MAINLAND ENHANCEMENT OF SALMONOID SPECIES SOCIETY

2024 SALMON ENUMERATION PROGRAM

FISHERIES AND OCEANS AREA 12: BROUGHTON ARCHIPELAGO
MUSGAMAGW DZAWADA'ENUXW TERRITORY

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Mainland Enhancement of Salmonoid Species Society
M.E.S.S.S.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

Our surveys are conducted on the unceded territories of the Musgamagw Dzawada'enuxw Nations, we would like to thank the Kwikwasut'inuxw Haxwa'mis, Gwawaenuk and Dzawada'enuxw Nations for continuing to allow us to work in their territory.

Data collected through the annual M.E.S.S.S. salmon enumeration program contributes to historical records that inform fisheries decision making and stream restoration initiatives around Area 12. There are a large number of people working behind the scenes whose contributions have ultimately led to a season of successful salmon enumeration.

A great big thank you is in order for all the amazing supporters of MESSS this season. Thank you to Chris and Hannah Bennett, Billy Proctor, Irvin Speck and the rest of the MESSS board for working relentlessly behind the scenes. We want to thank Bruce McMorran, Al and Yvonne Maximchuk, Nikki and Franco and the rest of the Echo Bay community for being our safety check ins. Thank you to the Salmon Coast Field Station for providing housing and space for our boat and equipment throughout the season. The great people who work and spend time at Hada with Nawalakw were always there keeping an eye out for us while we were surveying and greeted us with smiles you could hear over the radio. Tanya, the camp cook at Scott Cove, would give us the rundown on where people were working and generously fueled our creekwalking (with cookies!) Olivia Cornies provided real time water level updates that helped us optimize survey timing. Again, we are greatly thankful for all your contributions be it time, funds, care or support.

Thank you to Andrew Pereboom (Fisheries and Oceans Canada), for the continual support of our stock assessment work in Area 12, allowing us to continue the work we do. We greatly appreciate the responsibility and opportunity to maintain consistent and quality data collection in Area 12.

2024 Stream Technicians and Volunteers: Ian Clevenger, AbbyTinsley, Irvin Speck, Robin Bennett, Robert Heschler, Olivia Cornies.

EXECUTIVE SUMMARY

The M.E.S.S.S. Salmon Enumeration Program's mandate is to provide long term salmon escapement data for Fisheries and Oceans Canada Management Area 12, as well as to inform enhancement and conservation initiatives and policy. Fisheries and Oceans has contracted M.E.S.S.S. for salmon stock assessment since 2009. DFO systems include Ahta River, Viner River, Embley River, Scott Cove Creek, Shoal Harbour Creek, Wahkana Creek, Maple Creek and Carriden Creek. In addition to these eight primary systems, M.E.S.S.S. has funded the enumeration of nine other local systems of interest.

A total of 95 formal surveys were conducted on 17 systems from August 19, 2024 to November 14, 2024. Escapement data was obtained via ground surveys either instream or from stream banks, depending on habitat, accessibility and water levels. Systems were enumerated every 7-14 days, with some exceptions due to survey and weather conditions. Surveys focused on enumerating returning pink, chum, coho, sockeye and minihumps (kokanee). Fisheries and Oceans provided funding for 8 rounds of surveys in 8 different watersheds. M.E.S.S.S. contracted systems generally had between two and four formal surveys. These surveys were timed in conjunction with historical return timing. Due to lower survey frequency, M.E.S.S.S. specific systems were utilized for presence and absence data, or year-to-year comparative analysis, as opposed to a total population estimate.

Survey dates were often planned around wind forecasts, tide heights and rain events- factors that affected boat access and surveyability. The fall of 2024 was characterized by large weekly rain events, interspersed with light precipitation, especially between the beginning of October to the end of the season. Water levels being elevated by large rain events improved passage for fish in many streams. We saw this in systems like Shoal Harbour, where chum would move higher into the stream after large rains, accessing spawning reaches that may have otherwise been inaccessible.

METHODS

Enumeration Surveys

Estuary Survey

Before every stream survey, a twenty minute estuary observation is conducted. The main objective is to observe and note salmon activity in the estuary or record schools seen. This is typically expressed as a count of fish jumping, finning or schooling. Observations are also recorded for other salmon adjacent species such as bear tracks, wolf scat, eagles perched etc.

Stream Surveys

A visual survey conducted on foot was used to enumerate streams. Stream surveys are generally considered bank walks where observing and counting occurs from a stream bank, or stream walks where surveyors walk up the stream. Use of one or the other is based on multiple factors such as water levels, fish presence, impacts on fish habitat, accessibility and trail presence. Coho jumper surveys are conducted in some systems, consisting of a twenty minute survey at notable falls or other places where it is possible to observe individuals moving through the system.

Time Frame

Surveys are conducted every 10-14 days consistent with DFO methodology. M.E.S.S.S. surveys are conducted during dates based on local knowledge of peak run times and are kept within a 7-14 day timeframe. Exceptions may be made due to environmental conditions for successful viewing and/or weather windows.

Observer Efficiency %
Observer efficiency is expressed as a percentage meant to encompass the accuracy with which the technicians were able to view salmon during their survey. Factors can include: light, water visibility, water levels, undercut banks/logjams, and cover for fish. A percentage can also be adjusted on a species and stream reach specific basis.

Observed Count and Estimated Count
Observed count is the number of live fish counted in a single survey. Morts and Jacks are recorded separately. Estimated count encompasses live fish expanded by the observer efficiency percentage, morts, jacks and the percentage of the population surveyed.

Total Count
Total count is the sum of all observed counts produced by the stream survey in one season.

Total Estimate
Total estimate is the sum of all estimated counts in a stream in a season.

Peak Count and Peak Estimate
Can be applied to peak observed counts or peak estimates. References the highest number (observed or estimated) of pink/chum/coho/sockeye/minihump for one survey in the season.

Stream Sampling

Temperature, Dissolved Oxygen, pH
During every survey, stream temperature, dissolved oxygen and pH measurements were taken. These measurements supplement the existing DFO criteria required on Stream Inspection Log datasheets and provide valuable insight into abiotic conditions in-stream. Factors such as temperature, dissolved oxygen and pH have large effects on Pacific salmon life cycles from egg development to thermal stress and in-stream survival for returning spawners.

Locations and Survey Reaches

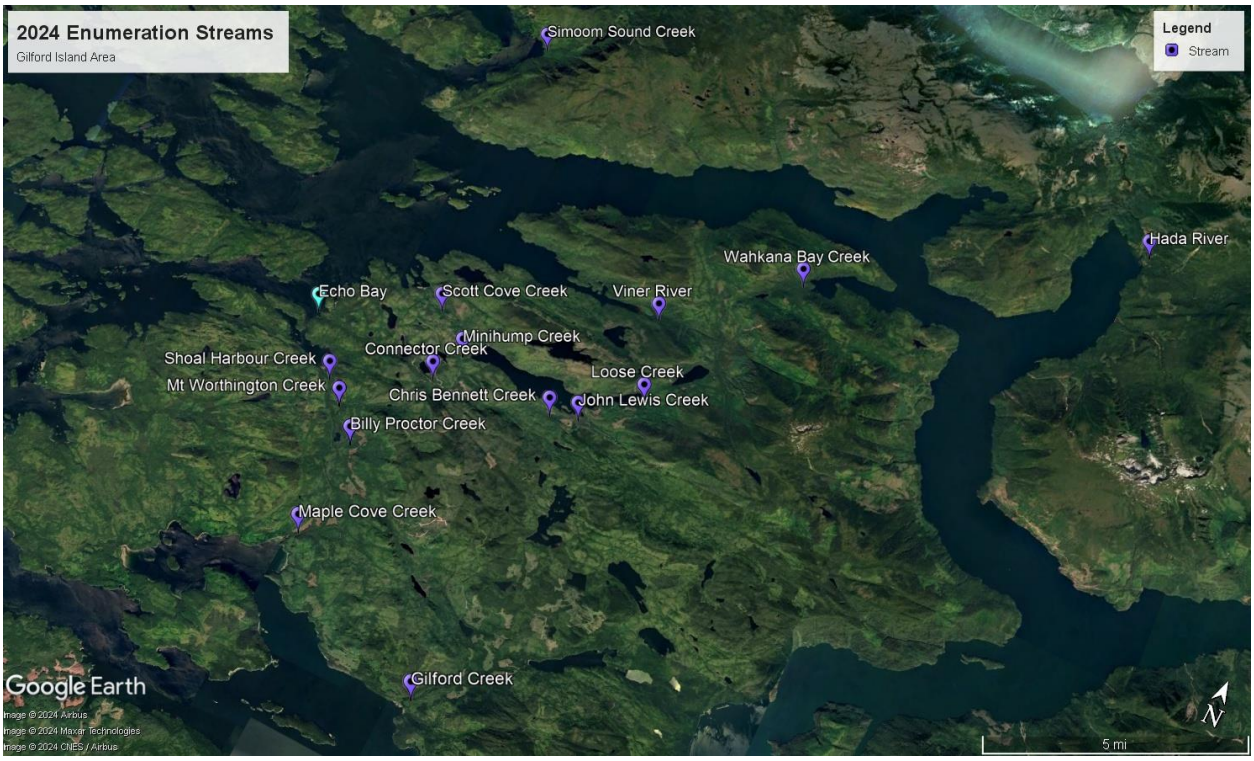

Figure 1. Streams enumerated during the 2024 enumeration season on Gilford Island and surrounding area.

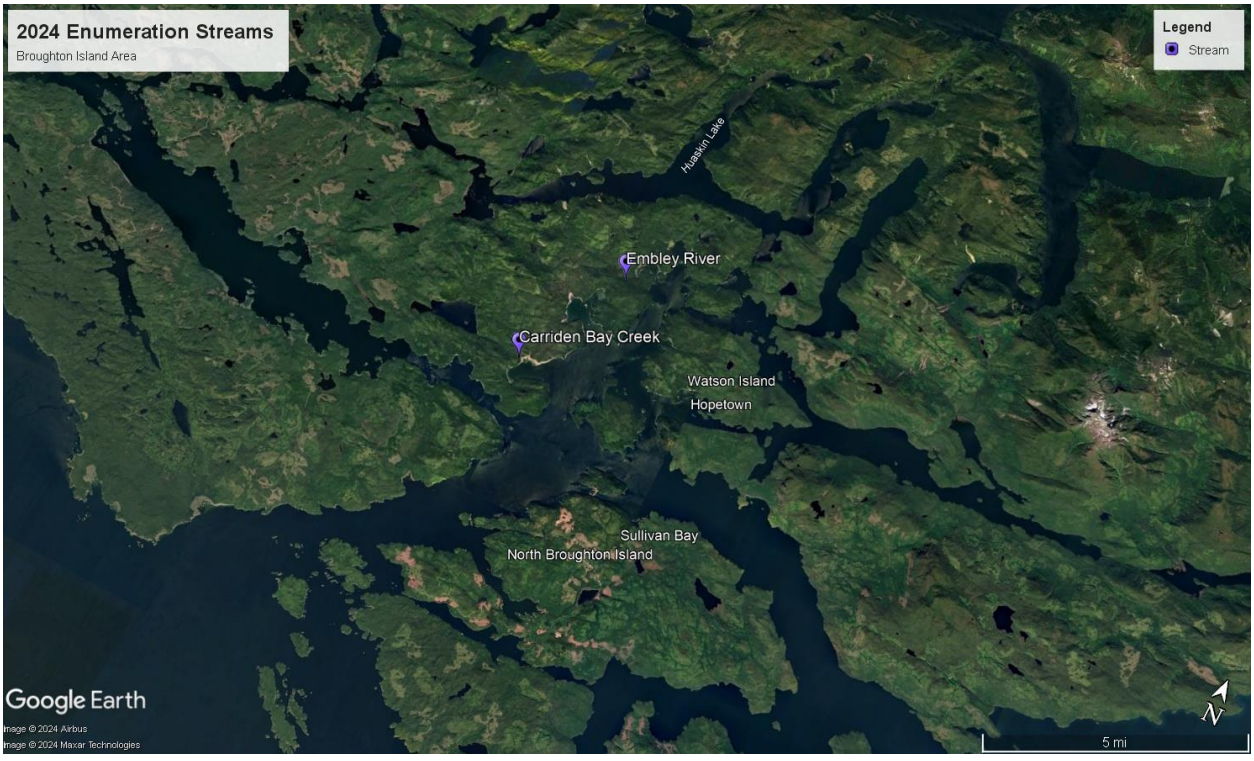

Figure 2. Stream surveyed during the 2024 enumeration season near North Broughton Island.

DFO Systems

HADA RIVER
50°52'13.60"; 126°10'12.49"W Watershed Code(WC): 90060400
Kwiḵwa̱sut'inux̱w Haxwa'mis Territory, Bond Sound

The Hada River drains into Bond Sound to the south, through the Hada Valley. This system is a non-glacial watershed which is approximately 12.2km in length draining from a lake to the east. A steep set of falls at 1.2km upstream is believed to be a barrier to fish passage beyond and concludes the end of our survey area.

Survey Reaches:
- *AHR01:* 300m -Estuary to pool beyond large logjam.
- *AHR 02:* 300m -Pool beyond large logjam to bottom of cascades.
- *AHR 03*: 500m -Bottom of cascades to falls.
- *AHR 04:* 400m -Where the sidechannel meets the estuary to connection with mainstem halfway up AHR02.

VINER RIVER
50°47.259'N 126°22.033'W Watershed Code(WC): 9055750039800
Kwiḵwa̱sut'inux̱w Haxwa'mis Territory

The Viner River drains directly from Viner Lake, a watershed system approximately 25km². There is roughly 9km of fish habitat within the main system and its tributaries. Historically, the river was known to have supported pink, chum, coho, sockeye, steelhead and cutthroat.

Survey Segments:
- *VIN 01:* 1000m -Estuary or river mouth to bottom of cascades/1000m.
- *VIN 02*: 1000m -Bottom of cascades/1000m to top of cascades/2000m.
- *VIN 03:* 1500m -Top of cascades/2000m to 500m up from old bridge and 400m up tributaries.

EMBLEY RIVER
50°56.984'N 126°52.819'W Watershed Code(WC): 900730600
Gwawaenuk Territory

Embley River is a lake fed system that runs a distance of roughly 4.8km from Huaskin Lake to the estuary. Huasin Lake is a large lake with an area of 441.7ha. Embley has been the site of recent gravel additions by M.E.S.S.S, with focus on improving spawning habitat.

Survey Segments:
- *EMB 01*: 100m -Estuary or river mouth to top of fish ladder.
- *EMB 02*: 880m -Top of fish ladder to log that serves as a bridge to cross river.
- *EMB 03:* 1200m -Log bridge to end of 200m of spawning gravel.
- *EMB 04:* 200m -Tributary on the left bank at the bottom of the cascades.
- *EMB 05:* 600m -Cascade section.
- *EMB 06:* 1200m -Upstream of cascade section.

SHOAL HARBOUR CREEK
50°43.953'N 126°29.472'W Watershed Code(WC): 90555700276
Kwiḵwa̱sut'inux̱w Haxwa'mis Territory

Shoal Harbour Creek is located in Shoal Harbour on the Northwest end of Gilford Island. The system drains from Bridie Lake and a logging operation had previously been operational in the harbour.

Survey Segments:
- *SHO 01:* 600m -Estuary or creek mouth to pool after 600m logjam/landslide.
- *SHO 02:* 1100m -Pool after logjam at 600m/landslide to Shoal M/L crossing.

