

Regional Operational Plan No. ROP.SF.4A.2022.01

Anadromous Waters Catalog Project, 2022-2027

by

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February 2022

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



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Weights and measures (metric)		General		Mathematics, statistics	
centimeter	cm	Alaska Administrative Code	AAC	<i>all standard mathematical signs, symbols and abbreviations</i>	
deciliter	dL	all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	alternate hypothesis	H_A
gram	g			base of natural logarithm	e
hectare	ha			catch per unit effort	CPUE
kilogram	kg	all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.	coefficient of variation	CV
kilometer	km			common test statistics	(F, t, χ^2 , etc.)
liter	L	at	@	confidence interval	CI
meter	m	compass directions:		correlation coefficient (multiple)	R
milliliter	mL	east	E	correlation coefficient (simple)	r
millimeter	mm	north	N	covariance	cov
		south	S	degree (angular)	$^\circ$
Weights and measures (English)		west	W	degrees of freedom	df
cubic feet per second	ft ³ /s	copyright	©	expected value	E
foot	ft	corporate suffixes:		greater than	>
gallon	gal	Company	Co.	greater than or equal to	≥
inch	in	Corporation	Corp.	harvest per unit effort	HPUE
mile	mi	Incorporated	Inc.	less than	<
nautical mile	nmi	Limited	Ltd.	less than or equal to	≤
ounce	oz	District of Columbia	D.C.	logarithm (natural)	ln
pound	lb	et alii (and others)	et al.	logarithm (base 10)	log
quart	qt	et cetera (and so forth)	etc.	logarithm (specify base)	log ₂ , etc.
yard	yd	exempli gratia (for example)	e.g.	minute (angular)	'
		Federal Information Code	FIC	not significant	NS
Time and temperature		id est (that is)	i.e.	null hypothesis	H_0
day	d	latitude or longitude	lat or long	percent	%
degrees Celsius	°C	monetary symbols (U.S.)	\$, ¢	probability	P
degrees Fahrenheit	°F	months (tables and figures): first three letters	Jan, ..., Dec	probability of a type I error (rejection of the null hypothesis when true)	α
degrees kelvin	K	registered trademark	®	probability of a type II error (acceptance of the null hypothesis when false)	β
hour	h	trademark	™	second (angular)	"
minute	min	United States (adjective)	U.S.	standard deviation	SD
second	s	United States of America (noun)	USA	standard error	SE
		U.S.C.	United States Code	variance	
Physics and chemistry		U.S. state	use two-letter abbreviations (e.g., AK, WA)	population sample	Var var
all atomic symbols					
alternating current	AC				
ampere	A				
calorie	cal				
direct current	DC				
hertz	Hz				
horsepower	hp				
hydrogen ion activity (negative log of)	pH				
parts per million	ppm				
parts per thousand	ppt, ‰				
volts	V				
watts	W				

REGIONAL OPERATIONAL PLAN NO. ROP.SF.4A.2022.01

ANADROMOUS WATERS CATALOG PROJECT, 2022-2027

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February 2022

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This document should be cited as follows:

Giefer, J. 2022. Anadromous waters catalog project, 2022–2027. Alaska Department of Fish and Game, Division of Sport Fish, Regional Operational Plan No. ROP.SF.4A.2022.01, Anchorage.

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Signature Page

Project Title: Anadromous Waters Catalog Project

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Division, Region and Area Sport Fish, IV Anchorage

Project Nomenclature: H-09

Period Covered 2022 through 2027

Field Dates: N/A

Plan Type: Category I

Approval

Title	Name	Signature	Date
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Research Coordinator	Gillian O'Doherty		02/08/22

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ABSTRACT

The identification and protection of the state's anadromous fish-bearing rivers, stream, and lakes is an important regulatory function of the Alaska Department of Fish and Game (ADF&G). For these water bodies to be protected (AS 16.05.871), they must be formally listed in the department's *Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes* and *An Atlas to the Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes* (referred to as the AWC) which are then adopted by reference into regulation. Water bodies that are not "specified" within the AWC are not afforded that protection. The Catalog provides a listing of streams important to the spawning, rearing, or migration of anadromous fish. The Atlas displays cartographically the location of these specified water bodies and the fish species and life stages found in these water bodies. These fish species include five species of Pacific salmon, species of lamprey, smelt, whitefish, Steelhead Trout, Arctic Char, and Dolly Varden.

