

Fish Salvage Management Plan

Dated: 13 December 2023

Sports Fish Salvage Management Plan for the Tekapo Power Scheme

Background

The Tekapo Power Scheme (TekPS) operates within sports fish habitat. Sports fish, especially brown and rainbow trout, migrate from Lake Takapō into and within the scheme under regular generation and during alternative operational practices. When alternative operations occur within the scheme, sports fish may be subject to temporary and ongoing stranding and sports fish mortalities can occur. However, overall, the TekPS provides one of the most popular and successful sports fisheries in New Zealand and this Sports Fish Salvage Management Plan (FSMP) is viewed in that context.

The FSMP was developed by Genesis Energy Limited (Genesis) and Central South Island Fish & Game Council (CSIFGC) and is provided for in the Agreement in relation to the Tekapo Power Scheme between Genesis and CSIFGC dated [7/02/24] (Agreement) in recognition of the significant value of the canal sports fishery. The Agreement identifies that Genesis is responsible for sports fish salvage and the funding for it). The FSMP is subject to, and governed by, the provisions in the Agreement. Through application of the FSMP, CSIFGC and Genesis are assured that sports fish are salvaged, handled, and released in a timely and efficient manner to provide for both the health of fish that are stranded, and for the return to normal power scheme operations.

Observations and monitoring of stranding events have informed the development of this FSMP. CSIFGC produced a summary report (Adams, 2021) of outcomes of sports fish salvage for the period 2013-2021 undertaken as a result of sports fish stranding in the TekPS. The FSMP aims to ensure sports fish are relocated to permanent water promptly after flow events specified in clauses 1 to 7 of the FSMP. Sports fish stranding may occur during other events and ongoing communication between CSIFGC and Genesis required by the Agreement will provide for timely and efficient salvage. Significant stranding event responses relate to four locations specified in clause 2.2 below. These have been distinguished based on the numbers of fish identified as being potentially stranded and the safety issues associated with anglers attempting to catch them. Sports fish salvage may also be required at other locations on an as agreed basis, recognising the significant benefits of the canal fishery.

The FSMP is intended to be an adaptable document and CSIFGC and Genesis must review the FSMP at least once every 5 years as part of the relevant annual meeting as provided for in clause 8.2 of the Agreement. Ongoing stranding monitoring and salvage operation reporting will further inform the types of flow-release events that cause stranding events of sports fish that necessitate salvage.

This FSMP does not apply:

- In the event that permanent flow regimes are imposed upon Genesis for affected waterways within the New Consents as defined in clause 6.1 of the Agreement, Fish and Game and Genesis will meet to determine if any form of varied FSMP is required, and if so, will develop it in a timely manner;
- To the extent it is inconsistent with Genesis' compliance with its consent condition requirements (including but not limited to recreational releases) and operation of the Tekapo Power Scheme within statutory and regulatory requirements, but the FSMP will reapply as soon as reasonably practicable after such requirements and Genesis will promptly notify Fish and Game of such requirements occurring.

- In the event of mechanical or system failures; unforeseen maintenance, repairs or upgrades, flood events/management and/or any operational or management response to protect human health and safety or prevent damage to structures, but the FSMP will reapply as soon as reasonably practicable after such events and Genesis will promptly notify Fish and Game of such events occurring.

Genesis will engage in consultation with CSIFGC a suitably experienced person(s) (the **Salvage Contractor(s)**) to undertake salvage required by the FSMP. If CSIFGC is the Salvage Contractor, the costs for its work are set out in **Schedule 3**. At its discretion and cost CSIFGC may take part in any sports fish salvage operation under this FSMP but shall not hinder the Salvage Contractor for delivering the requirements of Genesis' consent conditions.

Salvage details

1. Extended Flow Event

1.1. Extended Flow Events are defined as any single or multiple flow releases having:

- (a) Flows of $13 \text{ m}^3/\text{s}^*$ or greater released from Gate 16 on 40 or more days of any 60-day period; or
- (b) Overall average daily flow released from Gate 16 exceeds $50 \text{ m}^3/\text{s}$ for any continuous 25-day period; or
- (c) Spill flows occur over the George Scott weir exceeding 15 days in any 30-day period.

*As measured by the half-hourly compliance flow in the Genesis Hilltop Hydrology system.