SCOTT COVE CREEK
50°45’59.17”N 126°27’29.96”W Watershed Code(WC): 90555750022700
Kwiḵwa̱sut’inux̱w Haxwa’mis Territory

Scott Cove Creek is located within Scott Cove around the Northwest side of Gilford Island. A small hatchery for coho was run by M.E.S.S.S. at this location, terminating in 2007. A previously active Interfor logging camp is situated in Scott Cove. Scott Cove Creek drains from Loose Lake which has many tributaries that run further connecting other lakes.

Survey Segments:
- *SCO 01:* 350m -Estuary or river mouth to hatchery intake and old hatchery dam. Can be assessed instream at very low water levels or by forest trail on downstream left hand side. 20 minute jumper survey conducted at falls section(150m).
- *SCO 02*: 100m -Small lookout at 1.5km on Scott M/L views top of swampy area/large pool to secondary falls. 20 minute jumper count conducted here. If fish seen here, can check at 2.5km spur for presence as well(Carrington Bridge).

WAHKANA CREEK
50°48’58.69”N 126°18’0.54”W Watershed Code(WC): 90555750054200
Kwiḵwa̱sut’inux̱w Haxwa’mis Territory

Wahkana Creek is located on the NE end of Gilford Island in Wahkana Bay on Tribune Channel. The system drains Wahkana Lake and the surrounding watershed. The main system runs for 1600-1800m from the creek mouth to the lake although many tributaries and a bog split the system up in different directions.

Survey Segments:
- *WAH 01:* 550m -Estuary or creek mouth to level pool before 3 way fork in system path.
- *WAH 02:*1000m -Right fork following swampy section then up cascades to lake.
- *WAH 03*: 335m -First tributary split to potentially unpassable falls.

MAPLE COVE CREEK
51°44’144”N 126°27’589”W Watershed Code(WC): 905557500828
Kwiḵwa̱sut’inux̱w Haxwa’mis Territory

Maple Creek drains into Maple Cove, located on the SW end of Gilford Island within Port Elizabeth. The watershed is an area that had heavy logging activity in the recent past.

Survey Segments:
- *MC 01:* 550m -Estuary or creek mouth to logjam at 550m(used to be referred to as 400m) and orange triangle marker.
- *MC 02:* 370m -Pool after logjam and triangle marker to long pool before notable logjam at 920m(used to be referred to as 800m).
- *MC 03:* 600m -920m pool to small falls near end of spur road.
- *MC 04:* 100m -Small falls surveyed via 20 minute jumper count accessed from end of spur road at 5.5km on Maple M/L.

CARRIDEN CREEK
50°54’40.66”N 126°54’33.45”W Watershed Code(WC): 900735
Gwawaenuk Territory

Carriden creek is located in Carriden Bay and Grappler Sound and drains from Rosemary Lake. The creek runs for approximately 1700-1800m. Railway logging took place from 1930-1936 on the south side of the creek.

Survey Segments:
- *CAR 01:* 1800m -Estuary or creek mouth to Rosemary Lake.

M.E.S.S.S Systems

SIMOOM SOUND CREEK
50°45'10"N 126°29'35"W Watershed Code(WC): 9006544
Kwiḵwa̱sut'inux̱w Haxwa'mis Territory

Simoom Sound Creek is located in the Northeast corner of Simoom Sound on the mainland. This is a small system that drains an unnamed lake and various tributaries.

Survey Segments:
- *SIM 01:* 450m -Estuary or creek mouth to Falls.
- *SIM 02:* 350m -Falls down side channel back to estuary.

GILFORD CREEK
51°64'245"N 126°57'282"W Watershed Code(WC): 90555750078200
Kwiḵwa̱sut'inux̱w Haxwa'mis Territory

Gilford Creek is located in Gilford Bay on the South end of Gilford Island that looks out across Knight Inlet. The creek drains several lakes and is a relatively large system spanning approximately 10km in length with 62km2 of watershed area.

Survey Segments:
- *GIL 01:* 350m -Estuary or creek mouth to first small falls surrounded by large boulders(path up to the road can be accessed here).
- *GIL 02*: 200m -100m below and 100m above bridge 1.5km up from estuary/road end.

SCOTT COVE TRIBUTARIES

MINIHUMP CREEK
50°45.207'N 126°25.669'W Watershed Code(WC): 9055575003370020
Kwiḵwa̱sut'inux̱w Haxwa'mis Territory

Minihump Creek is located on the Northwest end of Gilford Island within the Scott Cove Area. The system flows from Townie Lake to Losse Lake which drains into Scott Cove Creek. It is accessed at 4.0km on Scott Cove M/L logging road.

Survey Segments:
- *MH 01:* 800m -Loose Lake to the pool at the bottom of the cascades. A fairly established trail on the downstream left hand side is utilized for viewing to avoid walking instream.
- *MH 02:* 200m -Cascades to Townie Lake typically not surveyed as minihumps and coho rarely seen in this segment.

CONNECTOR CREEK
50°44.473'N 126°25.823'W Watershed Code(WC): N/A
Kwiḵwa̱sut'inux̱w Haxwa'mis Territory

Connector Creek is located on the Northwest end of Gilford Island accessed via the logging roads from Scott Cove at 5.5km on the Scott Connector M/L.

Survey Segments:
- *CC 01:* 450m -Townie Lake to deactivated logging bridge or vice versa.
- *CC 02:* 800m -Deactivated logging bridge to 400m upstream of Scott Connector M/L.

LOOSE LAKE CREEK
50°44.937'N 126°22.099'W Watershed Code(WC): 9055575003370070
Kwiḵwa̱sut'inux̱w Haxwa'mis Territory

Loose Lake Creek is located on the Northwest end of Gilford Island, accessed via the logging roads from Scott Cove at 9.0km on Scott Cove M/L. The system is fed by runoff from the surrounding watershed and drains into Loose Lake that subsequently drains into Scott Cove.

Survey Segments:

- *LLC 01:* 600m -Waterfall upstream of the bridge to Loose Lake(upstream of the bridge section inaccessible at flooding levels).
- *LLC 02:* 300m -Loose Lake up side tributary to forest trail back to road.

JOHN LEWIS CREEK
50°45.849'N 126°20.871'W Watershed Code(WC): 9055575003370070
Kwiḵwa̱sut'inux̱w Haxwa'mis Territory

John Lewis Creek is located on the Northwest end of Gilford Island, accessed by logging roads from Scott Cove, 11.5km up Scott Cove/Wahkana M/L. The system drains surface runoff and snowmelt from the surrounding watershed and drains into the East end of Loose Lake which subsequently drains into Scott Cove.

Survey Segments:

- *JL 01:* 450m -11.5km bridge on Scott Cove/Wahkana M/L to Loose Lake.

CHRIS BENNETT CREEK
50°44.901'N 126°22.746'W Watershed Code(WC): 9055575003370040
Kwiḵwa̱sut'inux̱w Haxwa'mis Territory

Chris Bennett Creek is located on the Northwest end of Gilford Island, accessed by logging roads from Scott Cove 7.5km up Scott Cove M/L. The system drains surface runoff from the surrounding watershed into Loose Lake which subsequently drains into Scott Cove.

Survey Segments:

- *CB 01:* 700m -300m upstream of spur road bridge and 400m downstream to culvert on Scott Cove M/L.
- *CB 02:* 800m -Downstream from Scott Cove M/L at 7.5km to Loose Lake.

SHOAL HARBOUR AND BRIDIE LAKE TRIBUTARIES

BILLY PROCTOR CREEK
50°42.963'N 126°27.110'W Watershed Code(WC): N/A
Kwiḵwa̱sut'inux̱w Haxwa'mis Territory

Billy Proctor Creek is located somewhat near the center of Gilford Island, accessed via logging roads from Scott Cove down an overgrown left spur off South M/L(continuation of Shoal M/L) after the Maple M/L turn off. The system drains into Bridie Lake which then drains into Shoal Harbour.

Survey Segments:

- *BP 01:* 800m -Old bridge crossing on spur road to braiding channels near swamp.
- *BP 02*: 200m -Swamp to Bridie Lake.

MOUNT WORTHINGTON CREEK
50°43.704'N 126°27.358'W Watershed Code(WC): N/A
Kwiḵwa̱sut'inux̱w Haxwa'mis Territory

Mount Worthington Creek is located on the Northwest side of Gilford Island and is accessed via logging roads from Scott Cove(or Shoal Harbour) on Shoal M/L at 1.5km. It is a spur tributary that drains into Shoal Harbour Creek from an unnamed lake.

Survey Segments:

- *MW 01:* 1150m -1.5km on Shoal M/L upstream to Connector M/L culvert.
- *MW 02:* 450m -Upstream of Connector M/L culvert to unnamed lake.

ESCAPEMENT RESULTS

Total Surveys: 95

2024 Fisheries and Oceans Systems: Formal Surveys: 71

- 8 systems enumerated every 7-14 days
    - Hada River (8 surveys)
    - Viner River (8 surveys)
    - Embley River (8 surveys)
    - Scott Cove Creek (8 surveys)
    - Shoal Harbour Creek (8 surveys)
    - Wahkana Creek (7 surveys)
    - Maple Cove Creek (8 surveys)
    - Carriden Creek (8 surveys)

2024 M.E.S.S.S. Systems: Formal Surveys: 24

- 9 systems enumerated during stream specific run timing.
    - Simoom Sound Creek (3 Surveys)
    - Gilford Creek (1 Survey)
    - Minihump Creek (4 Surveys)
    - Connector Creek (3 Surveys)
    - Loose Lake Creek (3 Surveys)
    - John Lewis Creek (3 Surveys)
    - Chris Bennett Creek (2 Surveys)
    - Billy Proctor Creek (3 Surveys)
    - Mount Worthington Creek (2 Surveys)

FISHERIES AND OCEANS STREAMS

Hada

2024 Surveys:

Surveyed eight times between August 19th and November 14th 2024 on a rotational basis every 7-14 days. Dates for surveys were generally chosen based on forecasted wind values for travel considerations. High water due to rains impacted two counts, September 27th and Nov 14 2024, water levels were elevated, rendering surveyability to 0. Water quality measurements were taken despite high water.

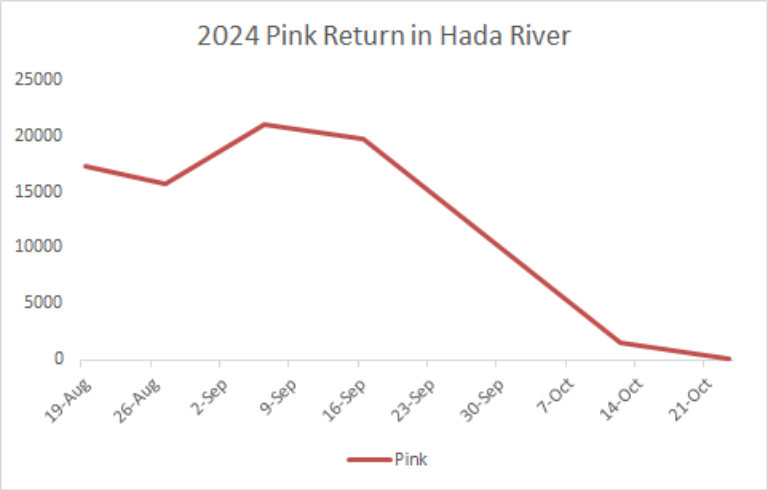

Figure 3. Estimated counts of pink salmon returning to the Hada river in 2024.

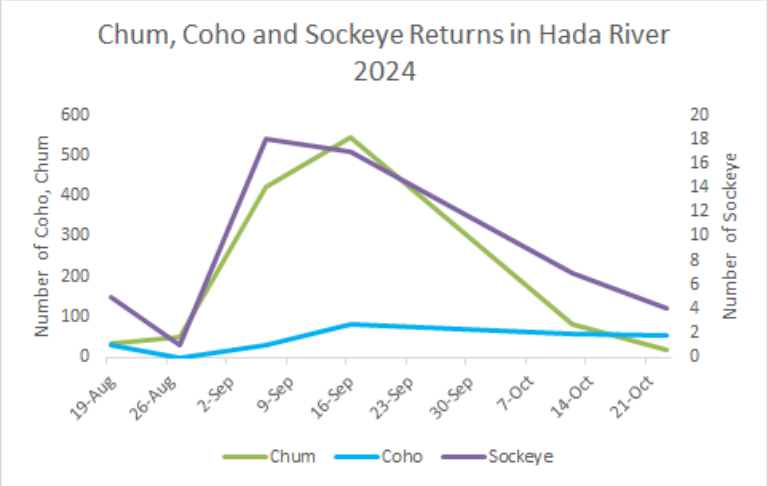

Figure 4. Estimated counts for chum, coho and sockeye returning to the Hada river in 2024. Note the scale for sockeye is on the right side of the graph.

2024 Hada River Pink Salmon:

- The peak observed count was 17,406 with an expanded estimate of 19,741 on September 16.
- First observed by M.E.S.S.S. August 19th with 13,320 observed and 17,317 estimated.
- Last observed October 23rd with 28 observed and 48 estimated.
- Total river estimate of 75,289.
- The dominant Pink run in the Hada river occurs during even years.
- Continued large return in comparison to near term historical average.

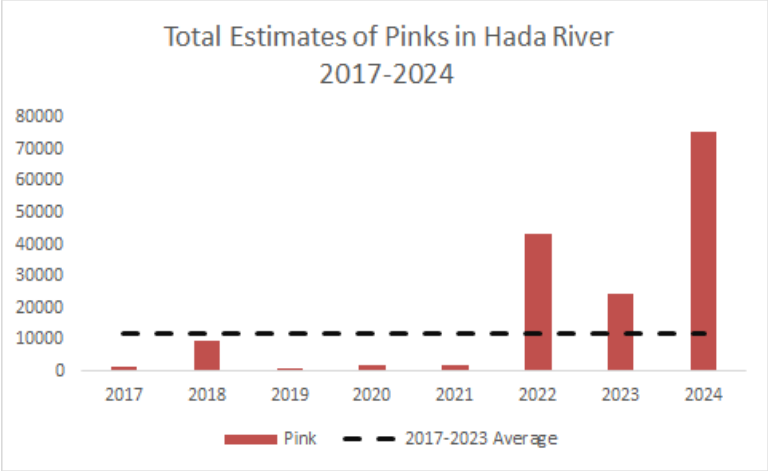

Figure 5 Historical estimated counts of pinks returning to the Hada river. Average pink return from 2017-2023 is 11,870.

2024 Hada River Chum Salmon:

- The peak observed count was 28 with an expanded estimate of 35 on August 19.
- First observed August 15th with 5 observed and 6 estimated.
- Last observed November 14th with 1 observed and 3 estimated
- Total river estimate of 1,154.
- Slightly below average return in comparison to five year historical estimates (Figure 7).

