7

Sockeye Salmon in Bristol Bay

Module Composition

Home | Presentations | Readings | Video Resources | Questions

Fisheries Technology

This module will cover three main areas:

1. Biology
2. Management
3. Fisheries

When viewing recorded lectures, the slides will automatically advance. The Prev and Next buttons are available but it is recommended you listen and view the recorded lectures in auto mode. You can return to the main menu of the recorded lectures by tapping the recorded lecture icon (speaker).

At the end of each of the areas there are self-check quizzes to make sure that you understand the basic student learning outcomes for each area.

By the end of this course you should be able to:

1. Describe the location and environment associated with Bristol Bay
2. Diagram the lifecycle of a Sockeye Salmon
3. Describe the “smoltification” process
4. Describe why Bristol Bay is important to Alaskan fisheries
5. Describe the Bristol Bay salmon fishery, vessel types, and seasons
6. Describe how catch limits are set and how information is disseminated to fishermen
7. Describe the permitting process and who can fish where in Bristol Bay
8. Differentiate between driftnet fisheries and setnet fisheries

Fisheries Technology

Read pp. 2-16 in

BB salmon.pdf in iBooks

Fisheries Technology

About the Presenter	Joel Markis, Asst. Professor of Fisheries Technology, UAS Indy Walton, Commercial Fisherman, Bristol Bay
Biology	Sockeye salmon life-history, birth to adult, range, growth and aging, and movement (17 minutes)
Management	Permitting, management structure, districts, Emergency Orders, stock forecasting (20 minutes)
Fisheries	Set-net vs. Drift net fisheries, “Battle Fishing”, running tides, family businesses, economics of fishing (25 minutes)

Indy Walton

Indy is a longtime commercial fishermen that began fishing in Bristol Bay in

Bristol Bay

N


Sockeye Salmon

Bears

Sockeye Salmon (*Oncorhynchus nerka*)

Also called Red salmon or Reds due to color

‘Blueback’ due to pelagic coloration

Anadromous *spp.* native to the North Pacific

Smaller relative to other salmon *spp.*

18 – 31 inches 4 – 15 lbs

Sockeye Life Cycle

Sockeye spend 1-4 in fresh and 1-3 in salt

Spawning occurs June – July in freshwater

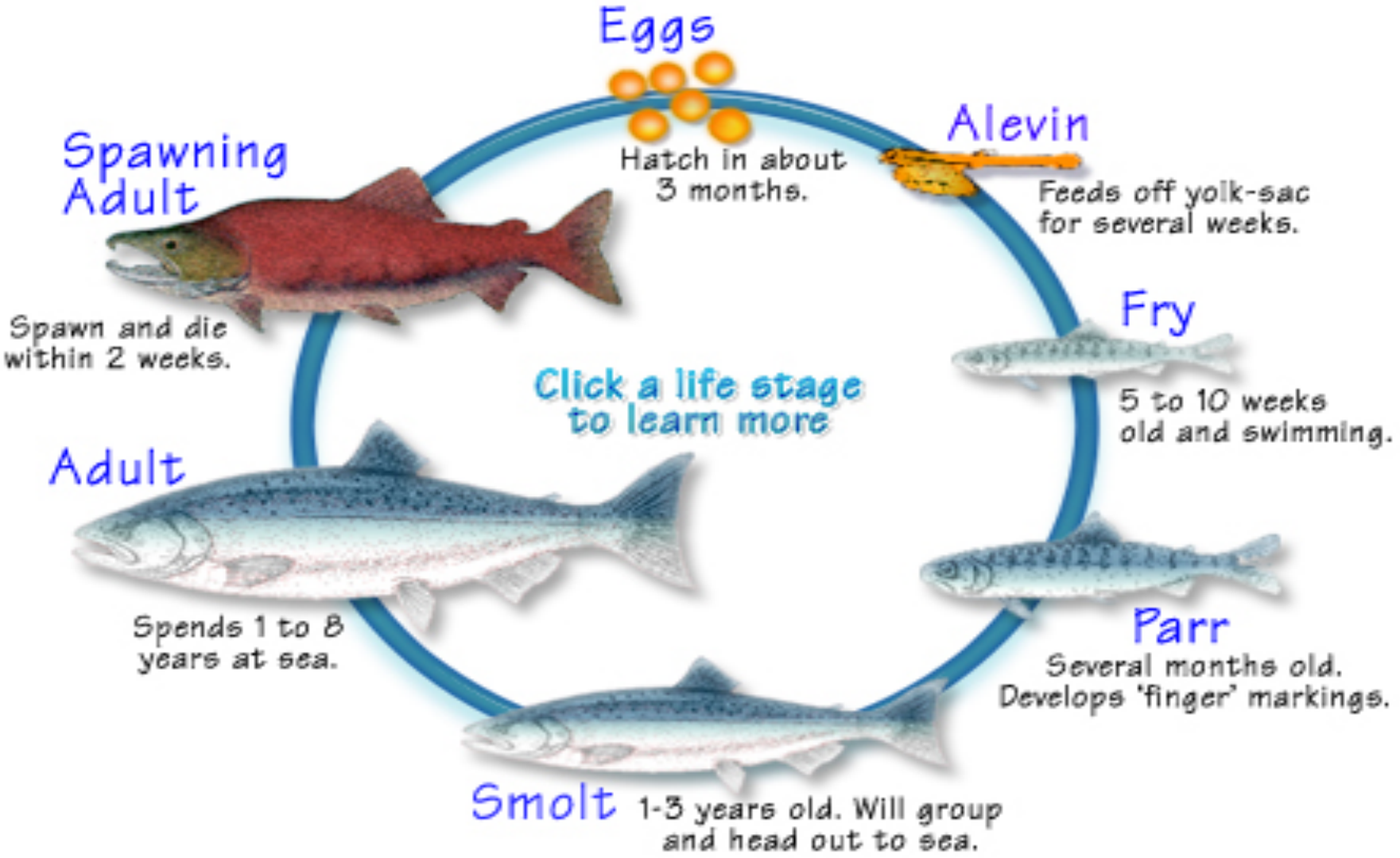
Mostly streams and rivers but some lakes

