

2025 ANNUAL MANAGEMENT PLAN

TUTKA BAY LAGOON HATCHERY

Cook Inlet Aquaculture Association

This Annual Management Plan (AMP) is prepared to fulfill the requirements of 5 AAC 40.840. This plan is prepared to guide hatchery operations in accordance with the hatchery permit. The plan must be developed with consideration of the hatchery's production cycle and must organize and guide the hatchery's operations regarding production goals, broodstock management, and harvest management of hatchery-produced salmon. The production cycle begins with adult returns that lead to egg takes and ends with fish releases. Action may be taken outside of the management plan if allowed under the hatchery permit or modified by emergency order. Inseason assessments and project alterations by Cook Inlet Aquaculture Association (CIAA) or Alaska Department of Fish and Game (ADF&G or department) may result in changes to this AMP in order to reach or maintain program objectives. CIAA will notify the ADF&G private nonprofit (PNP) hatchery program coordinator in a timely manner of any departure from the AMP. The ADF&G PNP coordinator will advise as to whether an amendment, exception report, or other action is warranted. No variation or deviation will be implemented until an AMP amendment has been approved or waived by both the department and CIAA. This policy applies to all hatchery operations covered under the AMP.

1.0 Executive Summary

1.1 New This Year (production, harvest management, culture techniques, etc.)

1.1.1 Facility Changes

There are no changes to the facility planned for 2025.

1.1.2 Production Changes

No major production changes anticipated in 2025.

1.1.3 Fish Culture Changes

No major changes anticipated in 2025.

1.1.4 Projected Return and Cost-recovery changes

No major changes anticipated in 2025.

1.2 Permit Alteration Requests (PARs) submitted and Fish Transport Permits (FTP) or amendments needed this year

No PARs submitted and no new FTPs or amendments are needed this year.

1.3 Expected Returns

At a 2.07% fry-to-adult survival rate (based on average of all odd-year survival to this facility), CIAA is expecting approximately 885,900 adult pink salmon to return to Tutka Bay Lagoon Hatchery (TBLH) based on a release of 42.9 million brood year (BY) 2023 fry in 2024. An estimated 82,500 fish will be required to meet the number of broodstock necessary to meet the egg-take goal and 6,500–17,000 for escapement. The remaining fish will be available for common property and cost recovery harvests. Any remaining fish will be harvested by the common property or cost recovery harvesters or removed by the hatchery operator.

1.4 Production Summary

Species	Brood year	Release location	Release date	Target release	Life stage
Pink	2024	Tutka Bay Lagoon	May-25	486,000	Fry

1.5 Egg take

Species	Donor stock	Permitted level	Egg-take goal	Release site	Release goal
Pink	Tutka Bay Lagoon	125,000,000	50,000,000	Tutka Bay Lagoon	40,000,000

1.6 Permitted Capacity

TBLH operates under PNP Hatchery Permit #32 issued in 1994 and has a permitted capacity of 125,000,000 pink salmon green eggs and 660,000 sockeye salmon green eggs. FTPs under which CIAA operates TBLH programs can be found in section 7.4.

2.0 Paint River Stocking Program

2.1 Purpose and History

The Paint River system, which enters Akjemguiga Cove in Kamishak Bay over a forty-foot waterfall at tidewater, has never had a self-sustaining run of salmon, but has long been recognized by both ADF&G and CIAA as having significant salmon production potential. A fish ladder was completed in 1991. The next phase of this project is to develop salmon runs to Paint River.

In spring 2011, the fish ladder was opened to allow migration of adult salmon to the system and natural colonization of the watershed. The first anadromous fish (coho salmon) were documented in the system in 2014. In 2015, chum salmon were also documented in and above the ladder.

No stocking or egg-take programs planned for 2024. The fish ladder will be open from early June through September to allow natural colonization of this extensive watershed. A video camera will be installed to document fish passage through the fish ladder.