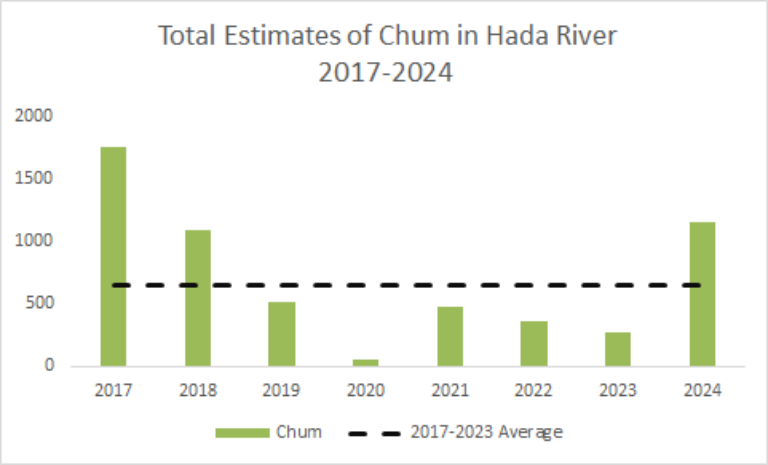

Figure 6. Historical estimated counts of chum returning to the Hada river. Average chum return from 2017-2023 is 641.

2024 Hada River Coho Salmon:

- Peak observed count of 438 observed expanded to 543 on September 16th.
- First observed August 19th with 28 live fish expanded to 35 estimated.
- Last observed October 23 with 16 live fish and 20 estimated.
- Total river estimate of 256.
- Steady run with estimates exceeding the previous 7 returns.

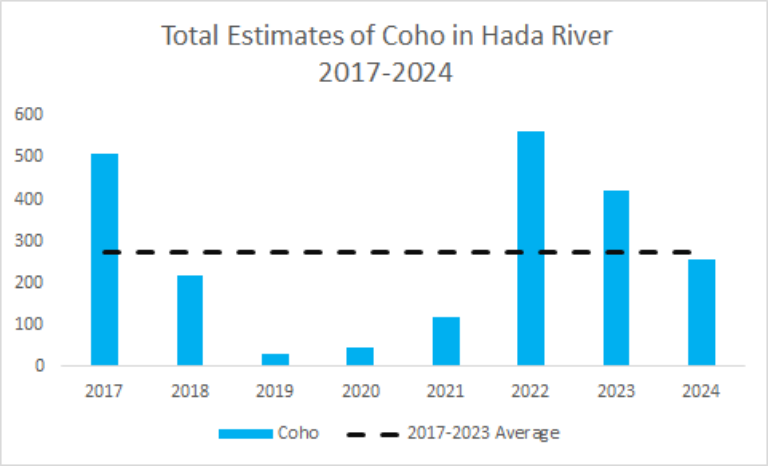

Figure 7. Historical estimated counts of coho returning to the Hada river. Average coho return from 2017-2023 is 272.

2024 Hada River Sockeye Salmon:

- Peak observed count of 11 with an expanded estimate of 18 on September 6.
- First observed August 19th with 4 live fish expanded to 5 estimated.
- Last observed October 23rd with 3 live fish expanded 4 estimated.
- Total river estimate of 52.

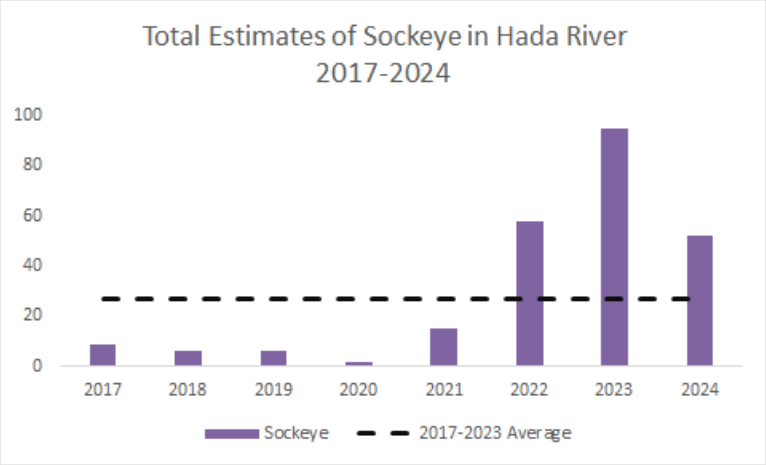

Figure 8. Historical estimated counts of sockeye returning to the Hada river. Average sockeye return from 2017-2023 is 27.

Viner

2024 Surveys:

Surveys began August 23rd and finished on November 6th, 2024. Eight formal surveys were done for the 2024 season, running 7-14 days apart. Viner survey dates and times were primarily based around large high tides for ease of boat access to its long low grade estuary. As well, surveys were scheduled around heavy rain events, allowing enough time for the water level to decrease before surveys. Significant bear sign and large numbers of bald eagles were seen throughout the watershed with the chum spawn.

Figure 9. Estimated counts of pink salmon returning to Viner River in 2024.

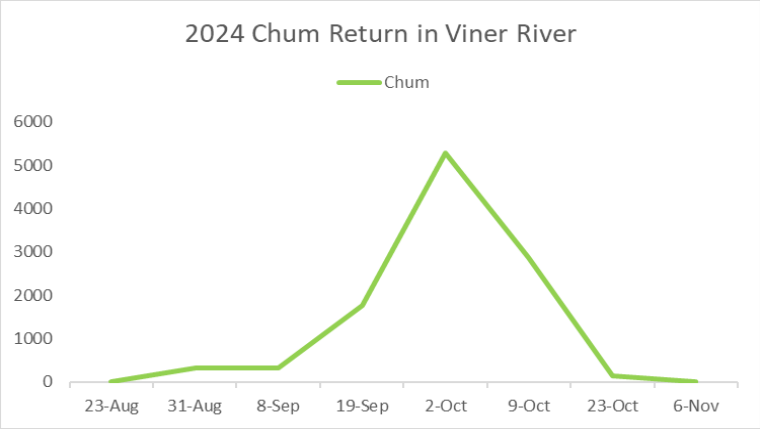

Figure 10. Estimated counts of chum salmon returning to Viner River in 2024.

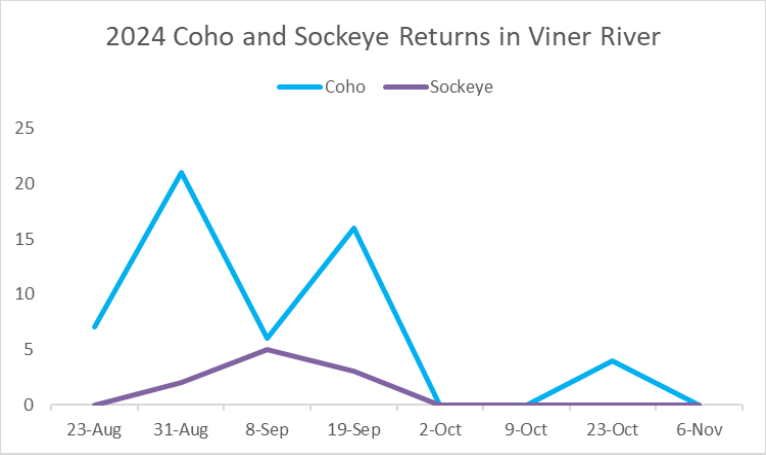

Figure 11. Estimated counts of coho and sockeye salmon returning to Viner River in 2024.

2024 Viner River Pink Salmon:

- Peak count was recorded on September 8, with 273 observed individuals and an expanded estimate of 414.
- First observation occurred on August 23, with 122 individuals observed and an expanded estimate of 189.
- Last observation was on November 6, with 0 live individuals and 1 estimated (mort).
- Total river estimate of 1,234.

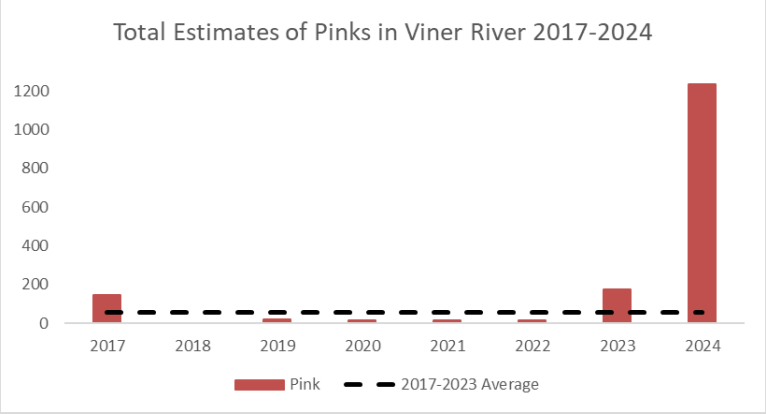

Figure 12. Historical estimated counts of pinks returning to Viner River. Average pink return from 2017-2023 is 54.

2024 Viner River Chum Salmon:

- Peak count was recorded on October 2, with 2019 observed individuals and an expanded estimate of 5277.
- First observation occurred on August 23, with 8 individuals observed and an expanded estimate of 12.
- Last observation was on November 6, with 6 individuals observed and an expanded estimate of 16.
- Total river estimate of 10702.

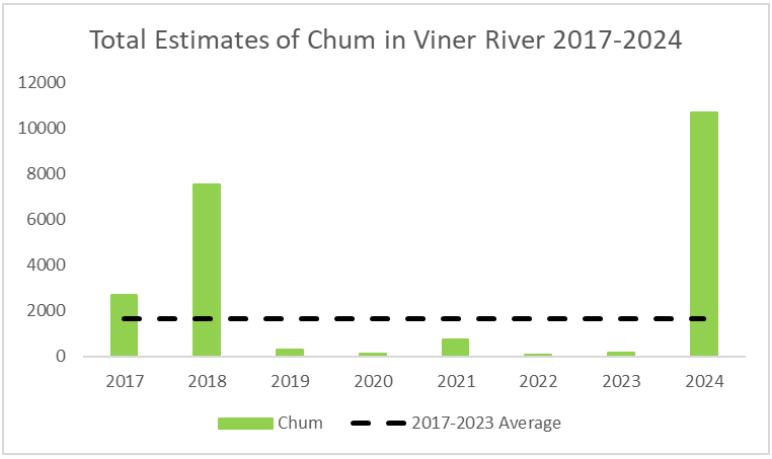

Figure 13. Historical estimated counts of chum returning to Viner River. Average chum return from 2017-2023 is 1668.

2024 Viner River Coho Salmon:

- Peak count was recorded on August 31, with 11 observed individuals and an expanded estimate of 21.
- First observation occurred on August 23, with 4 individuals observed and an expanded estimate of 7.
- Last observation was on October 23, with 3 individuals observed and an expanded estimate of 4.
- Total river estimate of 54.
- Coho were observed throughout the season in a deep holding pool at the top of segment 2.

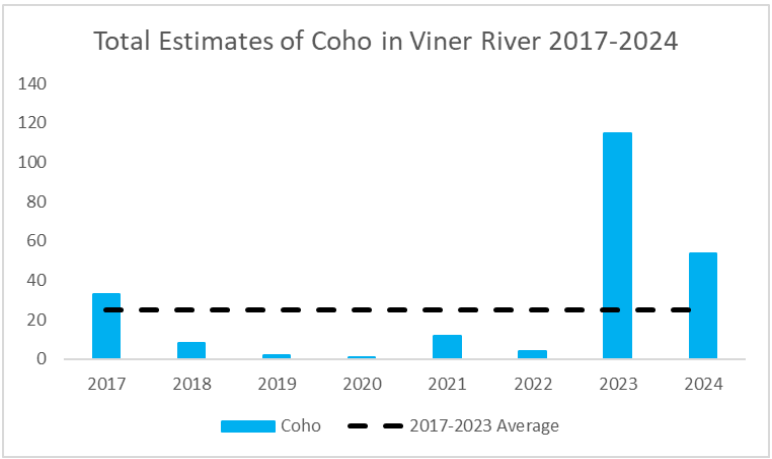

Figure 14. Historical estimated counts of coho returning to Viner River. Average chum return from 2017-2023 is 25.

2024 Viner River Sockeye Salmon:

- Peak count was recorded on September 8, with 3 observed individuals and an expanded estimate of 5.
- First observation occurred on August 31, with 1 individual observed and an expanded estimate of 2.
- Last observation was on September 19, with 2 individuals observed and an expanded estimate of 3.
- Total river estimate of 10.

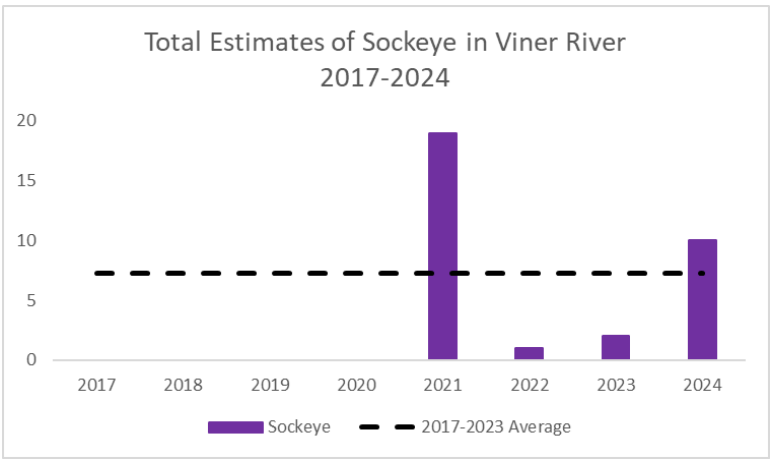

Figure 15. Historical estimated counts of pinks returning to Viner River. Average chum return from 2017-2023 is 7.

Embley

2024 Surveys:

Surveys began August 20th and finished on November 5th, 2024. Eight formal surveys were done for the 2024 season, running 8-14 days apart. Surveys often need to be timed around tides as Embley Lagoon and estuary has a low gradient beach for access.

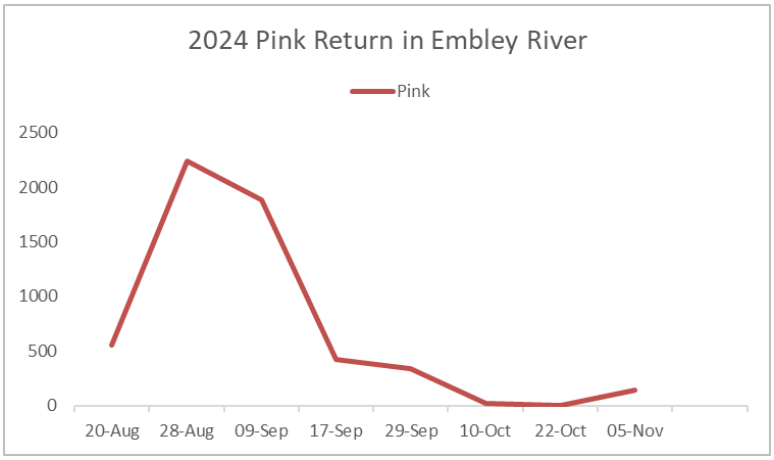

Figure 16. Estimated counts of pink salmon returning to Embley River in 2024.

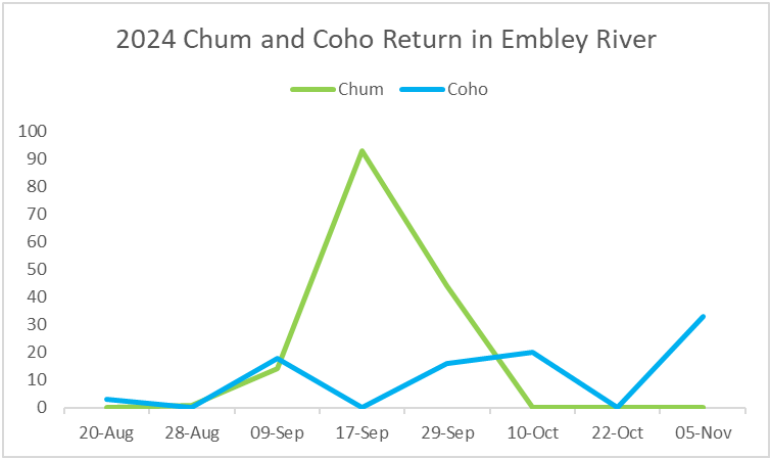

Figure 17. Estimated counts of chum and coho salmon returning to Embley River in 2024.