2 – 5,000 eggs are deposited in ‘redds’

Female digs redds with tail over a few days

Both males and females die 1-3 weeks after

Salmon Life Cycle



Birth to Adult

Eggs hatch during winter and ALEVIN stay in gravel surviving on Yolk sac

Emerge from gravel as FRY in spring

Spend 1 – 3 yrs in freshwater feeding on zoo & crustaceans (lots of time in lakes)

Outmigrate as SMOLTS to the ocean

Smoltification process

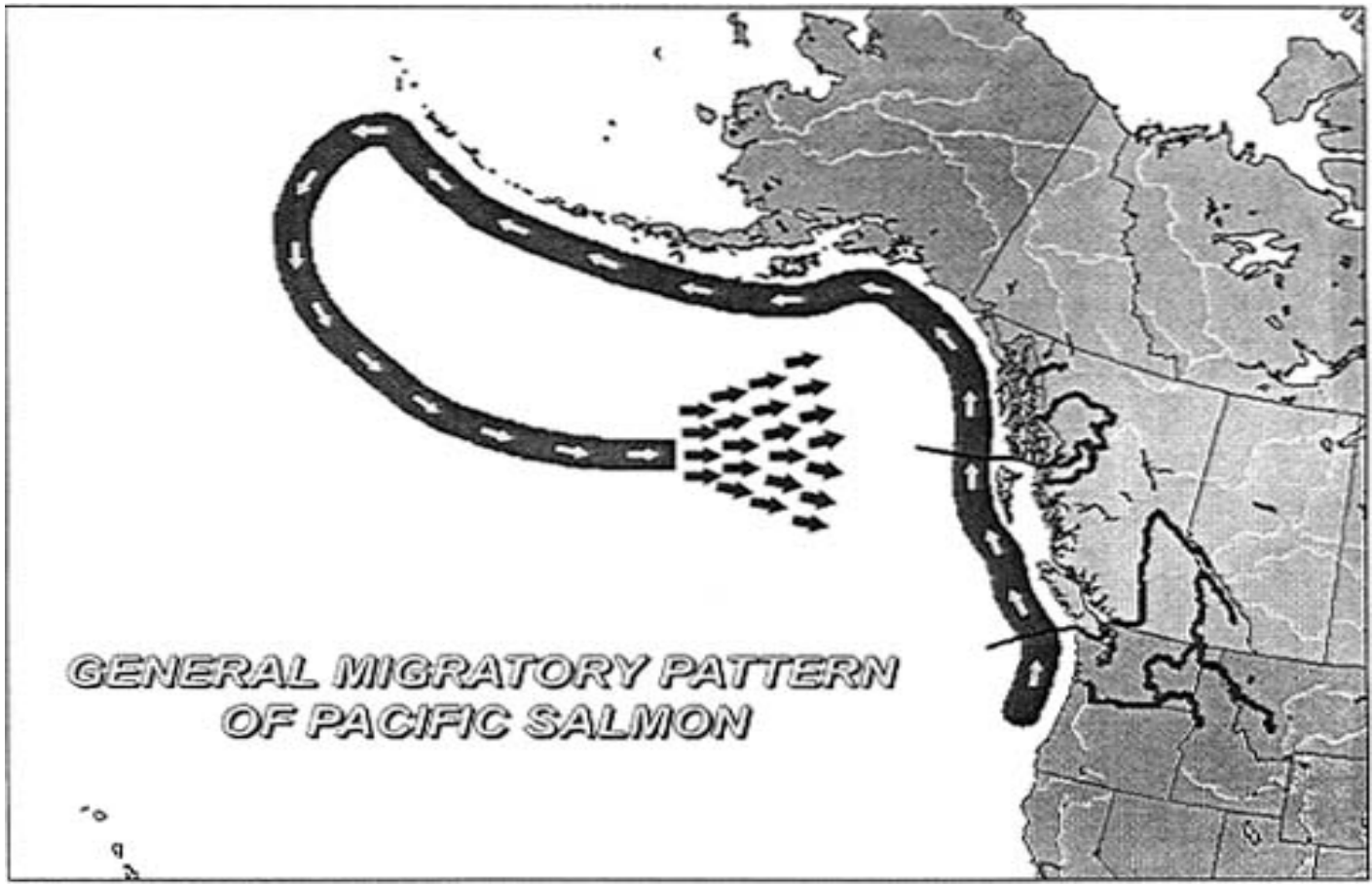
Adult life

Grow quickly in Saltwater (1 – 3 yrs)

Feed on:

- Plankton
- Insects
- Squid
- Small fish

Return Home



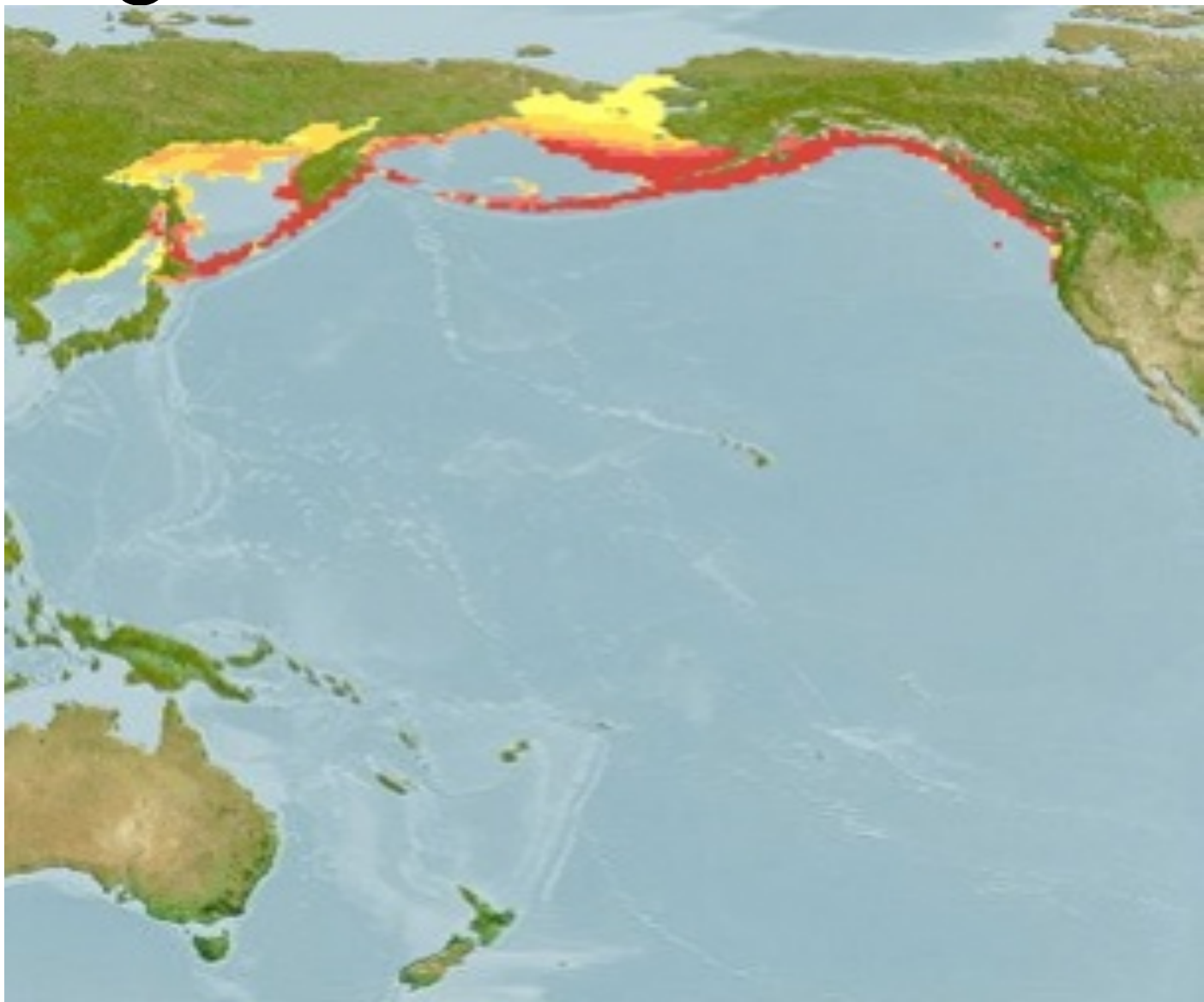
Range

Klamath OR