3.0 Tutka Pink Salmon

3.1 Purpose and History

The purpose of the project is enhancement of the pink salmon return to Tutka Bay Lagoon for the common property fishery and cost-recovery harvest.

ADF&G initiated this project in 1975; CIAA assumed operation of the project in 1991. In 2004, CIAA suspended the Tutka Bay Lagoon pink salmon project and year-round operations at TBLH. In 2009, after reviewing options for improving hatchery operations, CIAA elected to resume pink salmon production at the facility. In 2011, natural returns to Tutka Creek were sufficient to allow the use of adult fish for broodstock and hatchery operations resumed.

3.2 Operational Plan

2.2.1 Egg-take Goal/Brood Sources

Primarily hatchery-produced pink salmon returning to Tutka Bay Lagoon Hatchery will be used as the brood source. Sufficient adult pink salmon returns are expected in 2025 to meet the 2025 egg-take goal of 50 million green eggs. Approximately 82,500 fish (41,250 females and 41,250 males) will be needed to meet this target. Brood stock will be collected from Tutka Creek when ripe, or by seine boat in the lagoon and placed into net pens until ripe. A weir will be constructed in Tutka Creek to restrict access above the pump house to those fish required for escapement (6,500–17,000). A minimum of 89,000 fish are needed to meet escapement and broodstock goals.

3.2.2 Egg Take; Transport of Eggs

Egg collection typically occurs between August 15th and September 15th. Carcasses, both male and female, will be sold to a local processor when possible or disposed of in the Alaska Department of Environmental Conservation (ADEC) approved Carcass Disposal Zone from permit AKG130002 and documented on the CIAA carcass disposal log. Eggs collected in Tutka Creek will be fertilized and immediately loaded into NOPAD incubators. Gametes collected in the lagoon will remain in separate iced coolers and transferred to TBLH via boat for fertilization and loading into NOPAD incubators. All eggs will be fertilized at a 1:1 female to male ratio.

3.2.3 Incubation Plans

Once eggs have reached the eyed stage, they will be shocked, picked, and inventoried before being placed back into the incubators for otolith marking and will remain there until emergence.

3.2.4 Rearing and Release Plans

All pink salmon fry will non-volitionally migrate from the incubators to net pens located in Tutka Bay Lagoon for short-term rearing before release. Loading will be such that the final density at release will be up to 8 kg/m³. The table below describes the anticipated release from eggs collected in 2024.

Brood year	Life stage	Release location	Target release	Mark type	Percent marked	Hatch code
2024	Fry	Tutka Bay Lagoon	486,000	Otolith	100%	1,2n,4H

3.3 Donor Stock Management

3.3.1 Management Strategies

Cost recovery and common property harvest efforts will be managed to allow sufficient escapement into Tutka Creek for both broodstock harvest as well as natural escapement.

During broodstock collection for sockeye salmon, as described in the *Trail Lakes Hatchery 2025 Annual Management Plan* (see Lower Cook Inlet Sockeye Salmon (English Bay Lakes stock)), pink salmon will inadvertently be caught. To avoid capturing these pink salmon multiple times during broodstock collection for sockeye salmon, CIAA will place any captured adult pink salmon into net pens. Once in the net pens, the fish will be sorted by sex and enumerated. These fish may be used for broodstock purposes or sold for cost recovery.

Broodstock will be collected directly from the creek below the weir or via seine and placed in net pens. Egg take will occur at the creek or on the net pens. CIAA will work with department staff to spread broodstock selection throughout the run based on historic run timing.

Any mortality problems associated with collection and holding of adults, and/or transportation of gametes will be immediately reported to the ADF&G Homer office.

3.3.2 Escapement Requirements

A weir will be established on Tutka Creek in early to mid-July just below the pump house. CIAA will work with department staff to manage freshwater spawning escapement in a manner that mimics historic run timing and distribution (both above and below the weir), while targeting a final stream-wide escapement by mid-August within the SEG range of 6,500–17,000 fish.