2024 Embley River Pink Salmon:

- Peak observation was recorded on August 28, with 1,566 observed individuals and an expanded estimate of 2241.
- First observation occurred on August 20, with 328 individuals observed and an expanded estimate of 550.
- Last observation was on November 5, with 78 individuals observed and an expanded estimate of 142.
- Total river estimate of 5,601.
- 2024's enumeration of Embley river found higher returns than those observed in the past seven years.

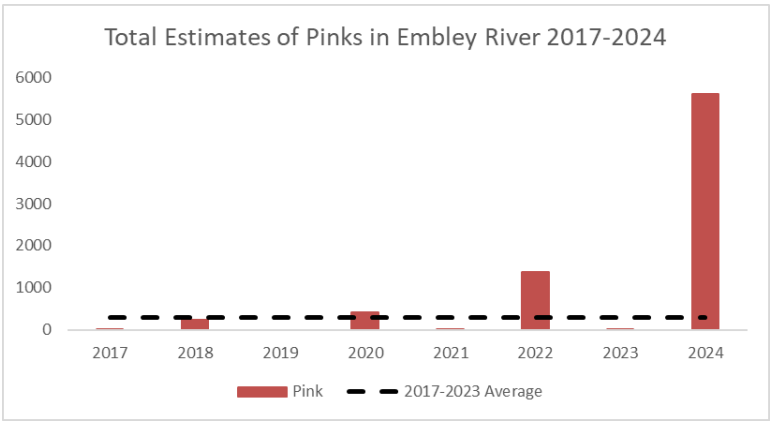

Figure 18. Historical estimated counts of pinks returning to Embley River. Average pink return from 2017-2023 is 292.

2023 Embley River Chum Salmon

- Peak observation was recorded on September 17, with 37 observed individuals and an expanded estimate of 93.
- First observation occurred on August 28, with 1 individual observed and estimated.
- Last observation was on September 29, with 24 individuals observed and an expanded estimate of 44.
- Total river estimate of 152.

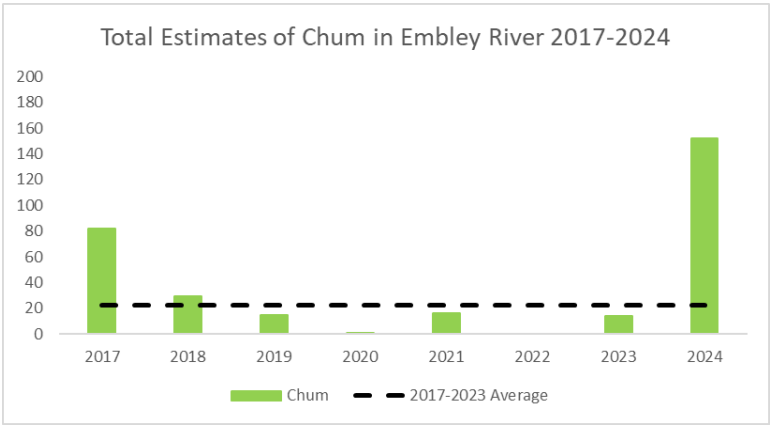

Figure 19. Historical estimated counts of pinks returning to Embley River. Average chum return from 2017-2023 is 22.

2023 Embley River Coho Salmon:

- Peak observation was recorded on November 5, with 20 observed individuals and an expanded estimate of 33.
- First observation occurred on August 20, with 2 individuals observed and an expanded estimate of 3.
- Last observation was on November 5, with 20 individuals observed and an expanded estimate of 33.
- Total river estimate of 90.
- Comparable return to those observed since 2022. More coho have been observed in the past three years than in the five years prior.

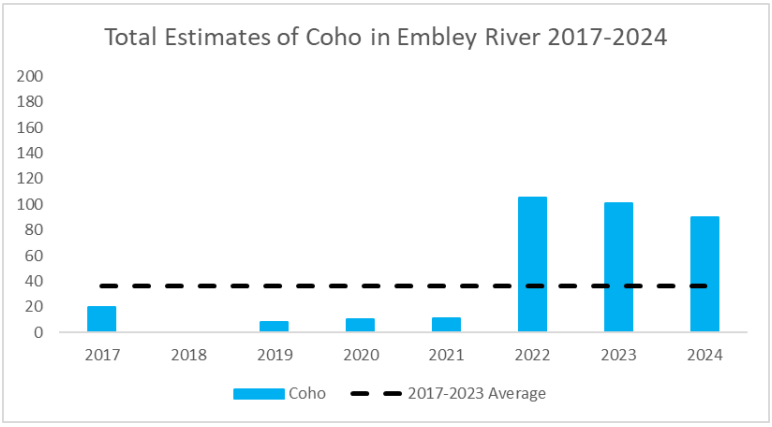

Figure 20. Historical estimated counts of pinks returning to Embley River. Average coho return from 2017-2023 is 36.

Shoal Harbour

2024 Surveys:

8 formal surveys of Shoal Harbour Creek were conducted for the 2024 season from August 23rd until November 7th. The stream was accessed consistently via logging roads throughout the season. Shoal was notable for having a large chum return with the peak estimate being 3,043.

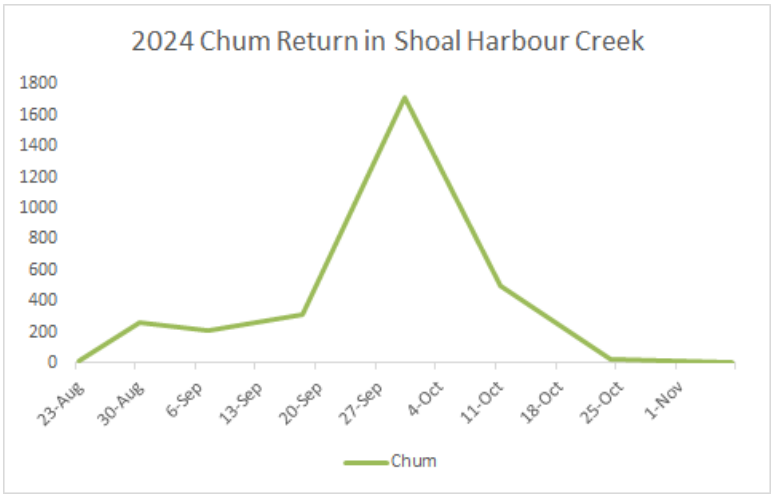

Figure 21. Estimated counts of chum salmon returning to Shoal Harbour creek in 2024.

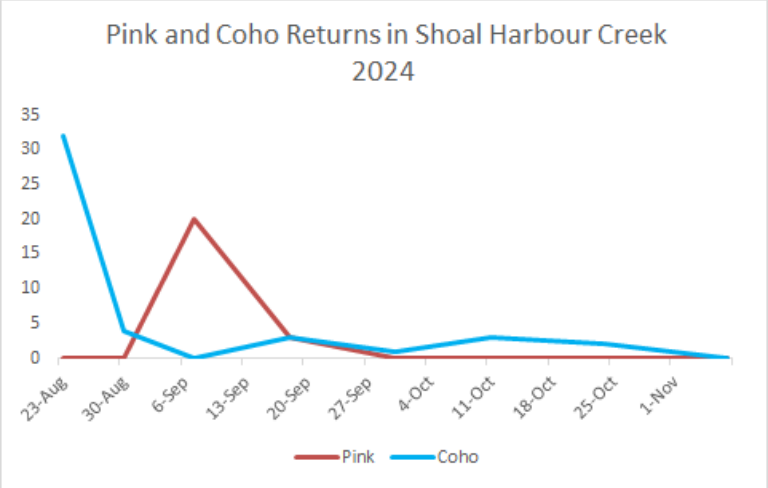

Figure 22. Estimated counts of pink and coho salmon returning to Shoal Harbour Creek in 2024.

2024 Shoal Harbour Creek Pink Salmon:

- Peak observed count was on September 7th with 11 fish observed to 20 estimated.
- The first observation was on September 7th.
- The last observation was on September 18th with 2 fish observed expanded to 3 estimated.
- Total river estimate of 23.
- Pink returns have remained very depressed since 2015, with this year's estimate being much higher than historical, with exception to last year.

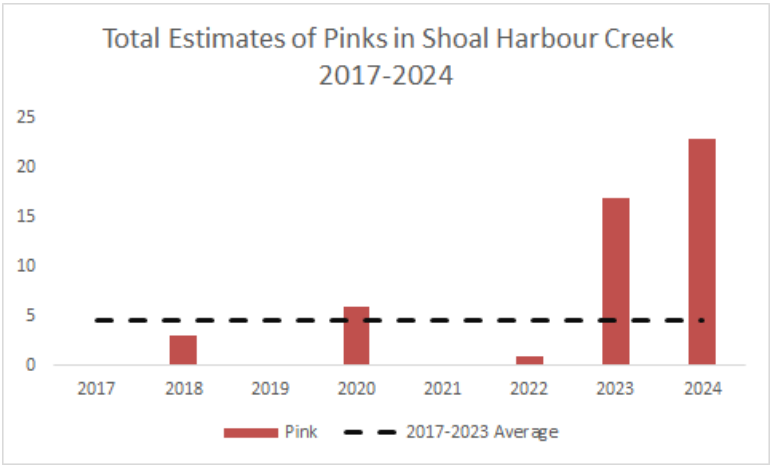

Figure 23. Historical estimated counts of pinks returning to the Shoal Harbour Creek. Average pink return from 2017-2023 is 5.

2024 Shoal Harbour Creek Chum Salmon:

- Peak observed count on September 30th with 1132 fish seen expanded to 1713 estimated.
- First observed on August 23rd with 4 fish seen expanded to 16 estimated.
- Last observed on November 7 with 0 live fish seen and 2 estimated (morts).
- Total river estimate of 3,043.
- Many times the average return, though fish may be strays without genetic testing done.

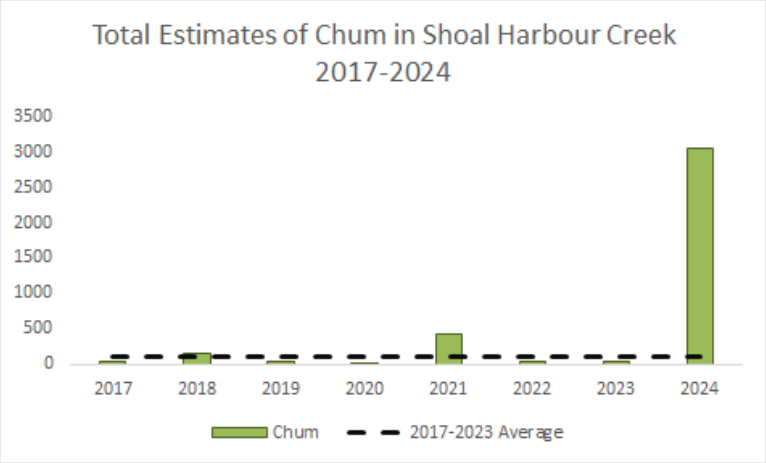

Figure 24. Historical estimated counts of chum returning to the Shoal Harbour Creek. Average chum return from 2017-2023 is 111.

2024 Shoal Harbour Creek Coho Salmon:

- Peak observed count on August 23rd with 8 fish seen expanded to 32 estimated.
- First observed on August 23rd.
- Last observed on October 24 with 1 fish seen and 2 estimated.
- Total river estimate of 45.
- Coho in Shoal Harbour creek typically spawn in Billy Proctor creek, a tributary to Bridie Lake, and Mt Worthington Creek, a tributary to the Shoal mainstem, enumerations for these systems are noted in the M.E.S.S.S stream subsection.

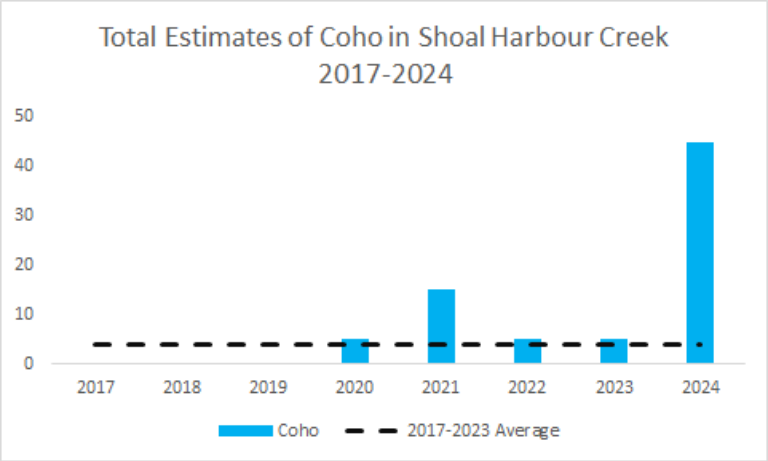

Figure 25. Historical estimated counts of coho returning to the Shoal Harbour Creek. Average coho return from 2017-2023 is 4.

Scott Cove

2024 Surveys:

8 formal surveys were conducted at Scott Cove Creek from August 21st until November 1st, 2024, every 7-14 days. Scott Cove Creek remains accessible to survey during most weather conditions and tidal fluctuations due to its proximity to Echo Bay and docking infrastructure. This system is dominated by a few sets of falls where permeability is heavily affected by flow. Counts of Scott Cove largely consisted of two 20 minute jumper surveys, and are representative of fish movement through the system rather than a typical stream enumeration.

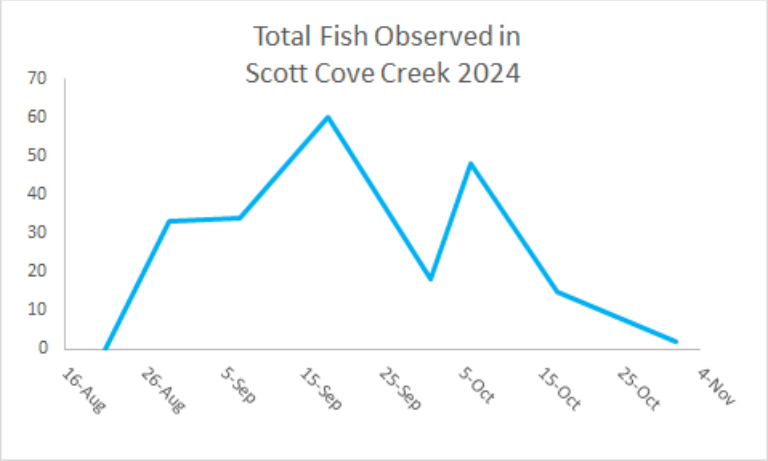

Figure 26. 2024's observed counts of coho jumping at both falls in Scott Cove creek.

2024 Scott Cove Pink Salmon:

- No pink salmon were observed during the 2024 season
- Pink salmon have only occasionally been sighted at Scott Cove Creek since 2009 and none have been observed on M.E.S.S.S. surveys since 2014.

