><td>0</td></tr><tr><td>2190</td><td>0</td></tr><tr><td>2555</td><td>0</td></tr></tbody></table>	DAYS OUT (YEARS)	DISTANCE MOVED (KM)	0	0	365	0	730	0	1095	0	1460	0	1825	0	2190	0	2555	0														
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<b>Recaptures after Feb 2020 when lake was at 3-4% for 124 days</b> <b>8/10/2019-9/2/2020</b> <b>Fish tagged prior to Oct 2019</b>	<div>Recaptures</div> <div>11</div>	<div>RECAPTURES AFTER LAKE LEVEL 3-4%</div>  <table><caption>RECAPTURES AFTER LAKE LEVEL 3-4% Data</caption><thead><tr><th>DATE</th><th>TAGGED (km)</th><th>RECAPTURED (km)</th></tr></thead><tbody><tr><td>1/4/12</td><td>0</td><td>0</td></tr><tr><td>14/8/13</td><td>0</td><td>0</td></tr><tr><td>27/12/14</td><td>0</td><td>0</td></tr><tr><td>10/5/16</td><td>0</td><td>0</td></tr><tr><td>22/9/17</td><td>0</td><td>0</td></tr><tr><td>4/2/19</td><td>0</td><td>0</td></tr><tr><td>18/6/20</td><td>0</td><td>0</td></tr><tr><td>31/10/21</td><td>0</td><td>0</td></tr></tbody></table>	DATE	TAGGED (km)	RECAPTURED (km)	1/4/12	0	0	14/8/13	0	0	27/12/14	0	0	10/5/16	0	0	22/9/17	0	0	4/2/19	0	0	18/6/20	0	0	31/10/21	0	0					
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LAKE GLENLYON			GOLDEN PERCH	
			 	
MEASURE	ACTUAL		GRAPH or MAP	
<b>Catch and effort</b> <b>number of fish</b> <b>fisher days</b> <b>T20 fishers</b> <b>2011-2020</b> <b>2020 low fisher days</b>	<b>HIGHEST</b> <b>CATCH</b> 2019 105 <b>EFFORT</b> 2015 63	<b>LOWEST</b> 2015 17 2019 39	<b>NOW</b> 2020 22 2020 15	
<b>Catch rate</b> <b>Fish/fisher day</b> <b>2011-2020</b> <b>2020 low fisher days</b>	<b>HIGHEST</b> <b>CATCH RATE</b> 2019 2.7  10 YEAR AVERAGE	<b>LOWEST</b> 2015 0.3  1.3	<b>NOW</b> 2020 1.4	
<b>Average length (mm)</b> <b>2011-2020</b> <b>2020 low fish numbers</b>	<b>HIGHEST</b> 2015 432 <b>LARGEST</b> 2015 560	<b>LOWEST</b> 2017 313 2013 455	<b>NOW</b> 2020 369 2020 475	
<b>Fish lengths percentage</b> <b>Undersize &lt;300mm</b> <b>Legal 300-499mm</b> <b>Trophy 500+mm</b> <b>2011-2020</b>	<b>HIGHEST</b> <b>LEGAL</b> 2013 98.2 <b>TROPHY</b> 2015 11.8	<b>LOWEST</b> 2017 47.5 2019 0	<b>NOW</b> 2020 81.8 2020 0	
<b>Grid locations of tagged fish (map LGP)</b> <b>2011-2020</b>	Grids where most fish caught GRID FISH M14 237 M18 56 L17 41 L14 39			
<b>Golden Perch movement</b> <b>2011-2020</b>	Recaptures 15 Recaptured same area 12 (80%) Longest distance in lake 5 Outside lake 0			

## Data sources

Data used in the Lake Glenlyon Crystal Bowl are:

- Tag records and recapture records for the impoundment at <http://crystalbowl.infofishaustralia.com.au/>
- Dam level data from WaterNSW at <https://realtimedata.watarnsw.com.au/>
- Stocked fish records from <https://www.data.qld.gov.au/dataset/queensland-freshwater-fish-stocking-records/>
- Bathymetric data kindly provided by Patrick Murphy

## Basis for analysis

- Catch rates calculated as number of fish tagged/fisher/day for T20 fishers (taggers) with a minimum of 12 fisher days (at least 1 per month) to provide a reliable catch rate
- For Murray Cod undersized fish are <600mm, legal fish are ≥600 and <1000mm and trophy fish are ≥1000mm
- For Golden Perch undersized fish are <300mm, legal fish are ≥300 and <500mm and trophy fish are ≥500mm
- Growth calculated using logarithmic curve from recaptures where fish were out for 90 days or more and had positive growth
- Locations based on Infofish grid map LGP for the impoundment and other grid maps where fish were recaptured outside the impoundment
- Distance moved was calculated using Google Earth as the shortest distance by water between the tag and recapture location