Keywords: Anadromous Waters Catalog, atlas, maps, anadromous fish, Chinook salmon, coho salmon, chum salmon, pink salmon, sockeye salmon, Steelhead Trout, Arctic Char, Dolly Varden, salmon, lamprey, smelt, whitefish, trout, fish distribution, spawning, rearing, migration, present, life stage, water bodies.

PURPOSE

Specify water bodies that are important for spawning, rearing, and migration of anadromous fishes by annually updating and maintaining the Anadromous Waters Catalog and Atlas (AWC) to insure the documentation of habitat for various life stages of anadromous fish species of primary importance to sport fishing, commercial, and subsistence fisheries.

OBJECTIVES

The annual objectives of this project during 2022-2027 follow:

- (1) Continue annual revision and production of Anadromous Waters Catalogs and Atlas maps through update of AWC databases to ensure the documentation of spawning, rearing, and migration habitat of anadromous fish species;
- (2) Identify AWC water bodies that are not substantiated with AWC nomination form or other data and seek documentation to substantiate AWC listing;
- (3) Pursue cooperative programs and maintain partnerships that could assist department in identifying undocumented anadromous fish bearing water bodies and adding them to the AWC.

METHODS

AWC PRODUCTION

Revisions in the form of additions, deletions, or changes to the AWC are made through a nomination process (Figure 1). While the department accepts nomination forms throughout the year, the formal call for nomination submission typically begins the first week in June and runs through the last week in September. Once received, each nomination form is date stamped and assigned a unique nomination number. After assignment of a nomination number each nomination form and supporting data are reviewed by the AWC Project Biologist for completeness and accuracy. Incomplete nominations should either be returned to the observer for completion, or the observer or area biologist should be contacted for additional information. Information included on the AWC nomination form and supporting data are used to assign new AWC water body numbers, if required, establish what revisions to the AWC geodatabases are needed such as changes or extensions of stream hydrography and new or updates to fish species and life stage annotation.

Once review by AWC Project Biologist is complete, all nomination forms and supporting information are submitted to Division of Sport Fish Fishery Scientist and the Habitat Section Fish & Game Coordinator or designate for review and approval. Once their review is completed, nomination forms are then submitted to the GIS Analyst staff which incorporate revisions into regional geodatabases used to generate revised Atlas maps. Once revisions to regional geodatabases are complete, maps are printed by GIS staff and then reviewed by AWC Project Biologist to ensure updated annotation reflect the latest nomination information. Nominations returned to their originators for additional information are included in this process as the completed nominations are returned to the ADF&G.

Prior to the commencement of the public review period, the AWC Biologist distributes revised Atlas maps to department area and field offices that maintain hard copy regional Atlas map sets. The draft maps are to be made available to staff and the public for their review during the 30-day public review period. Habitat Section staff are responsible for coordinating the public review process as described in Alaska Statute 44.62.190, Administrative Procedures Act. A summary of proposed changes to the Atlas and Catalog is distributed to the department offices. The summary includes draft text of revised regulation 5 AAC 95.011, title pages and introduction to the Atlas and Catalog as revised for the current update year, revisions have been made to the title and publication information and the area office contact information, and a list of the individual changes made to each Atlas map by region. Revisions include additions, deletions, extensions, and other changes to the AWC water bodies.

The public may review and comment on the revised Atlas maps and Catalog entries at most area offices during this period. Area biologists also review the maps at this time to ensure accuracy with their original submissions. Needed corrections are forwarded in writing to the Anadromous Waters Catalog Project Biologist in Anchorage. The public review and comment period lasts at least 30 days and normally takes place beginning in February through March. Comments received from the public during this period are provided to regional biologists with specific expertise in the pertinent area and, if confirmed, are incorporated into the AWC. Comments on the proposed regulation changes should be forwarded in writing to Habitat Section staff or AWC Project Biologist for consideration and comment. After the public comment period has ended, the department will either adopt these or other provisions dealing with the same subject without further notice or take no action. Once the public review period has ended, Atlas maps and regional geodatabases are revised as needed. Copies of the revised maps, regional Atlas cover sheets comprised of the title page, catalog text, map index, lists of all maps by region, a list of revised maps, and updated regional AWC catalogs are printed by a vendor and distributed to department area and field offices by the AWC Project Biologist. The Habitat Section submits regulation adoption orders to the Attorney General's office and the Lieutenant Governor for review and adoption into regulation. Thirty days after being signed and filed by the Lieutenant Governor the revised regulation becomes effective. Finally, the newly revised catalogs are created, published, and distributed. Any Atlas maps, which were revised as a result of the public review, are added to area and field office Atlases at this time. Regulatory adoption of updated AWC maps and catalogs is typically scheduled for June 1 occurring thirty days after being signed by the Lieutenant Governor.