2024 Scott Cove Chum Salmon:

- No live chum salmon were observed during the 2024 season.
- The Scott Cove chum run remains negligible with no live sightings since 2017 and a peak count 28 in 2009.

2024 Scott Cove Coho Salmon:

- Peak observed count was 60 adults on September 18 with a total observed count of 210 fish seen across the eight surveys.
- First fish observed on August 29th, 33 adults.
- Last observed on November 1st with 1 adult and 1 jack clearing the falls.
- Coho enumeration is variable, with Scott Cove Creeks reliance on jumper counts, the data is best used for presence/absence or yearly trend comparisons as opposed to population estimates.

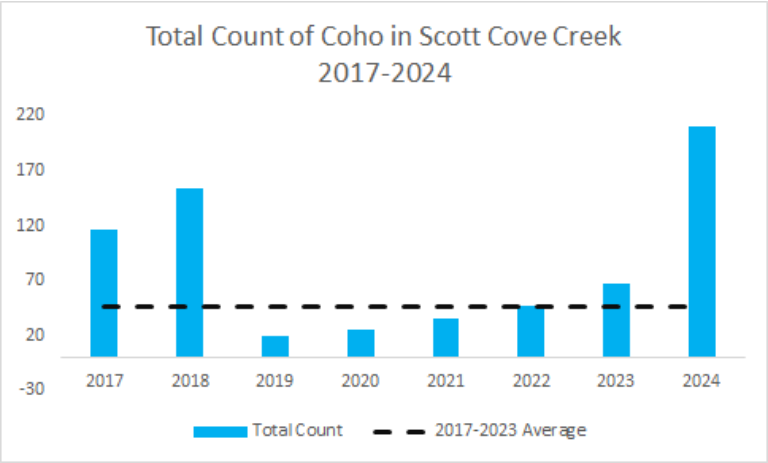

Figure 27. Historical counts of coho returning to the Scott Cove Creek. Average coho return from 2017-2023 is 46.

Wahkana Bay Creek

2024 Surveys:

8 formal surveys were run from August 19th until November 14th, 2023 with 7-14 days between surveys. Dates were often chosen based on forecasted wind values for travel by boat and a rising tide was beneficial for anchoring the boat, which we often secured with a shore-tie and anchor.

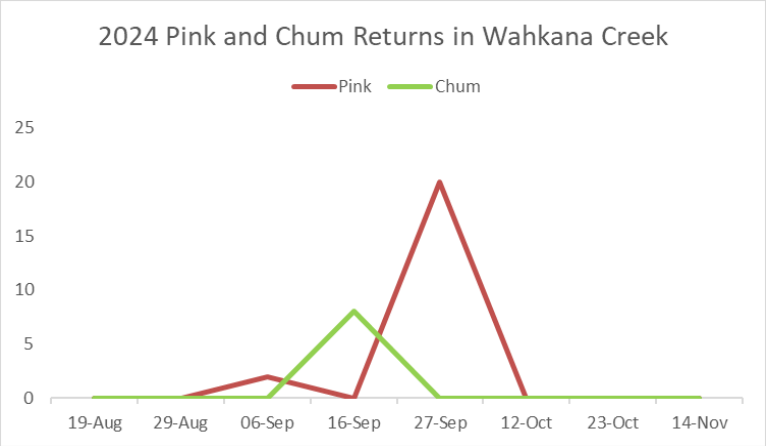

Figure 28. Estimated counts of pink and chum salmon returning to Wahkana Creek in 2024.

2024 Wahkana Creek Pink Salmon:

- Peak and last observation was recorded on Septmber 27, with 2 observed individuals and an expanded estimate of 20.
- First observation occurred on September 6, with 1 individual observed and an expanded estimate of 2.
- Total river estimate of 22.
- This was the first year pink salmon have been observed on M.E.S.S.S. surveys since 2016, with the exception of the 2014 season, numbers have been low since 2009.

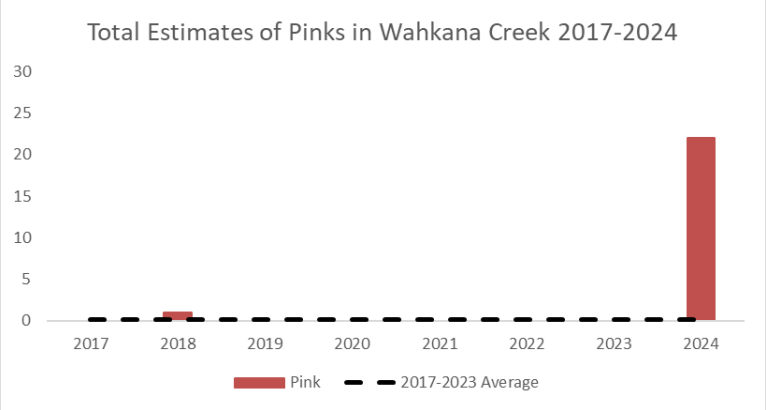

Figure 29. Historical estimated counts of pinks returning to Wahkana Creek. Average chum return from 2017-2023 is less than 1.

2024 Wahkana Creek Chum Salmon:

- Peak, first, and last observation was recorded on September 16, with 5 observed individuals and an expanded estimate of 8.
- Total river estimate of 8.
- Chum returns to Wahkana Creek have been variable for the past eight years.

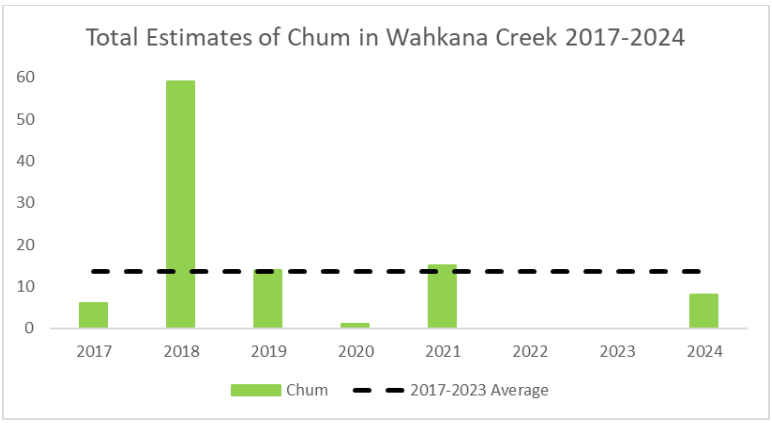

Figure 30. Historical estimated counts of chum returning to Wahkana Creek. Average chum return from 2017-2023 is 14.

2024 Wahkana Creek Coho Salmon:

- No coho observed in Wahkana Creek during the 2024 enumeration season.
- Very few coho have been observed in Wahkana Creek in the past eight years, with the peak live observation being 1 in 2019 and 2022.

Maple Cove Creek

2024 Surveys:

8 formal surveys were conducted for the 2024 season from August 22nd to November 2nd. Our surveys were held 7-14 days apart. The system is accessed by driving a vehicle from Scott Cove along Scott Cove M/L, Scott Connector M/L, Shoal M/L and down Maple M/L.

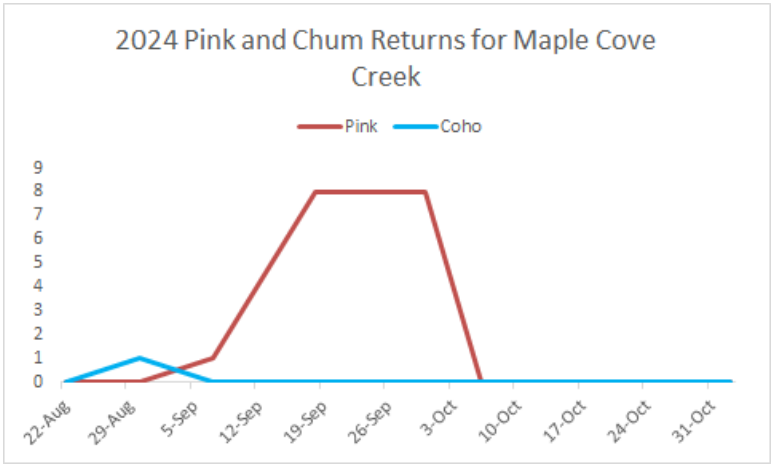

Figure 31. Estimated counts of pink and coho salmon returning to Maple Cove creek in 2024.

2024 Maple Cove Creek Pink Salmon:

- We observed pinks in Maple Cove Creek on three separate occasions.
- The first fish were observed on September 7th, with 1 fish seen, 1 estimated.
- The peak live count for pinks was 5 seen on September 30th, expanded to 8 estimated.
- Total river estimate of 17.

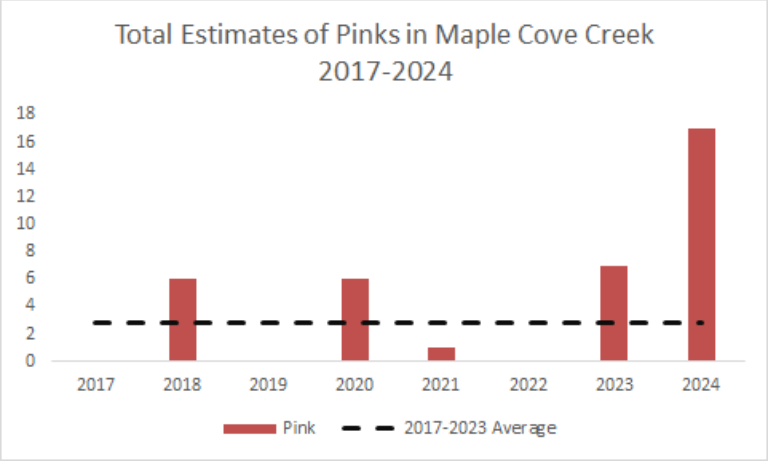

Figure 32. Historical estimated counts of pinks returning to the Maple Cove Creek. Average pink return from 2017-2023 is 3.

2024 Maple Cove Creek Coho Salmon:

- The peak live count for coho was 1 observed, 1 estimated on August 30.
- Coho were only observed once in Maple Cove Creek.

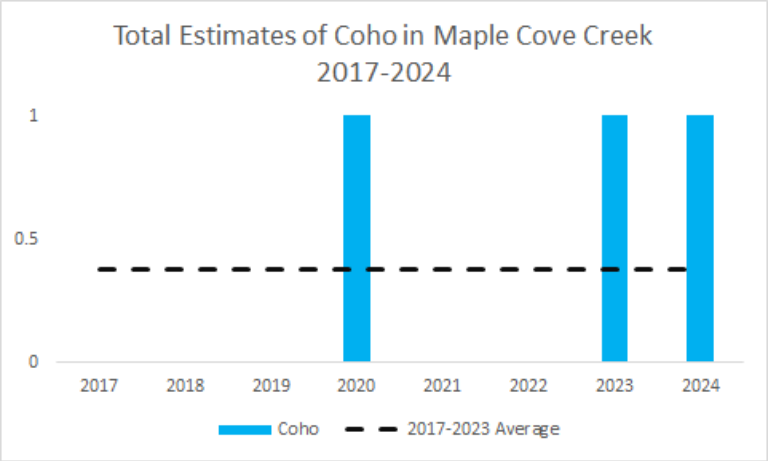

Figure 33. Historical estimated counts of coho returning to the Maple Cove Creek. Average coho return from 2017-2023 is less than 1.

Carriden Creek

2024 Surveys:

Carriden Creek was surveyed a total of 8 times from August 20th until November 5th, 2024. Surveys were conducted every 7-14 days and dates selected based on wind forecast values due to travel distance by boat.

Figure 34. Estimated counts of pink salmon returning to Carriden Creek in 2024.

2024 Carriden Creek Pink Salmon:

- Peak and first observation was recorded on August 28, with 39 observed individuals and an expanded estimate of 52.
- Last live observation was on October 10, with 5 individuals observed and an expanded estimate of 18. A pink mort was observed during the survey on November 5.
- Total river estimate of 87.
- Pinks have not been observed in Carriden Creek since 2016 when 12 fish were observed with an expanded estimate of 20.

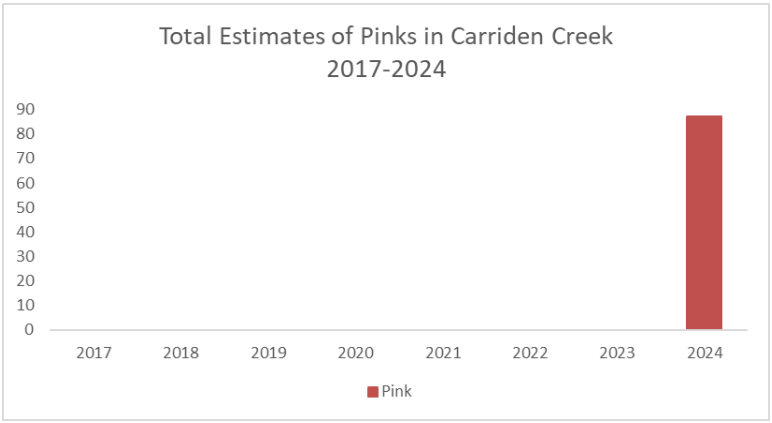

Figure 35. Historical estimated counts of pink returning to Carriden Creek.

2024 Carriden Creek Chum Salmon:

- No chum salmon observed during the 2024 season.

2024 Carriden Creek Coho Salmon:

- 2 coho observed with an estimate of 3 on November 5. Seen holding near gravel just above the biosample pool.
- Coho only observed during one survey in 2024.
- Total river estimate of 3.
- Last live coho observed in stream during 2014 season.

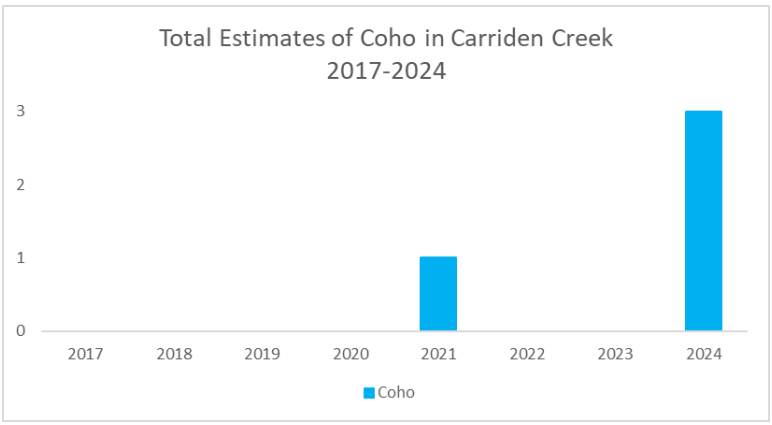

Figure 36. Historical estimated counts of coho returning to Carriden Creek.

M.E.S.S.S. STREAMS

Simoom Sound Creek
2024 Surveys:
Surveyed a total of 3 times for the 2024 season between October 12 and November 6.