1.2. Genesis is not required to notify CSIFGC and the Salvage Contractor of any flow event that either will not or is not anticipated to meet the definition of an Extended Flow Event under clause 1.1.

1.3 Genesis will notify CSIFGC and the Salvage Contractor:

- a) at commencement of any flow events anticipated to qualify as an Extended Flow Event as defined in clause 1.1, and of the expected duration of the flow event.
- b) Within 2 days, that a flow event has qualified as an Extended Flow Event, and the expected remaining duration of the flow event.
- c) Of the cessation of an Extended Flow Event within 12 hours.
- d) In October each year or on request of CSIFGC of the scheduled recreational flow releases for the coming season.

1.4. Genesis will use reasonable endeavours to notify CSIFGC and the Salvage Contractor:

- (a) The date and time of predicted Extended Flow cessation (where practicable), including as relevant 5 days in advance and again between 1 to 2 days before cessation.**
- (b) Any predicted temporary cessation** of an Extended Flow Event whereby the cessation will be of a duration exceeding 48 hours.

**Cessation is often not known in advance and commissioning of plant often requires intermittent and changing flow.

1.5. If an Extended Flow Event ceases and a further Extended Flow Event is expected within 30 days, the parties will consult to determine the best times to isolate Gate 16 to enable sports



fish salvage and review in good faith the management of top-up flows to determine if these can be operated during the interim period to minimise ongoing stranding, taking into account Genesis' operational requirements.

2. Significant Stranding

For avoidance of doubt, Significant Stranding is a measure of sports fish numbers and is independent of the defined Extended Flow Event under clause 1.1.

2.1. A Significant Stranding occurs when:

- (a) a recorded observation by CSIFGC or Genesis staff on regular inspection duties after an Extended Flow Event identifies the number of sports fish at one or more of the locations in clause 2.2 as being at or above the numbers set out in **Schedule 1**; and
- (b) CSIFGC or Genesis notify the other party in writing of the recorded Significant Stranding and its location(s).

2.2. The locations where a Significant Stranding in clause 2.1 may be identified, and responded to, are (Refer to **Schedule 2** map):

- (a) Gate 16 stilling basin.
- (b) Upper Takapō River, Area 1 to Canoe Course.
- (c) George Scott weir stilling basin.
- (d) Lower Takapō River, Area 6.

2.3. To avoid doubt, the trigger numbers in clause 2.1 apply independently to each named location. Triggering salvage in one area does not necessitate a salvage response in another (or all) areas. For example, a trigger in Area 1 to Canoe Course and providing for salvage in that area does not necessitate the pump down of the Gate 16 stilling basin unless that trigger number in clause 2.1 is also met or exceeded.

3. Pump down at the Gate 16 stilling basin and/or George Scott weir stilling basin

3.1. Following:

- (a) an Extended Flow Event as defined in clause 1.1 and using reasonable endeavours before Lake George Scott top-up flows recommence, or
- (b) on notification of a Significant Stranding as defined in clause 2.1 at the Gate 16 stilling basin and/or George Scott weir stilling basin:

Genesis will confirm the date for pump down with the Salvage Contractor and notify the contractor of the date and time that Gate 16 will be isolated for safety and when riverbed salvage can commence. Following that:

- (c) Subject to clause 3.1 Genesis will:
 - i. undertake any pump down within 10 working days of cessation of an Extended Flow Event or notification under clause 2.1 (unless otherwise agreed with CSIFGC); and
 - ii. pump down Gate 16 stilling basin and/or George Scott weir stilling basin to facilitate Salvage Contractor access;
 - iii. ensure the pump intake has a porous screen with open spaces no greater than 20mm to prevent sports fish entering the pump.
- (d) The Salvage Contractor will complete salvage following pump down and notify Genesis in accordance with clause 8.2 – clause 8.4 and will also let the Genesis Tekapo contact

know when salvage is complete (where any salvage overlaps with salvage under clause 4.1 the Salvage Contractor will use reasonable endeavours to undertake a combined salvage operation for clause 3.1 and clause 4.1 within 24 hours);

- (e) From the time Gate 16 stilling basin is pumped down to an agreed level appropriate to successfully facilitate electric fishing, isolate Gate 16 for up to 24 hours to enable salvage. If time beyond this is requested by the Salvage Contractor, Genesis will consider further isolation pending operational, health and safety, or consent requirements;
- (f) Gate 16 will only be isolated and Lake George Scott top up flows disabled for a maximum of 5 days at a time;
- (g) The Salvage Contractor will use reasonable endeavours to complete riverbed salvage prior to Gate 16 stilling basin salvage to enable Gate 16 isolation time to be minimised; and
- (h) The Salvage Contractor will report in writing the outcome of salvage to Genesis and CSIFGC, including number of live, dead, and remaining sports fish within 20 working days of completing salvage.