4.0 Project Evaluation

- Paint River video weir footage will be reviewed at the end of the season and a report completed.
- Fish tickets submitted to ADF&G as well as counts during egg take and escapement will be used to enumerate returns to Tutka Bay Lagoon Hatchery.
- All fish will be otolith marked.
- CIAA may collect otoliths from adult pink salmon used as broodstock.
- CIAA will assist ADF&G in the analysis of adult pink salmon otoliths collected from Kachemak Bay area fisheries.

5.0 Harvest Management

5.1 Cost-recovery Plan

Cost recovery for sockeye salmon will be done under the Trail Lakes Hatchery (TLH) program and is detailed in the *Trail Lakes Hatchery 2024 Annual Management Plan*.

CIAA funds the cost of operating TLH, TBLH, PGH, Eklutna Salmon Hatchery (ESH) and associated field projects by licensing for harvest a portion of the fish returning to the hatcheries' release sites. CIAA will begin cost recovery in Resurrection Bay/Bear Lake followed by Leisure/Hazel Lake sockeye, Kirschner Lake sockeye, and Tutka Bay Lagoon sockeye and pink salmon until the cost recovery goal is met. The table below describes anticipated return, broodstock need, cost recovery harvest, and common property harvest.

Species	Terminal Area	Total return	Broodstock/ escapement	Cost recovery harvest	Cost recovery percent of total return	Common property harvest
Sockeye	Resurrection Bay	83,630	12,200	64,200	77%	7,230
	Tutka Bay	88,200	5,270	74,600	85%	8,330
	China Poot/Hazel Lk	25,400	0	22,800	90%	2,600
	Kirschner Lk	27,700	0	24,900	90%	2,800
Pink	Tutka Bay	883,800	89,000	715,300	81%	79,500

The Division of Commercial Fisheries Area Management Biologist (AMB), in consultation with the hatchery operator, will employ management strategies within waters of the Tutka Bay SHA, as well as other hatchery subdistricts listed in 5 AAC 21.372 *Tutka Bay Lagoon Salmon Hatchery Management Plan* that ensure achievement of broodstock and cost recovery goals for CIAA, as well as to allow for an orderly common property fishery opportunity to harvest fish surplus to hatchery needs. Some reduction in the common property fishery opportunity in hatchery subdistricts may be necessary to ensure broodstock and cost recovery objectives are met in a timely and orderly fashion. In addition to weekly updates providing current levels of CIAA brood and cost recovery harvests to the Homer ADF&G office, CIAA will submit written hatchery subdistrict management recommendations to the AMB with clear justifications as to how the recommendations support achieving cost recovery and/or broodstock collection goals. Recommendations will be submitted in the form of a brief email and will include, but not be limited to, current cost recovery and brood harvest data, SHA estimates of fish in the water, as well as actual and anticipated run entry, and actual and anticipated cost recovery and brood harvest progress. SHA estimates may also include the number of fish within Tutka Lagoon outside of holding pens as well as in the creek.

5.2 Special Harvest Areas

5.2.1 Tutka Bay Special Harvest Area

5.2.1.1 Area Definition

The Tutka Bay SHA is defined in 5 AAC 21.372 *Tutka Bay Lagoon Salmon Hatchery Management Plan* as the marine waters of Tutka Bay Subdistrict in the Southern District southeast and shoreward of a line from 59° 30.23' N. lat., 151° 28.23' W. long. to 59° 28.63' N. lat., 151° 30.37' W. long., including Tutka Bay Lagoon (Figure 1).