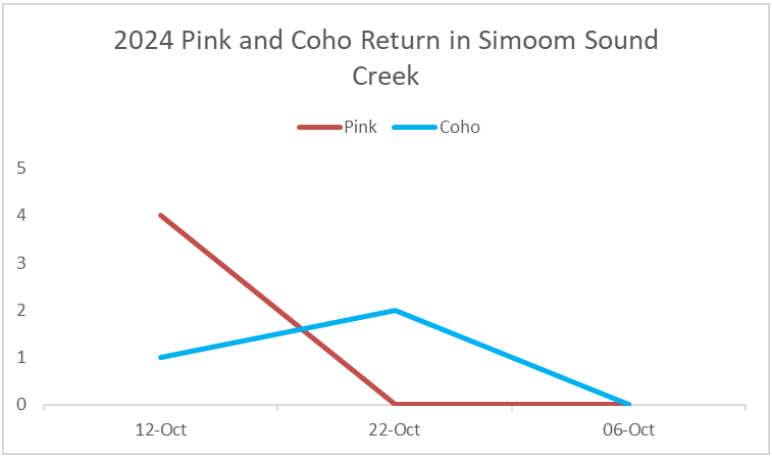

Figure 37. Estimated counts of pink and coho salmon returning to Simoom Sound Creek in 2024.

2024 Simoom Sound Creek Pink Salmon:
- 3 pinks observed with an estimate of 4 on October 12.
- Total river estimate of 4.
- Pink salmon had previously not been observed in this system since 2015.

2024 Simoom Sound Creek Chum Salmon:
- No chum salmon observed during the 2024 season.
- Last chum observed in Simoom Sound Creek in 2018, 0 live and 6 morts recorded.

2024 Simoom Sound Creek Coho Salmon:
- Total of 2 coho observed during the 2024 season.
- First observation was recorded on October 12, with 1 individual observed and estimated.
- Last observation was on October 22, with 1 observed individual with an expanded estimate of 2.
- Total river estimate of 3.
- No coho observed in 2023, but were present in 2022 and 2021.

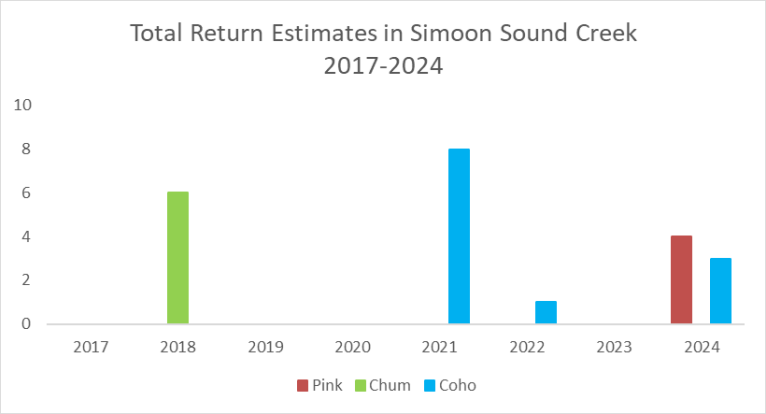

Figure 38. Historical estimated counts of pinks, chum and coho returning to Simoom Sound Creek.

Gilford Creek

2024 Surveys:

1 formal survey of Gilford Creek was done for the 2024 season by M.E.S.S.S. occurring on September 21. Two more attempts were made but incomplete due to high water and unsurveyable conditions.

2024 Gilford Creek Pink Salmon:

- Pink salmon were seen spawning and holding throughout Gilford creek on our single survey.
- Total river estimate of 49.
- Last record of pink salmon being observed was in 2022.

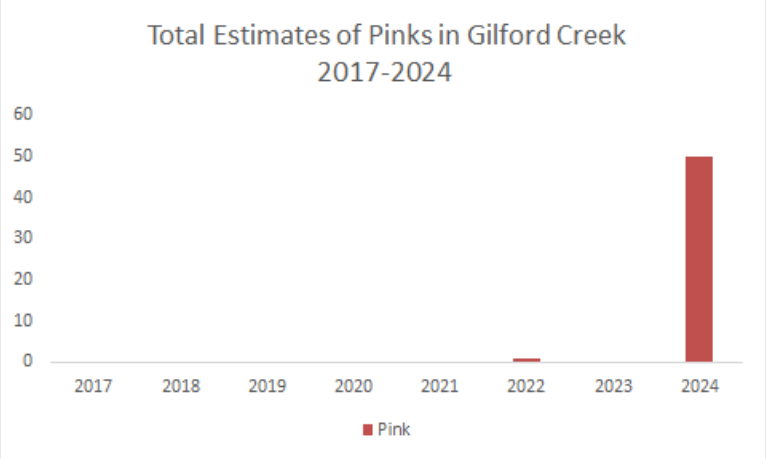

Figure 39. Historical estimated counts of pinks returning to Gilford Creek.

2024 Gilford Creek Chum Salmon:

- One chum salmon was observed during the 2024 survey in the first 200m of stream.
- Total river estimate of 3.
- Last observed chum salmon in 2013 with a peak observed count of 2.

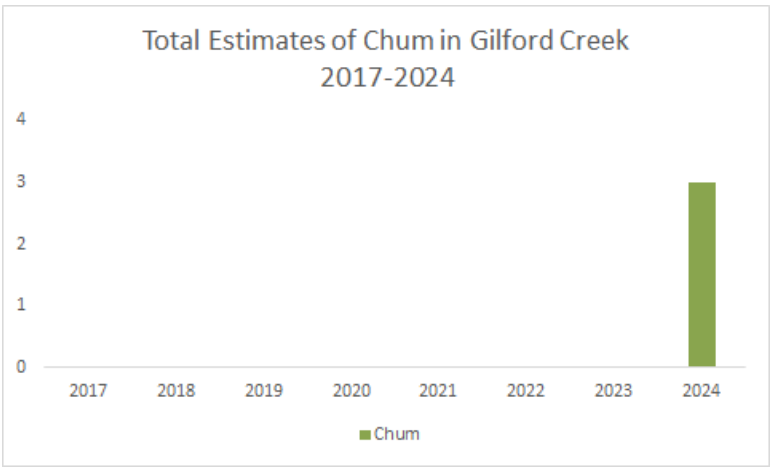

Figure 40. Historical estimated counts of chum returning to Gilford Creek.

2024 Gilford Creek Coho Salmon:

- 4 coho were observed in a pool near the end of the survey segment. The count was expanded to an estimate of 10 fish.
- Total river estimate of 10.
- Coho are likely to move through the system when water levels are elevated and hold in lakes before spawning later in the fall.

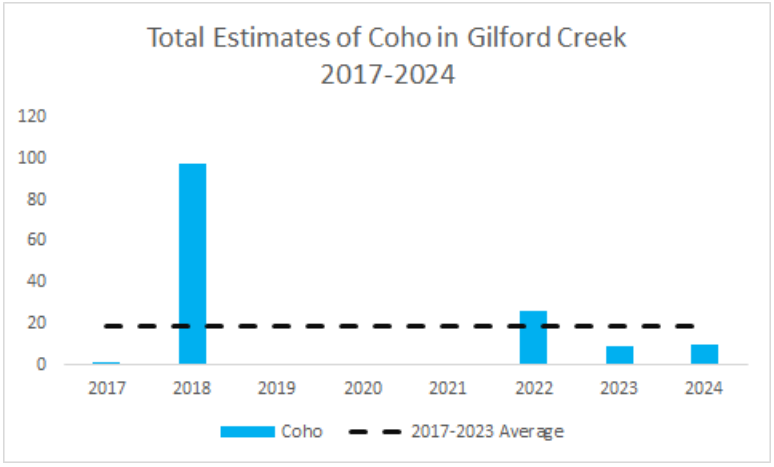

Figure 41. Historical estimated counts of coho returning to Gilford Creek. Average coho return from 2017-2023 is 19.

Minihump Creek

2024 Surveys:

The 2024 season had 4 formal surveys of Minihump Creek spanning from October 3th until November 9th. The surveys were run every 7-14 days and selected to cover the date ranges in line with historical surveys and knowledge of previous minihump run timing.

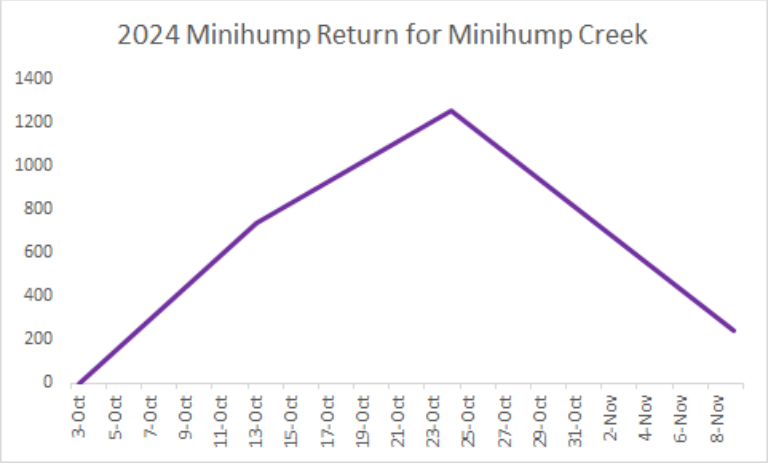

Figure 42. Estimated counts of minihump salmon returning to the Minihump Creek in 2024.

2024 Minihump Creek Kokanee (Minihump):

- Peak estimated count of 500 on October 24 with an expanded estimate of 1,250.
- First observed on October 13 with a count of 516 expanded to 737.
- Last observed on November 9, with a count of 60 expanded to 240.
- Total river estimate of 2,227.
- High water throughout October and November made minihump visibility poor.

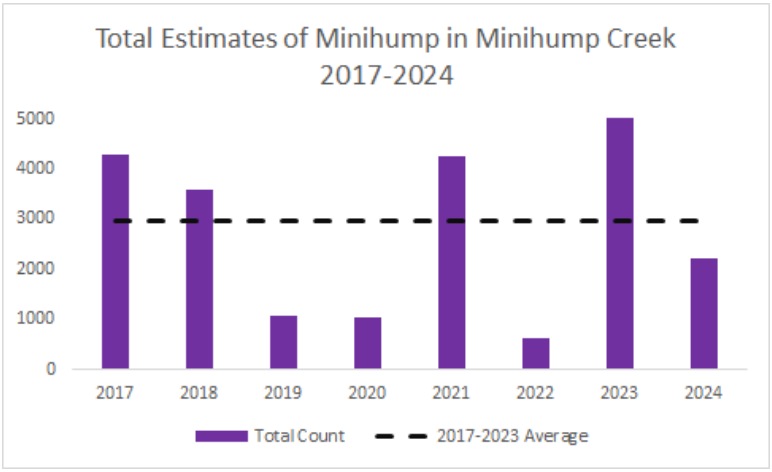

Figure 43. Historical estimated counts of minihumps returning to Minihump Creek. Average minihump return from 2017-2023 is 2,962

2024 Minihump Creek Pink Salmon:

- No pink salmon were observed during the 2024 season.
- No pink salmon have been observed in Minihump Creek since 2009.

2024 Minihump Creek Coho Salmon:

- 7 live coho were observed on the last survey of the season, November 8. The expanded estimate returned 10 coho.
- Total river estimate of 37.
- Coho have occasionally been observed since 2009 with 2 live fish observed in 2021 and 7 in 2023. OUr final survey of the season occurs as the coho spawn in Minihump creek commences.

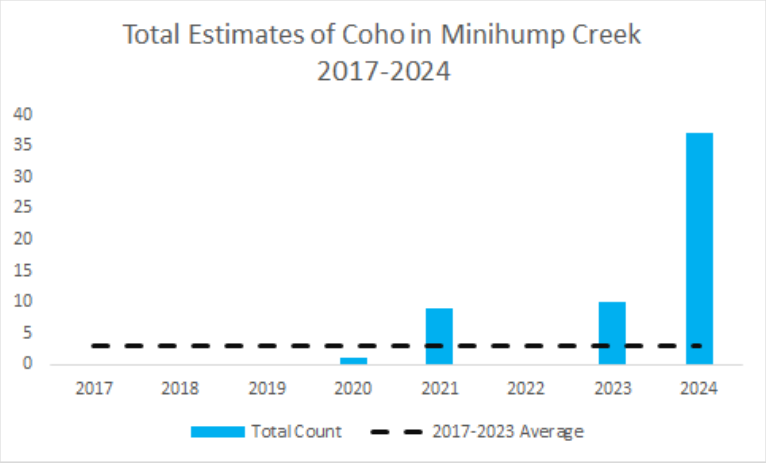

Figure 44. Historical estimated counts of coho returning to Minihump Creek. Average coho return from 2017-2023 is 3.

Connector Creek

2024 Surveys:

The 2024 season held 3 formal surveys of Connector Creek from October 6h until November 9th. Surveys were held every 7-14 days based around historical surveys and previous knowledge of known returns for the system.

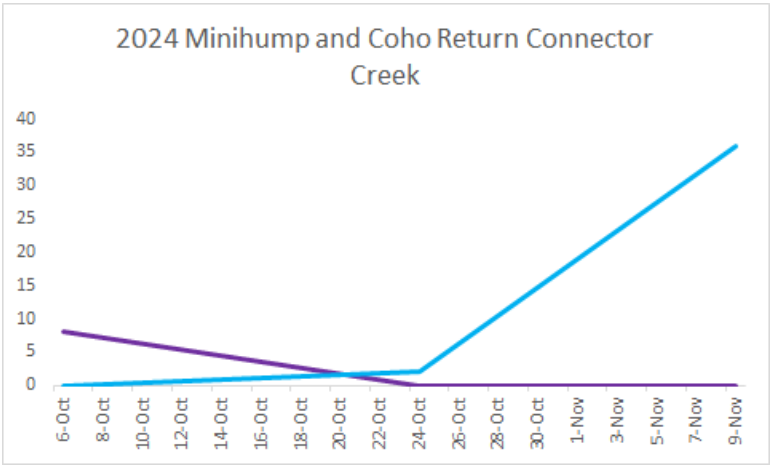

Figure 45. Estimated counts of minihump and coho salmon returning to the Connector creek in 2024.

2024 Connector Creek Kokanee (Minihump):

- The first and peak observed count occurred on October 6th with 2 fish seen, 8 estimated.
- Total river estimate of 8.
- Connector Creek kokanee populations remain low compared to Minihump creek.

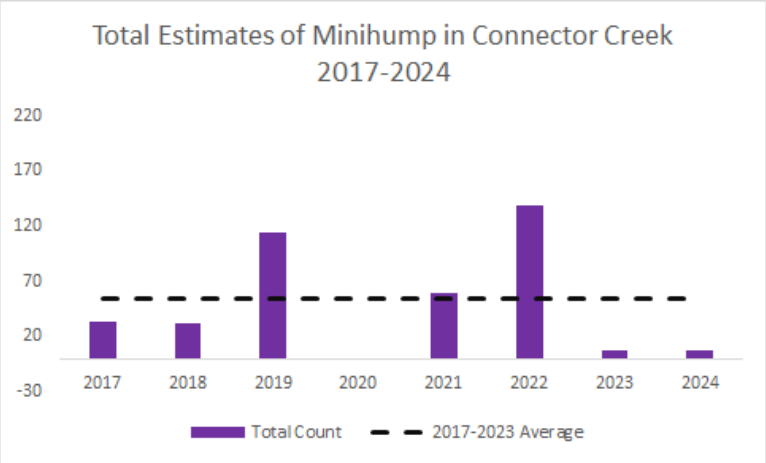

Figure 46. Historical estimated counts of Minihumps returning to Connector Creek. Average minihump return from 2017-2023 is 55.

2024 Connector Creek Coho Salmon:

- The first coho seen in Connector creek during the 2024 season was a mort on October 6.
- 20 coho were seen spawning on the last survey of the season, November 9th.
- Total river estimate of 38.
- Coho populations have been low recently with a peak of 6 seen in 2017.