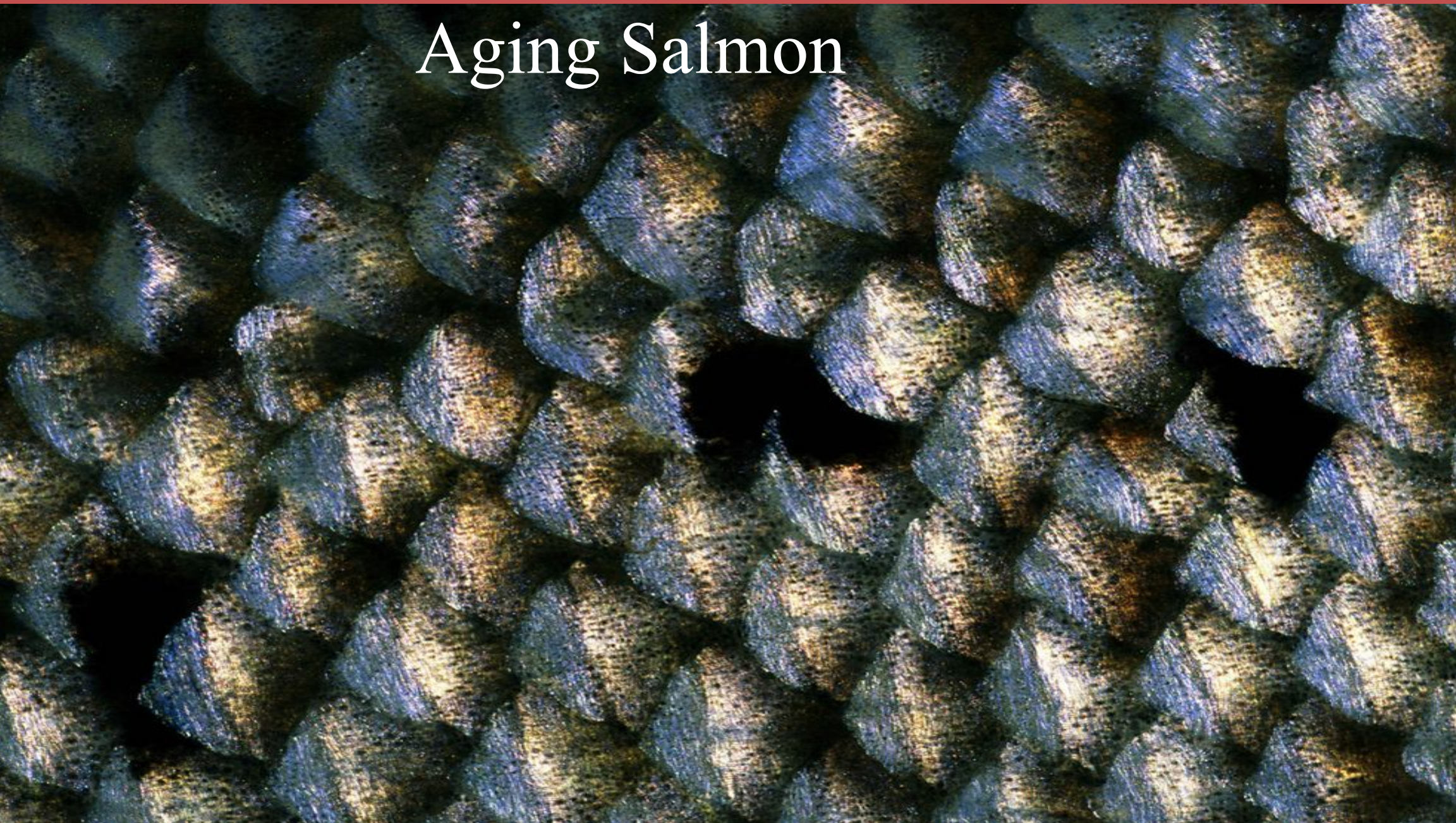
Point Hope AK

Anadyr Siberia

Hokkaido Japan



Aging Salmon