4. Sports fish salvage at Upper Takapō River, Area 1 to Canoe Course and Lower Takapō River, Area 6

4.1. Following an Extended Flow Event under clause 1.1 or notification of a Significant Stranding under clause 2.1 for any salvage in the Upper Takapō River, Area 1 to Canoe Course or the Lower Tekapō River, Area 6:

- (a) Genesis will confirm the date and time for salvage in consultation with CSIFGC and the Salvage Contractor. For Area 1 to Canoe Course the salvage shall align with 3.1(g) should a pump down and salvage of Gate 16 stilling basin and/or George Scott weir stilling basin also be occurring;
- (b) Where any salvage overlaps with salvage required under clause 3.1 the Salvage Contractor will use reasonable endeavours to undertake a combined salvage operation under clause 3.1 and 4.1 within 24 hours from the time the Gate 16 stilling basin is pumped down to the agreed level;
- (c) For salvage within Area 1 to Canoe Course, Gate 16 must be isolated and the provisions in clause 3.1(f) to (g) shall apply as relevant;
- (d) if an agreed time for sports fish salvage in Area 1 to Canoe Course is not attended by the Salvage Contractor, future isolation of Gate 16 is not required for the same event unless safety and operational requirements can be met;
- (e) The Salvage Contractor will adhere to all requirements outlined in accordance with clause 8.1 – 8.4 (Safety) and will also notify Genesis immediately upon completion of salvage; and
- (f) The Salvage Contractor will report in writing the outcome of salvage to Genesis and CSIFGC, including number of live, dead, and remaining sports fish within 20 working days of completing salvage.

5. Sports fish salvage at Upper Takapō River, Area 1 to Canoe Course and Lower Takapō River, Area 6 to be completed by Genesis subject to Clause 5.

5.1. Following an Extended Flow Event under clause 1.1 or notification of a Significant Stranding under clause 2.1 for any salvage in the Upper Takapō River, Area 1 to Canoe Course or the



Lower Takapō River, Area 6, subject to clause 5, Genesis will engage the Salvage Contractor to complete salvage as follows

(a) In accordance with clause 3.1(c), Genesis will revise and advise the date and time for salvage in consultation with the Salvage Contractor.

(b) Genesis will notify CSIFGC.

(c) The Salvage Contractor will report in writing the outcome of salvage to Genesis and CSIFGC, including number of live, dead, and remaining sports fish within 20 working days of completing salvage.

6. Stranding events at the Tekapo A draft tube and the Tekapo Canal

6.1. Subject to any dewatering (pump-out) of the Tekapo A Power Station draft tube, salvage will occur as follows:

(a) Genesis to notify CSIFGC and the Salvage Contractor at least two working days before commencement of pump-out.

(b) Genesis will engage the Salvage Contractor to salvage sports fish and relocate to the Tekapo Canal subject to the method of fish salvage to be developed by Genesis in consultation with CSIFGC.

(c) The Salvage Contractor will report the outcome of salvage, including number of live, dead, and remaining sports fish to Genesis and CSIFGC within 20 working days of completing.

(d) CSIFGC in consultation with Genesis may request presence of CSIFGC staff to collect information to assist with fishery management, e.g. fish species, size and tag recapture information but shall not hinder the Salvage Contractor for delivering the salvage requirements. This would be at no cost to Genesis.

6.2. Any dewatering of the Tekapo Canal requires:

(a) Genesis to provide a canal salvage management plan to CSIFGC for comment 2 weeks ahead of commencing salvage.

(b) Any comments made by CSIFGC on the canal salvage management plan shall be considered by Genesis, and if not accepted, reasons shall be provided and further consultation with CSIFGC will take place.

(c) The Salvage Contractor will complete salvage in accordance with the canal salvage management plan.