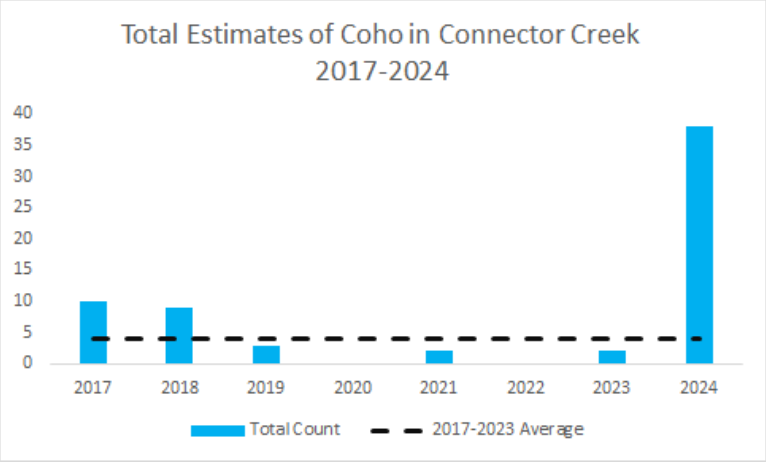

Figure 47. Historical estimated counts of coho returning to Connector Creek. Average coho return from 2017-2023 is 4.

Loose Creek

2024 Surveys:

3 formal surveys were conducted for Loose Lake Creek on October 24th, November 1st and 13th 2024. Survey dates were strategically chosen based on historical surveys and local records of known return times.

2024 Loose Creek Coho Salmon:

- Coho were seen spawning in Loose Creek on all three surveys.
- Total river estimate of 19.
- Coho estimates for Loose Creek have been low in recent years, the highest estimate since 2009 is 21 fish.

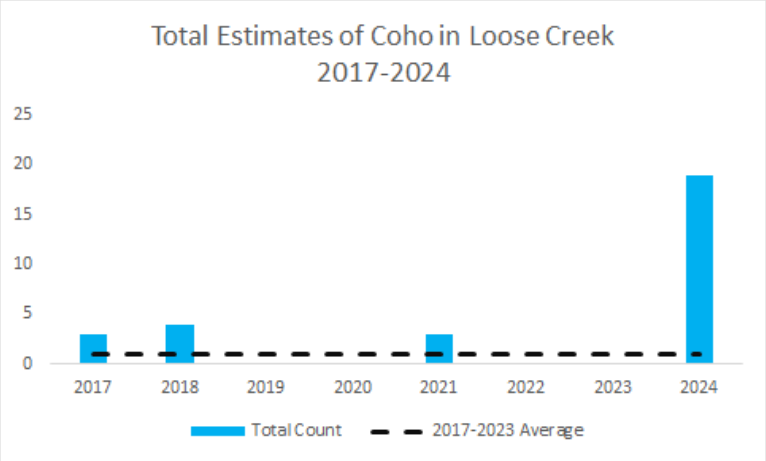

Figure 48. Historical estimated counts of coho returning to Loose Creek. Average coho return from 2017-2023 is 1.

John Lewis Creek
2024 Surveys:
3 formal surveys of John Lewis Creek were held on October 20th, November 1st and 13th 2024. Dates were selected based on historical surveys and data indicating best times for local returns.

2024 John Lewis Creek Kokanee (Minihump):

- No Minihumps observed during the 2024 season.
- Minihumps last observed in 2021 with an expanded estimate of 3.

2023 John Lewis Creek Coho Salmon:

- Coho were seen in John Lewis creek on surveys conducted on November 1st and 13, 2024.
- Total river estimate of 29.
- The 2024 estimate was much higher than estimates from the previous 8 years.

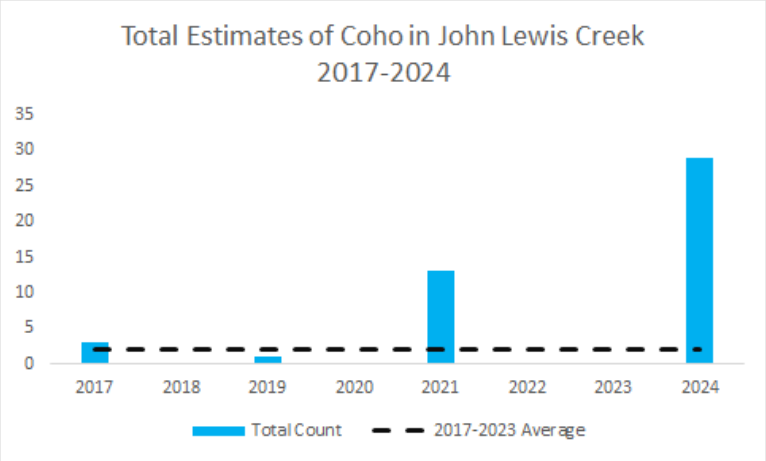

Figure 49. Historical estimated counts of coho returning to John Lewis Creek. Average coho return from 2017-2023 is 2.

Chris Bennett Creek
2024 Surveys:
2 formal surveys were conducted for Chris Bennett Creek on November 1st and 13th 2024. Surveys were held 7-14 days apart, in accordance with historical returns.

2024 Chris Bennett Creek Coho Salmon:

- Coho were seen on the first and second survey.
- Total river estimate of 44.
- 2024's count exceeds the previous high estimate of 24 in 2021.

2024 Chris Bennett Creek Kokanee:

- None observed during the 2024 season.
- Returns are sparse with 2018, 2021, 2022 returns being under 3 fish estimated.

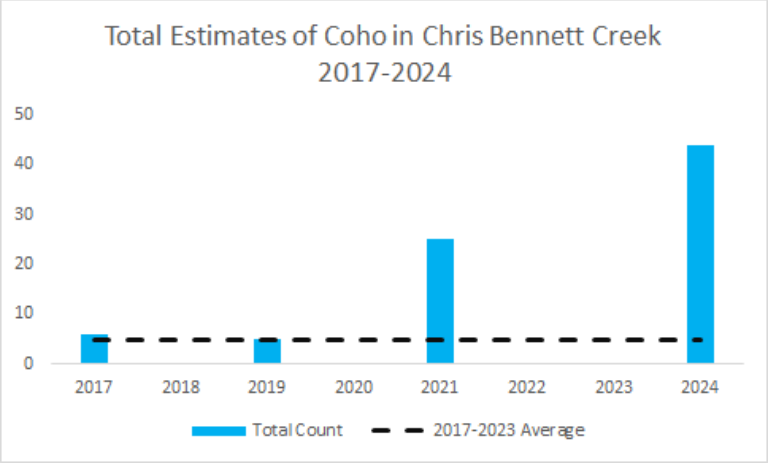

Figure 50. Historical estimated counts of coho returning to Chris Bennett Creek. Average coho return from 2017-2023 is 5.

Billy Proctor Creek

2024 Surveys:

3 formal surveys were conducted for Billy Proctor Creek on October 6th, 29th, and November 2nd, 2024.

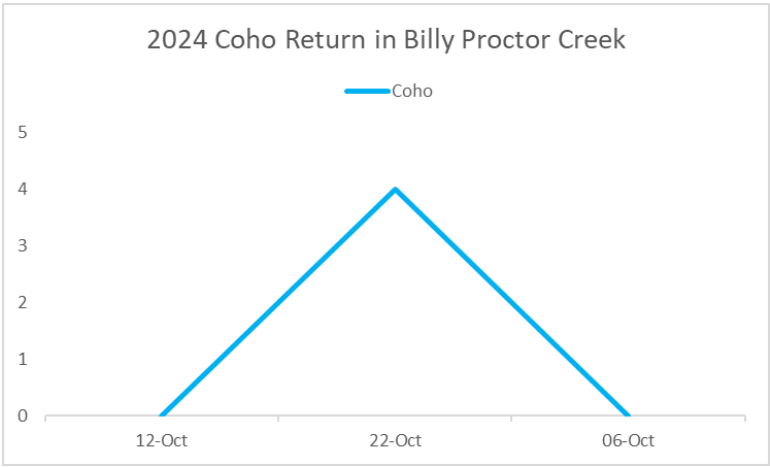

Figure 51. Estimated counts of coho salmon returning to Billy Proctor Creek in 2024.

2024 Billy Proctor Creek Coho Salmon:

- 2 coho were observed with an estimate of 4, on October 29th.
- Total river estimate of 4.
- Billy Proctor Creek is an ephemeral system driven by fall rains, the water level in the first survey was significantly lower than those later in the season.

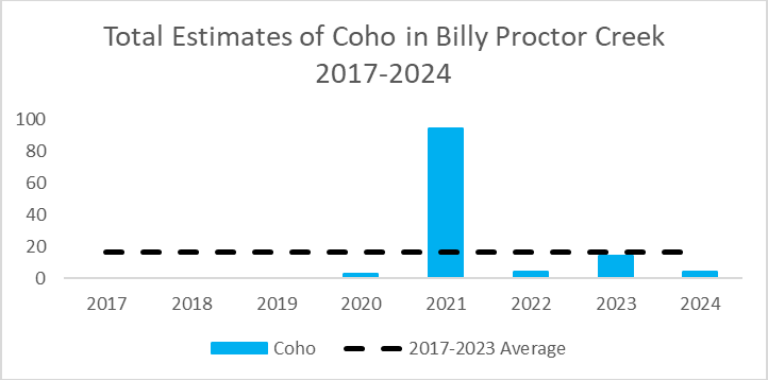

Figure 52. Historical estimated counts of coho returning to Billy Proctor Creek. Average coho return from 2017-2023 is 16.

Mount Worthington Creek
2024 Surveys:
2 formal surveys were conducted on October 24th and November 7th, 2024. Surveys were held 7-14 days apart in line with historical surveys and data regarding previous local returns and local knowledge.

2024 Mount Worthington Creek Coho Salmon:

- No coho were seen in Mt Worthington Creek in 2024.
- 2 suspected redds were seen in the lower portion of Mt Worthington creek during the last survey of 2024.

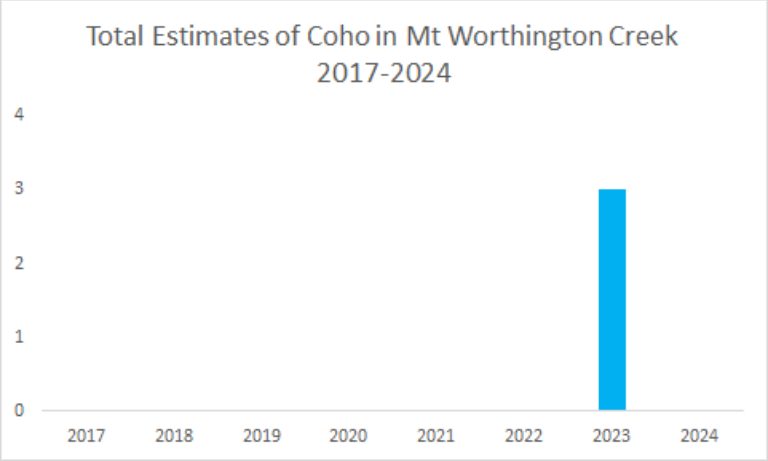

Figure 53. Historical estimated counts of coho returning to Mt Worthington Creek. Average coho return from 2017-2023 is less than 1.

Stream Temperature Monitoring

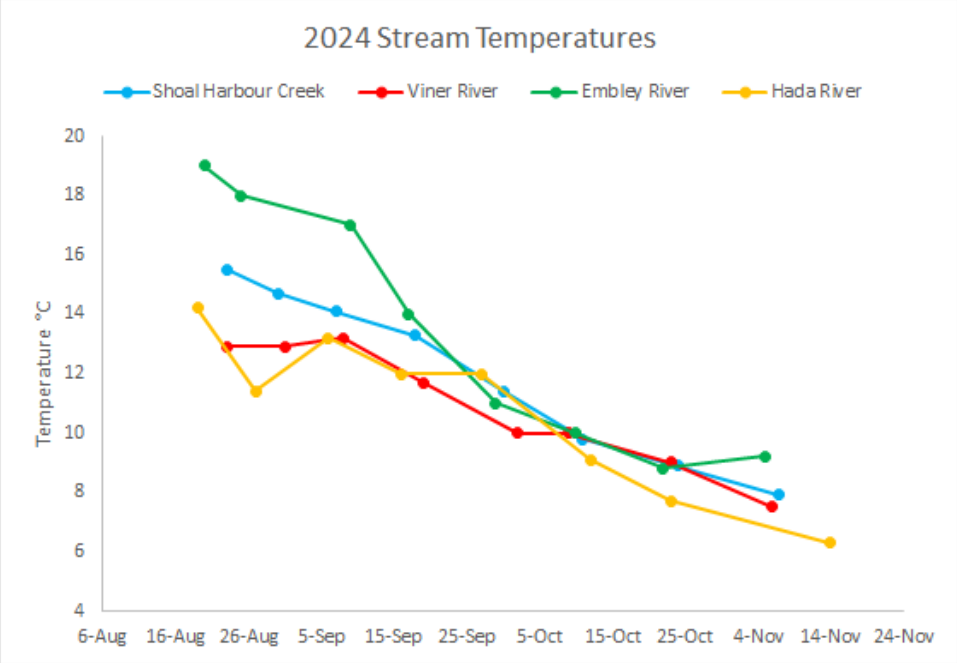

Figure 54. Stream temperatures recorded during 2024 enumeration surveys in Shoal Harbour, Hada, Viner and Embley Rivers.

Shoal Harbour Creek
Shoal Harbour creek is fed by Bridee lake and Mt Worthington creek as its principal headwaters. The highest temperature measurement taken was 15.5°C on August 23rd and a low of 7.9°C on November 7 2024. The average temperature during the enumeration season was 12.0°C.

Viner River
Viner River is a lake and groundwater fed system on Gilford Island. It reached a peak temperature of 13.2°C on September 8th and a low of 7.5°C on November 6. The average temperature during the enumeration season was 10.9°C.

Embley River
Embley River is a lake fed system on the mainland. Draining Huaskin lake, this system is driven by flows coming from the lake itself. Embley River reached a recorded high in 2023 of 19.0°C on August 20th and a low of 8.8°C on October 22nd. The average temperature during the enumeration period was 13.4°C.

Hada River
The Hada River, is fed by a system of high elevation lakes located on the mainland. It reached a high of 14.2 °C on August 19 and a low of 6.3 °C on November 14 2024. The average temperature during the enumeration period was 10.7°C .

ADDITIONAL WORKS COMPLETED

Trail Maintenance

Streamside trail maintenance was completed on all systems during the first two rotations by Abby Tinsley and Ian Clevenger. The majority of streams required little additional trail maintenance due to the presence of wildlife trails, however there are a few that could use additional work.

The upper portion of the Viner trail crosses two steep slopes where erosion has occurred to the point of the trail washing away, It could use rerouting or stabilization work to continue safe access. There is also new windfall that will require clearing at the start of the season when the brush is too high to go around. Carriden creek could use re-establishment of the trail up to Rosemary lake as it is largely grown over. There is also little navigable trail remaining on the stream banks. Maple Cove doesn't currently have a trail in or out of the system. Establishing a trail is of high priority as emergency egress is through the narrow, woody debris filled stream. Re establishment of the upper Embley trail is recommended as new blowdown makes access to the gravel placement difficult for those unaware of the location.