5.2.1.2 Fishery Management

The common property fishery will be managed to achieve the established pink salmon sustainable escapement goal (SEG) for Tutka Creek. In addition, an appropriate number of pink salmon will be allowed to escape the common property fishery to meet broodstock and cost recovery needs. Pink salmon returning to Tutka Bay Lagoon are expected to be intermingled with English Bay Lakes sockeye salmon stock that will be harvested for cost recovery and/or broodstock. To avoid capturing the pink salmon multiple times during collection efforts for sockeye salmon, CIAA will place captured pink salmon in net pens. Once the sockeye salmon broodstock capture is complete, the pink salmon being held in net pens will be released or sold for cost recovery. These numbers will be reported to ADF&G Homer office via fish tickets if sold for cost recovery.

CIAA's first priority is to ensure sufficient escapement to Tutka Creek followed by meeting the broodstock goal. If CIAA's cost recovery goal has been met at other SHAs, the fish that are surplus to escapement and broodstock requirements will be harvested in the common property fishery. Any unharvested fish at the end of the season will be harvested and sold by CIAA as part of clean-up operations. CIAA will also sell broodstock carcasses.

Sport fisheries will be managed in accordance with regulations as provided in 5 AAC 47–5 AAC 75. Emergency orders may be issued to liberalize or restrict sport fisheries based on achievement of broodstock goals (5 AAC 21.372).

6.0 Approval

Recommendation for Approval: Tutka Bay Lagoon Hatchery Annual Management Plan, 2025:

Dean Day, Executive Director, Cook Inlet Aquaculture Association 5/12/2025

Vacant, Fish and Game Coordinator, Division of Sport Fish N/A

Glenn Hollowell, Area Management Biologist, Division of Commercial Fisheries 5/29/2025

Jason Dye, Acting Regional Supervisor, Division of Sport Fish 5/21/2025

Bert Lewis, Regional Supervisor, Division of Commercial Fisheries 5/21/2025

Ethan Ford, Regional Resource Development Biologist, Div. of Comm. Fisheries 5/21/2025

Lorna Wilson, PNP Program Assistant Coordinator, Div. of Comm. Fisheries 5/29/2025

The 2025 Tutka Bay Lagoon Hatchery Management Plan is hereby approved:

Jason Dye, Deputy Director, Division of Sport Fish 5/29/2025

Forrest Bowers, Operations Manager, Division of Commercial Fisheries 6/5/2025

7.0 Attachments

7.1 Egg Collections and Broodstock Requirements

The following assumptions are used to determine the number of broodstock needed to reach the egg collection goal.

Species	Stock	Release Location	Eggtake Goal	Fecundity	Inviability/Mortality	F:M Ratio	Females	Males	Total
Pink	Tutka	Tutka Bay Lagoon	50,000,000	1,400	16%	1:1	41,250	41,250	82,500

7.2 Adult Returns

The past five odd year survivals, 2.07%, were used to determine the anticipated return in 2025.

Species	Stock	Location	Release Amount	Estimated Survival	Return
Pink	Tutka	Tutka Bay Lagoon	42,900,000	2.07%	885,900

7.3 Production Summary

		Tutka Bay Lagoon Hatchery Pink																																								
		current year																																								
Stock & Permit No.		2024												2025												2026												2027				
		M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J			
Tutka Cr. 00A-0073(4) 11A-0060		<div><div></div></div> 831 K egg take @ Tutka Bay Lagoon												<div><div></div></div> 486 K fry release @ Tutka @ Tutka Bay Lagoon																												
														<div><div></div></div> Up to 50M egg take @Tutka Creek												<div><div></div></div> Up to 40M fry release @ Tutka Bay Lagoon																
																										<div><div></div></div> Up to 50 M egg take @ Tutka Bay Creek																

7.4 Fish Transport Permits

FTP #	Donor Stock/ Ancestral Stock	Maximum #, Life Stage	Action	Expiration Date	Transport from, to
Pink salmon					
00A-0073	Tutka Cr/ Tutka Cr	125 million green eggs	Egg take, rearing, release	12/31/2026	TBLH to Tutka Bay and Tutka Bay Lagoon
12A-0114	Tutka Bay/ Bruin Bay	4,714 adults	Transfer	6/30/2027	Bruin Bay to TBLH
Sockeye salmon					
11A-0051 ^a	English Bay Lk/ English Bay Lk	1,000,000 smolt	Transfer, rearing, release	12/31/2025	TLH to Tutka Bay
23A-0008 ^a	Tutka Bay/ English Bay Lk	1,000,000 smolt	Transfer, rearing, release	12/31/2025	TLH to Tutka Bay

^a FTP for Trail Lakes Hatchery, planning to renew, not planning to renew.