(d) The Salvage Contractor will report the outcome of salvage, including number of live, dead, and remaining sports fish, and other fish statistics to Genesis and CSIFGC, within 20 working days of completing salvage.

7. Relocation

Any sports fish that are salvaged shall not be relocated to any areas where there are projects or measures are in place to exclude sports fish from habitat.

8. Safety

8.1. The Salvage Contractor and CSIFGC (if CSIFGC staff decides to attend a salvage) and any volunteers will adhere to all safety instructions given by Genesis staff. The Salvage Contractor will maintain current First Aid certificates and complete the required Genesis online induction 'Working around Power Schemes' (or any subsequent requirement).



CSIFGC staff and volunteers will only attend if they have completed a safety induction by Genesis staff or the Salvage Contractor prior to salvage.

- 8.2. At any time when Gate 16 is not isolated, Salvage Contractor and CSIFGC staff and volunteers if they attend, will call into the Genesis Control Room on 07 384 7210 (or at the number notified by Genesis to the Salvage Contractor from time to time) to advise of their expected presence within the riverbed.
- 8.3. At any time when Gate 16 is isolated for sports fish salvage, a four-hour recall time will be placed on the gate in the event the operational needs determine that flow is required through Gate 16. This will require all personnel and equipment to be removed from the riverbed within four hours of notification using the phone number in clause 8.2.
- 8.4. The Salvage Contractor and CSIFGC staff and volunteers if they attend, must notify Genesis through the phone number in clause 8.2 prior to entering and after exiting the Takapō River for salvage or stranding observations, to ensure gate isolation for health and safety reasons.

9. Construction

- (a) Any counts toward the defined Extended Flow Event under clause 1.1 will be reset upon completion of sports fish salvage.
- (b) This FSMP shall be read in light of the Agreement and the provisions set out in the Agreement take precedence over this FSMP in the event of any inconsistency.

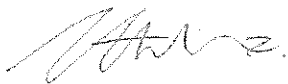
10. Communications

The preferred method of communication between Genesis and CSIFG is via voice to voice and/or e-mail correspondence. To avoid doubt clause 8.2 provides a specific number that must be used for specified communications as set out in this FSMP.

11. Review

This FSMP shall be reviewed by Genesis and CSIFG every 5 years or more frequently by agreement, to review the effectiveness of the FSMP in achieving its purpose (as per clause 3.1 of the Agreement).

Genesis Energy Limited by:

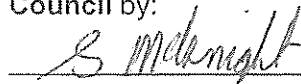


Name: Tracey Hickman

Title: Chief Wholesale Officer

Central South Island Fish and Game

Council by:



Name: Steve McKnight

Title: Chief Executive Officer

References

Adams R. (2021) Salvage and Monitoring of Sport Fish Strandings in the Tekapo Power Scheme 2013 – 2021. *Central South Island Fish and Game Council report*. 31p.

SCHEDULE 1 - Visual observation criteria

A significant stranding event will be observed and notified for Gate 16 stilling basin when at least:

- 90 fish are observed in 'very good' observability.
- 80 fish are observed in 'good' observability.
- 60 fish are observed in 'poor' observability.
- 40 fish are observed in 'very poor' observability.

A significant stranding event will be observed and notified for George Scott weir stilling basin when at least:

- 25 fish are observed in 'good' or 'very good' observability.
- 20 fish are observed in 'poor' or 'very poor' observability.

Observability of Gate 16 stilling basin and George Scott weir stilling basin is defined as:

- Very good – the bottom of the stilling basin is clearly visible.
- Good – can view most of the area but cannot see the bottom.
- Poor – affected by silt but still some visibility to about half stilling basin depth.
- Very Poor – highly effected by silt and visibility possible to a depth of about 30cm or less.

A significant stranding event will be observed and notified when at least:

- 50 fish are observed in the Upper Takapō River, Area 1 to Canoe Course; or
- 30 fish are observed in the Lower Takapō River, Area 6 when at least 30 fish are observed.



SCHEDULE 2 – A Google Earth image of the Tekapo Power Scheme with named features denoted. Waterways are marked with wave icons, scheme infrastructure is marked with red dots, and named monitoring sites and areas are marked with colour-matched pins denoting their name and lines to denote their length.