All roads used on Gilford island to access streams were cleared of windfallen trees on an as needed basis. The Maple Cove spur will require manual or equipment clearing as the alders are growing in, especially in the lower 100m of stream. The lower 50m is also washing out as a root wad is redirecting the stream onto the road instead of the ditch. On the last survey we parked before the washout. Road deactivating occurred around the Gilford Creek area, it would be worthwhile to determine whether the road to Gilford creek or other spur roads are at risk of getting deactivated.

Boat Maintenance

During the 2024 season the "Hatchery Boat" or "Hot MESSS" ran exceptionally well. The motor underwent a 200hr service, completed by Franco, Abby and Ian on Billy's boat ways. A new bilge pump was installed in late October after the previous one burnt out. Both outer stringers are rotten, and there are soft spots on the starboard side of the bow that could use fibreglassing and repair before the season begins in 2025.

Appendix and Summary Tables

Table 1. Pink returns across the systems MESSS counts since 2009.

		PINK/MINIHUMP															
STREAM	# of Visits last 15 Years 09.10.11.12.13.14.15.16.17.18.19. 20.21.22.23.24	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Wahkana	4.5.6.3.1.7.3.3.5.5.8.8.8.8.8.8	8/15	26/34	9/31	10/20	8/15	944/1410	7/21	13/21	0	0/1	0/0	0/0	0/0	0/0	0/0	*3/22*
Ahta	0.0.6.6.8.8.7.8.8.8.8.10.10.8.8	-	-	5208/6033	25822/33309	33620/39960	154440/178993	18273/22938	1360/2001	1088/1329	8752/9754	800/1170	1118/1726	1117/1754	22952/43160	15034/24200	*57,231/75,289*
Viner	5.6.7.5.7.8.8.8.8.8.8.8.8.8.8.8	1621/2147	236/570	659/2157	3939/6865	1414/2278	3991/5754	250/387	66/94	100/144	0/0	16/21	10/13	10/15	10/14	98/174	*749/1234*
Shoal	5.6.9.6.7.9.6.7.7.7.8.8.8.8.8.8	164/233	12/50	29/75	214/354	75/130	687/1399	13/19	5/8	1/1	1/3	0/0	5/6	0/0	0/1	6/17	*13/23*
Scott Cove	6.7.0.7.6.7.8.8.8.8.8.8.8.8.8.8	27/53	2/2	0/0	2/7	0/0	437/662	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Embley	0.1.0.7.6.8.7.7.8.7.8.7.6.9.8.8	-	409/1024	-	13067/23656	74/363	274565/414693	0/0	4842/6602	3/5	144/249	0/0	266/412	3/6	1144/1373	2/3	*3486/5601*
Carriden	4.4.4.1.1.5.1.1.1.3.6.7.6.6.6.8	2/2	78/120	0/0	0/0	0/0	5309/10972	0/0	12/20	0/0	0/0	0/0	0/0	0/0	0/0	0/0	*54/87*
Gilford	6.5.6.5.7.7.1.0.2.4.6.6.8.2.2.2	6/6	19/36	0/1	142/228	5/89	63/105	0/0	-	0/0	0/0	0/0	0/0	0/0	1/1	0/0	*4/10*
Maple	5.4.5.0.3.4.3.0.3.3.3.8.8.8.8.8.8	0/0	20/35	4/11	0/47	0/0	56/100	0/0	-	0/0	2/6	0/0	3/6	0/1	0/0	5/7	*10/17*
Simoom	5.5.6.0.0.5.3.2.3.3.4.5.5.3.3.3	167/200	4/4	0/0	-	-	372/609	76/104	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	*3/4*
Minihump	4.4.3.3.2.4.4.4.6.5.4.3.4.4.4.4	2292/3526	832/977	1023/1542	122/967	1418/2533	519/1132	1154/1769	1397/1816	2802/4292	2714/3596	395/1076	835/1045	2,625/4,263	293/626	3972/5833	*1076/2227*
Billy Proctor	0.0.1.1.1.0.3.1.4.3.2.2.3.2.2.3	-	-	0/0	0/0	-	-	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Mt Worthington	0.0.1.0.1.0.3.1.3.3.2.2.2.2.2.2	-	-	0/0	-	-	-	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Connector	0.0.0.0.2.0.4.3.4.5.3.4.4.4.3.3	-	-	-	-	26/35	-	56/89	29/33	25/33	24/32	57/114	0/0	29/60	56/138	5/7	*2/8*
Loose	3.4.1.0.2.2.4.3.4.5.3.4.4.3.2.3	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
John Lewis	1.4.1.0.2.2.4.3.3.5.3.4.4.2.2.3	0/0	0/0	0/0	-	0/0	0/0	0/0	0/0	8/11	6/9	0/0	1/1	2/3	0/0	0/0	0/0
Chris Bennett	3.4.3.3.2.2.4.3.4.5.3.4.4.2.3.2	0/0	2/10	0/0	0/0	0/0	0/0	0/0	0/0	0/0	1/2	0/0	0/0	1/2	1/3	0/0	0/0
Sir Edmund	4.4.3.0.0.3.1.2.0.2.3.2.5.0.0.0	6/6	1/2	0	-	-	13/48	0/0	0/0	-	0/0	0/0	0/0	0/0	-	-	-

Table 2. Chum returns across the systems MESSS counts since 2009.

STREAM	# of Visits last 15 Years 09.10.11.12.13.14.15.16.17.18.19.	CHUM 2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Wahkana	4.5.6.3.1.7.3.3.5.5.8.8.8.8.8.8	5/8	1/1	0/0	0/0	0/1	13/27	16/24	5/7	4/6	40/59	10/14	0/1	6/15	0/0	0/0	*5/8*
Ahta	0.0.6.6.8.8.7.8.8.8.8.10.10.8.8	-	-	210/249	890/1461	406/629	223/390	1511/3064	1475/3017	1160/1747	663/1088	385/507	34/52	205/470	243/359	134/264	*846/1,154*
Viner	5.6.7.5.7.8.8.8.8.8.8.8.8.8.8.8	2951/5082	79/182	1756/4402	5667/12257	3073/5283	573/978	15689/56456	10248/22075	1309/2690	4045/7534	186/303	64/107	525/764	41/96	87/183	*442/1070*
Shoal	5.6.9.6.7.9.6.7.7.7.8.8.8.8.8.8	116/152	1/2	198/493	54/111	307/588	37/133	159/513	247/684	1/48	74/147	6/43	5/9	219/434	1/47	22/52	*1814/3043*
Scott Cove	6.7.0.7.6.7.8.8.8.8.8.8.8.8.8.8	14/25	0/0	0/0	1/3	0/0	156/918	1/2	34/52	15/27	1/2	0/0	0/0	0/0	0/1	0/0	0/0
Embley	0.1.0.7.6.8.7.7.8.7.8.7.6.9.8.8	-	0/0	-	17/46	22/155	16/56	68/252	33/44	44/82	9/29	9/15	1/1	7/16	0/0	9/14	*71/152*
Carriden	4.4.4.1.1.5.1.1.1.3.6.7.6.6.6.8	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Gilford	6.5.6.5.7.7.1.0.2.4.6.6.8.2.2.2	1/1	1/2	0/0	0/0	2/5	0/0	0/0	n/a	0/0	0/0	0/0	0/0	0/0	0/0	0/0	*20/50*
Maple	5.4.5.0.3.4.3.0.3.3.3.8.8.8.8.8.8	0/0	1/9	0/0	0/0	0/0	0/0	0/0	n/a	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Simoom	5.5.6.0.0.5.3.2.3.3.4.5.5.3.3.3	0/0	0/0	0/0	-	-	0/0	24/35	0/0	0/0	0/6	0/0	0/0	0/0	0/0	0/0	0/0
Minihump	4.4.3.3.2.4.4.4.6.5.4.3.4.4.4.4	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Billy Proctor	0.0.1.1.1.0.3.1.4.3.2.2.3.2.2.3	-	-	0/0	0/0	-	-	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Mt Worthington	0.0.1.0.1.0.3.1.3.3.2.2.2.2.2.2	-	-	0/0	-	-	-	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Connector	0.0.0.0.2.0.4.3.4.5.3.4.4.4.3.3	-	-	-	-	0/0	-	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Loose	3.4.1.0.2.2.4.3.4.5.3.4.4.3.2.3	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
John Lewis	1.4.1.0.2.2.4.3.3.5.3.4.4.2.2.3	0/0	0/0	0/0	-	0/0	0/0	0/0	0/0	0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Chris Ben.	3.4.3.3.2.2.4.3.4.5.3.4.4.2.3.2	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Sir Edmund	4.4.3.0.0.3.1.2.0.2.3.2.5.0.0.0	0/0	0/0	0/0	-	-	0/0	0/0	0/0	-	0/0	0/0	0/0	0/0	-	-	-

Table 3. Coho returns across the systems MESSS counts since 2009.

STREAM	# of Visits last 15 Years 09.10.11.12.13.14.15.16.17.18.19.	COHO 2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Wahkana	4.5.6.3.1.7.3.3.5.5.8.8.8.8.8.8	4/15	2/8	0/2	0/0	4/12	16/108	0/0	0/0	0/0	0/1	1/2	0/0	0/0	1/2	0/0	0/0
Ahta	0.0.6.6.8.8.7.8.8.8.8.10.10.8.8	—-	—-	1551/2675	1272/1917	2363/8260	682/1444	1947/3569	66/118	317/510	80/127	18/32	30/44	98/120	297/562	218/421	*170/256*
Viner	5.6.7.5.7.8.8.8.8.8.8.8.8.8.8.8	71/163	22/133	4/26	1/1	8/32	15/302	8/273	4/56	6/33	2/8	1/2	1/1	3/12	2/4	50/115	*32/54*
Shoal	5.6.9.6.7.9.6.7.7.7.8.8.8.8.8.8	16/39	11/91	2/91	8/65	10/44	3/150	0/0	5/20	0/0	0/0	0/0	2/5	1/2	2/5	2/5	*16/45*
Scott Cove	6.7.0.7.6.7.8.8.8.8.8.8.8.8.8.8	364/566	165/823	79/314	196/1627	408/2507	72//711	98/1849	58/442	154/1124	116/705	19/228	26/232	35/289	47/369	68/852	*210*
Embley	0.1.0.7.6.8.7.7.8.7.8.7.6.9.8.8	-	75/256	-	92/584	38/497	60/1428	0/0	6/53	7/20	0/0	3/8	5/10	4/11	54/105	32/101	*40/90*
Carriden	4.4.4.1.1.5.1.1.1.3.6.7.6.6.6.8	0/0	2/17	0/0	0/0	0/0	6/73	0/0	0/0	0/0	0/0	0/0	0/0	0/1	0/0	0/0	*2/3*
Gilford	6.5.6.5.7.7.1.0.2.4.6.6.8.2.2.2	41/175	0/14	14/149	56/1286	2/101	5/77	0/0	n/a	0/1	12/98	0/0	0/0	0/0	8/26	1/9	*1/3*
Maple	5.4.5.0.3.4.3.0.3.3.3.8.8.8.8.8.8	0/1	0/0	0/0	0/0	0/0	0/0	0/0	n/a	0/0	0/0	0/0	1/1	0/0	0/0	0/0	*1/1*
Simoom	5.5.6.0.0.5.3.2.3.3.4.5.5.3.3.3	0/0	0/0	0/0	-	-	0/0	1/2	0/0	0/0	0/0	0/0	0/0	4/8	1/1	0/0	*2/3*
Minihump	4.4.3.3.2.4.4.4.6.5.4.3.4.4.4.4	2/2	2/30	0/0	3/16	0/0	12/54	0/1	0/0	0/0	0/4	0/0	0/1	2/9	0/0	7/10	*11/37*
Billy Proctor	0.0.1.1.1.0.3.1.4.3.2.2.3.2.2.3	-	-	8/27	13/39	-	-	1/1	0/0	0/0	0/0	0/0	0/3	61/94	1/4	12/14	*2/4*
Mt Worthington	0.0.1.0.1.0.3.1.3.3.2.2.2.2.2.2	-	-	0/0	-	-	-	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	2/3	0/0
Connector	0.0.0.0.2.0.4.3.4.5.3.4.4.4.3.3	-	-	-	-	0/0	-	1/4	0/0	6/10	4/9	1/3	0/0	0/2	0/0	1/2	*21/38*
Loose	3.4.1.0.2.2.4.3.4.5.3.4.4.3.2.3	14/21	0/0	0/0	1/33	0/0	0/1	4/15	3/16	1/3	2/4	0/0	0/0	0/3	0/0	0/1	*10/19*
John Lewis	1.4.1.0.2.2.4.3.3.5.3.4.4.2.2.3	10/17	0/0	0/0	-	0/0	0/0	0/0	0/0	1/3	0/0	1/1	0/0	7/13	0/0	0/0	*9/29*
Chris Bennett	3.4.3.3.2.2.4.3.4.5.3.4.4.2.3.2	0/0	9/26	2/4	4/23	0/0	0/0	6/16	1/7	3/6	0/0	3/5	2/2	10/25	0/0	0/0	*25/44*
Sir Edmund	4.4.3.0.0.3.1.2.0.2.3.2.5.0.0.0	0/0	0/0	0/0	-	-	0/0	0/0	0/0	-	0/0	0/0	0/0	0/0	-	-	-

Table 4. Sockeye returns across the systems MESSS counts since 2009.

STREAM	# of Visits last 15 Years 09.10.11.12.13.14.15.16.17.18.19.	SOCKEYE 2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Wahkana	4.5.6.3.1.7.3.3.5.5.8.8.8.8.8.8	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Ahta	0.0.6.6.8.8.7.8.8.8.8.10.10.8.8	0/0	0/0	13/14	8/10	44/50	11/14	9/10	14/17	7/9	6/6	6/6	1/2	11/15	47/58	58/95	*32/52*
Viner	5.6.7.5.7.8.8.8.8.8.8.8.8.8.8.8	0/0	0/0	0/0	2/2	3/5	3/4	0/0	0/0	0/0	0/0	0/0	0/0	7/19	1/1	1/2	*6/10*
Shoal	5.6.9.6.7.9.6.7.7.7.8.8.8.8.8.8	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Scott Cove	6.7.0.7.6.7.8.8.8.8.8.8.8.8.8.8	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Embley	0.1.0.7.6.8.7.7.8.7.8.7.6.9.8.8	0/0	0/0	0/0	0/0	1/1	3/5	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Carriden	4.4.4.1.1.5.1.1.1.3.6.7.6.6.6.8	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Gilford	6.5.6.5.7.7.1.0.2.4.6.6.8.2.2.2	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Maple	5.4.5.0.3.4.3.0.3.3.3.8.8.8.8.8.8	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Simoom	5.5.6.0.0.5.3.2.3.3.4.5.5.3.3.3	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Minihump	4.4.3.3.2.4.4.4.6.5.4.3.4.4.4.4	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Billy Proctor	0.0.1.1.1.0.3.1.4.3.2.2.3.2.2.3	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Mt Worthington	0.0.1.0.1.0.3.1.3.3.2.2.2.2.2.2	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Connector	0.0.0.0.2.0.4.3.4.5.3.4.4.4.3.3	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Loose	3.4.1.0.2.2.4.3.4.5.3.4.4.3.2.3	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
John Lewis	1.4.1.0.2.2.4.3.3.5.3.4.4.2.2.3	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Chris Bennett	3.4.3.3.2.2.4.3.4.5.3.4.4.2.3.2	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Sir Edmund	4.4.3.0.0.3.1.2.0.2.3.2.5.0.0.0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	-	-	-