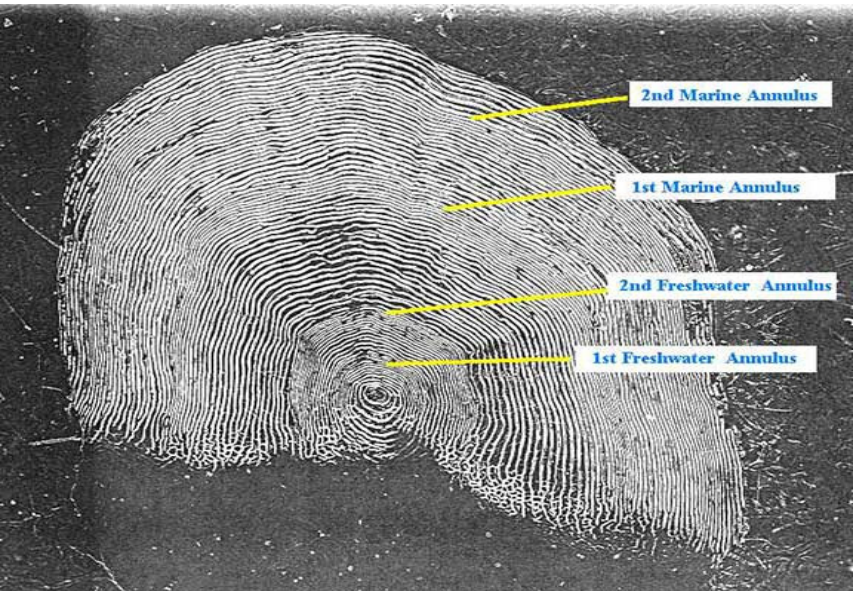
Scales are like rings on a tree

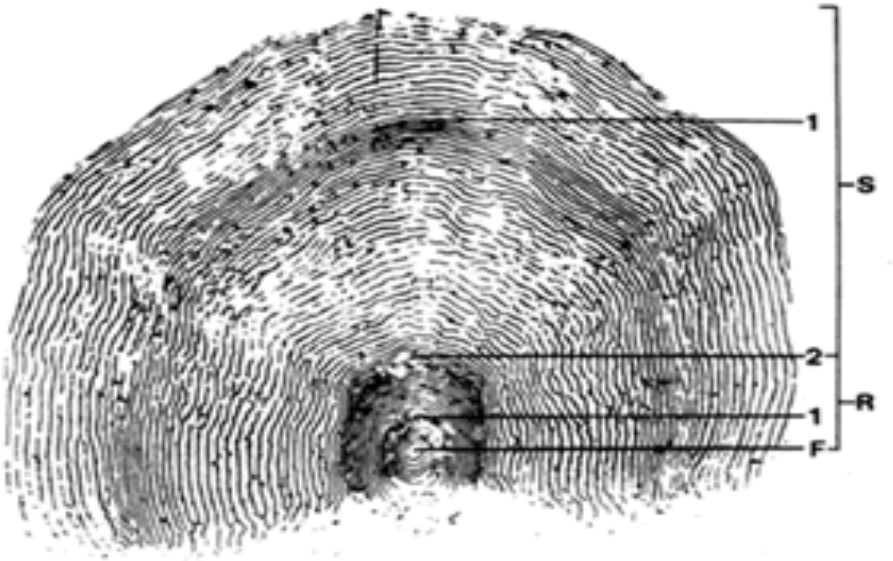