AWC WATER BODY SUBSTANTIATION

Given the large number of water bodies listed in the AWC, an effort was initiated to confirm that each AWC listed water body is still important for the spawning, rearing, or migration of anadromous fish. An AWC water body was determined to be “unsubstantiated” if there is no nomination form which documents the original addition of the water body to the AWC. AWC water bodies are also considered unsubstantiated if existing nomination data does not relate to fish species or life stage information such as adding a name or correctly hydrography. For some areas, such as Southeast Alaska a number of unsubstantiated water bodies were documented by a review of historic aerial and foot survey data from the area. For other areas, such as the Kenai Peninsula, local department staff was funded by the AWC program to research existing files for information on unsubstantiated water bodies or for Anchorage area water bodies, local staff provided documentation for local unsubstantiated water bodies.

Efforts to identify potential sources of nomination data will continue. Now that data from the local area office research of unsubstantiated water bodies has been incorporated into the AWC databases, the focus will shift to identifying and sampling those unsubstantiated AWC water bodies for which no documentation could be located.

COOPERATIVE PROGRAMS

Staff with the ADF&G Alaska Freshwater Fish Inventory program works closely with AWC and Habitat Section staff to actively identify gaps in AWC information and then seek grants to fund annual fish assemblage surveys throughout Alaska to fill these data gaps and submit nominations to the AWC.

Another source of potential revisions to the AWC is Fish Resource Permit (FRP) information. The Alaska Department of Fish and Game requires that all individuals, whether state, federal or private, apply for and are awarded a Fish Resource Permit prior to engaging in any fish collection activities within the state. Successful applicants are required to record and submit an itemized listing of all fish collected during their project along with information specific to the location of their capture as well pertinent biological information for each specimen or groups of specimens.

As a stipulation of these FRP’s, project leaders are required to “work closely” with the department to ensure that all appropriate fish observations are nominated for inclusion in the Anadromous Waters Catalog (AWC). Past efforts proved quite successful generating nomination forms to the AWC. The department should continue to review FRP data to ensure opportunities to add to the AWC are not missed.

SCHEDULE AND DELIVERABLES

The annual schedule of activities for the 2022-2027 AWC update is as follows:

Dates	Activity
June – September 30	Formal Call for AWC nomination forms
15-Nov	Complete initial review and generate list of proposed AWC revisions
1-Jan	Printing of draft AWC maps by third-party vendor commences
February 15 – March 16	AWC Public Review period
30-Mar	Revised AWC regional catalogs and maps to ADOL for review
10-Apr	AWC Regulatory adoption documents to ADF&G
15-Apr	AWC Regulatory adoption documents to DOL
30-Apr	AWC Regulatory adoption documents signed by Lt. Governor
1-Jun	Latest update to AWC Atlas maps and regional catalogs effective

RESPONSIBILITIES

Habitat Biologist III	Supervise Project, responsible for nomination review and AWC Atlas map and regional catalog production and oversight, respond to data request.
GIS Analyst II	Update and maintain AWC regional geodatabases and produce maps.
GIS Analyst II	Update and maintain AWC regional geodatabases and produce maps.
GIS Analyst III	Automate GIS and quality assurance process to increase AWC production efficiency. Maintain and update map services for web-based Fish Resource Monitor which provides online access to AWC data.
Analyst Programmer IV	Provide programming and database support for public and internal web sites, including application development and file management and processing.
Analyst Programmer IV	Provide programming and maintenance support for AWC databases, data entry applications, and both internal and external web sites. Provide technical support for data requests, data entry, and GIS systems for the AWC and related databases.

Figure 1.–AWC nomination process.