7.5 Production History

Pink Salmon							
Brood Year	Green Eggs	Fry Released	Egg to Fry Survival	Adult Return	Fry to Adult Survival	Egg to Adult Survival	Comments
1975	3,000,000	250,000	8.33%	undetermined			Net pen accident resulted in the loss of more than 2.9 million fry.
1976	10,400,000	4,229,100	40.66%	151,968	3.59%	1.46%	
1977	7,400,000	4,866,800	65.77%	368,887	7.58%	4.98%	
1978	13,033,200	9,427,586	72.34%	329,896	3.50%	2.53%	
1979	10,100,000	6,268,900	62.07%	1,016,345	16.21%	10.06%	501,956 fry stocked remotely. Makes egg-to-fry survival 80.20% - No data on adult returns.
1980	15,800,000	9,848,200	62.33%	229,374	2.33%	1.45%	
1981	19,900,000	15,258,100	76.67%	666,517	4.37%	3.35%	
1982	18,996,533	14,733,208	77.56%	285,526	1.94%	1.50%	
1983	26,775,619	19,618,325	73.27%	528,372	2.69%	1.97%	559,000 fry stocked remotely. Makes egg-to-fry survival 76.51% - No data on adult returns. 562,991 fry stocked remotely. Makes egg-to-fry survival 79.98% - No data on adult returns. 657,075 fry stocked remotely. Makes egg-to-fry survival 80.26% - No data on adult returns. 614,946 fry stocked remotely. Makes egg-to-fry survival 77.87% - No data on adult returns. 303,000 fry stocked remotely. Makes egg-to-fry survival 60.00% - No data on adult returns. 302,000 fry stocked remotely. Makes egg-to-fry survival 81.98% - No data on adult returns.
1984	29,537,000	23,537,000	79.69%	441,323	1.88%	1.49%	
1985	32,274,000	25,091,200	77.74%	108,577	0.43%	0.34%	
1986	31,492,000	23,535,000	74.73%	919,629	3.91%	2.92%	
1987	19,491,401	15,026,369	77.09%	954,047	6.35%	4.89%	Windy Bay stock
1988	46,046,220	36,300,115	78.83%	257,101	0.71%	0.56%	
1989	38,983,286	29,739,716	76.29%	326,915	1.10%	0.84%	
1990	50,000,000	29,696,174	59.39%	469,290	1.58%	0.94%	
1991	39,500,000	32,079,000	81.21%	772,886	2.41%	1.96%	Port Graham Stock
1992	60,000,000	48,700,000	81.17%	1,735,647	3.56%	2.89%	
1993	77,000,000	61,100,000	79.35%	2,610,615	4.27%	3.39%	
1994	89,200,000	63,000,000	70.63%	568,578	0.90%	0.64%	
1995	125,600,000	105,000,000	83.60%	2,770,686	2.64%	2.21%	Port Graham stock. 95% of broodstock lost before spawning.
1996	116,000,000	89,000,000	76.72%	1,470,354	1.65%	1.27%	
1997	117,400,000	90,000,000	76.66%	1,262,772	1.40%	1.08%	
1998	129,000,000	60,132,000	46.61%	1,253,303	2.08%	0.97%	
1999	114,091,000	65,120,000	57.08%	715,722	1.10%	0.63%	Large size pink (4.5 lb)
2000	122,314,000	99,336,000	81.21%	906,745	0.91%	0.74%	
2001	134,384,000	99,370,000	73.94%	860,005	0.87%	0.64%	
2002	124,848,000	67,967,000	54.44%	1,196,195	1.76%	0.96%	
2003	73,196,000	47,964,000	65.53%	1,771,685	3.69%	2.42%	Bruin Bay stock for Paint River. Video weir was not working during the return of pink salmon to the ladder.
2011	10,308,000	8,100,399	78.58%	215,840	2.66%	2.09%	
2011	4,300,000	3,146,000	73.16%	19,415	0.62%	0.45%	
2012	5,330,700	4,300,000	80.66%	56,552	1.32%	1.06%	
2012	16,439,000	14,250,000	86.68%	1,700	0.01%	0.01%	Issues with broodstock survival in the lagoon and high fungus
2013	80,000,000	51,100,000	63.88%	2,472,394	4.84%	3.09%	
2013	373,000	188,000	50.40%	0	0.00%	0.00%	
2014	13,495,000	11,249,250	83.36%	261,126	2.32%	1.93%	
2014	1,367,000	1,025,000	74.98%	na	na	na	Issues with high fall sediment loads in water supply
2015	29,126,000	11,433,500	39.26%	523,293	4.58%	1.80%	
2016	66,003,000	54,245,400	82.19%	1,364,900	2.52%	2.07%	
2017	118,095,000	50,040,000	42.37%	243,115	0.49%	0.21%	
2018	114,383,665	85,580,538	74.82%	932,868	1.09%	0.82%	
2019	39,187,425	27,684,949	70.65%	466,633	1.69%	1.19%	
2020	91,573,034	71,907,183	78.52%	98,061	0.14%	0.11%	
2021	61,987,400	55,092,122	88.88%	1,933,685	3.51%	3.12%	
2022	9,202,835	8,031,496	87.27%	12,843	0.16%	0.14%	
2023	52,572,449	42,900,016	81.60%				
2024	831,436						
Total	2,410,337,203	1,696,467,646		33,551,385			
Avg.			70.18%		2.59%	1.79%	

7.6 CIAA Enhancement Project Summary

HATCHERY	PROJECT (release site)	[BROODSTOCK]	Fry (F) and Smolt (S) Projected Releases - 2025			Project Status
			COHO	SOCKEYE	PINK	
TRAIL LAKES HATCHERY	Tutka Bay Lagoon	[English Bay]		102,300 (S)		1,274,783 in 2024
	Resurrection Bay	[Bear Lake]		508,000 (S)		1,048,366 in 2024
	Bear Creek	[Bear Lake]	6,800 (S)			19,554 in 2024
	Smolt Totals		6,800	610,300	0	2,342,703 in 2024
	Bear Lake	[Bear Lake]		440,000 (F)		984,582 in 2024
	Leisure Lake	[English Bay Lakes]		1,300,000 (F)		0 in 2024
	Hazel Lake	[English Bay Lakes]		1,390,000 (F)		0 in 2024
	Kirschner Lake	[English Bay Lakes]		430,000 (F)		0 in 2024
	Bear Lake	[Bear Lake]	80,000 (F)			238,776 in 2024
	Fry Totals		80,000	3,560,000	0	1,223,358 in 2024
HATCHERY TOTALS		86,800	4,170,300	0	3,566,061 in 2024	
HATCHERY	PROJECT (release site)	[BROODSTOCK]	Fry (F), Presmolt or Fall Fry(P) and Smolt (S) Projected Releases - 2024			Project Status
			COHO	SOCKEYE	PINK	
TUTKA BAY LAGOON HATCHERY	Tutka Bay/Lagoon	[Tutka Creek/Lagoon]			486,000 (F)	8,000,000 in 2024
HATCHERY TOTALS			0	0	486,000	8,000,000 in 2024
CIAA	CORPORATE TOTALS		86,800	4,170,300	486,000	11,566,061 in 2024

7.7 Figures

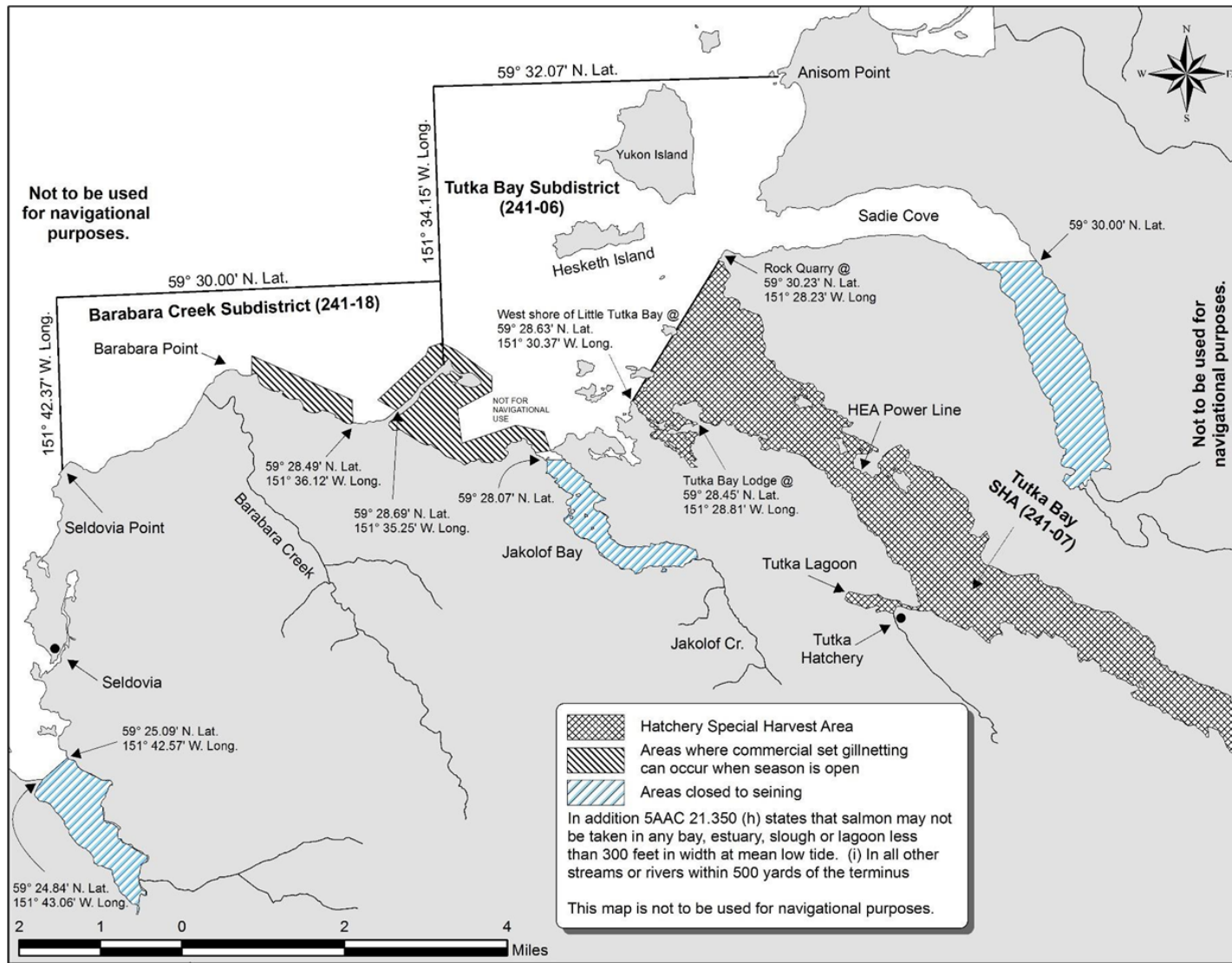


Figure 1. Tutka Bay SHA