Fish grow faster in summer than winter

Faster in Salt also

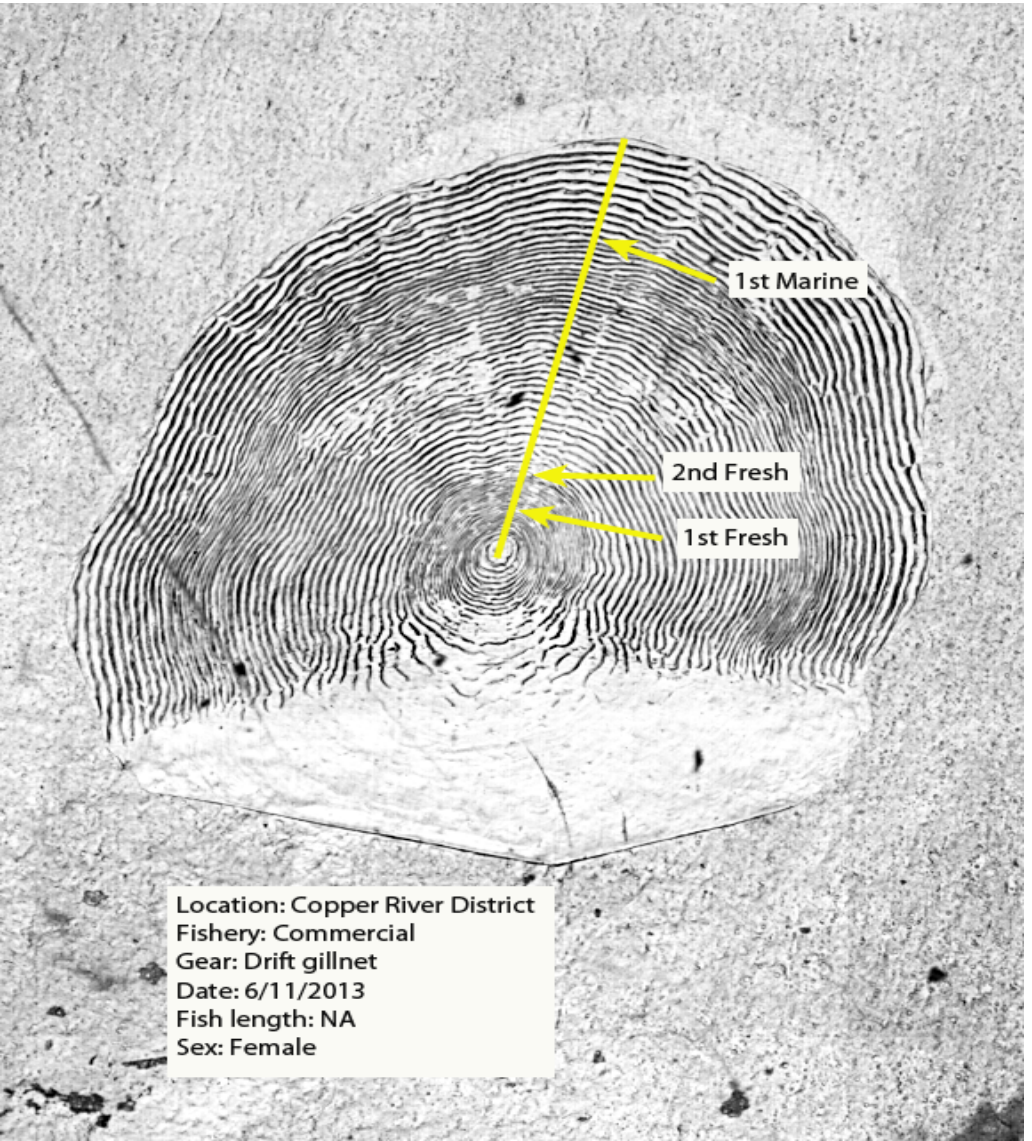
Scales go on scale cards

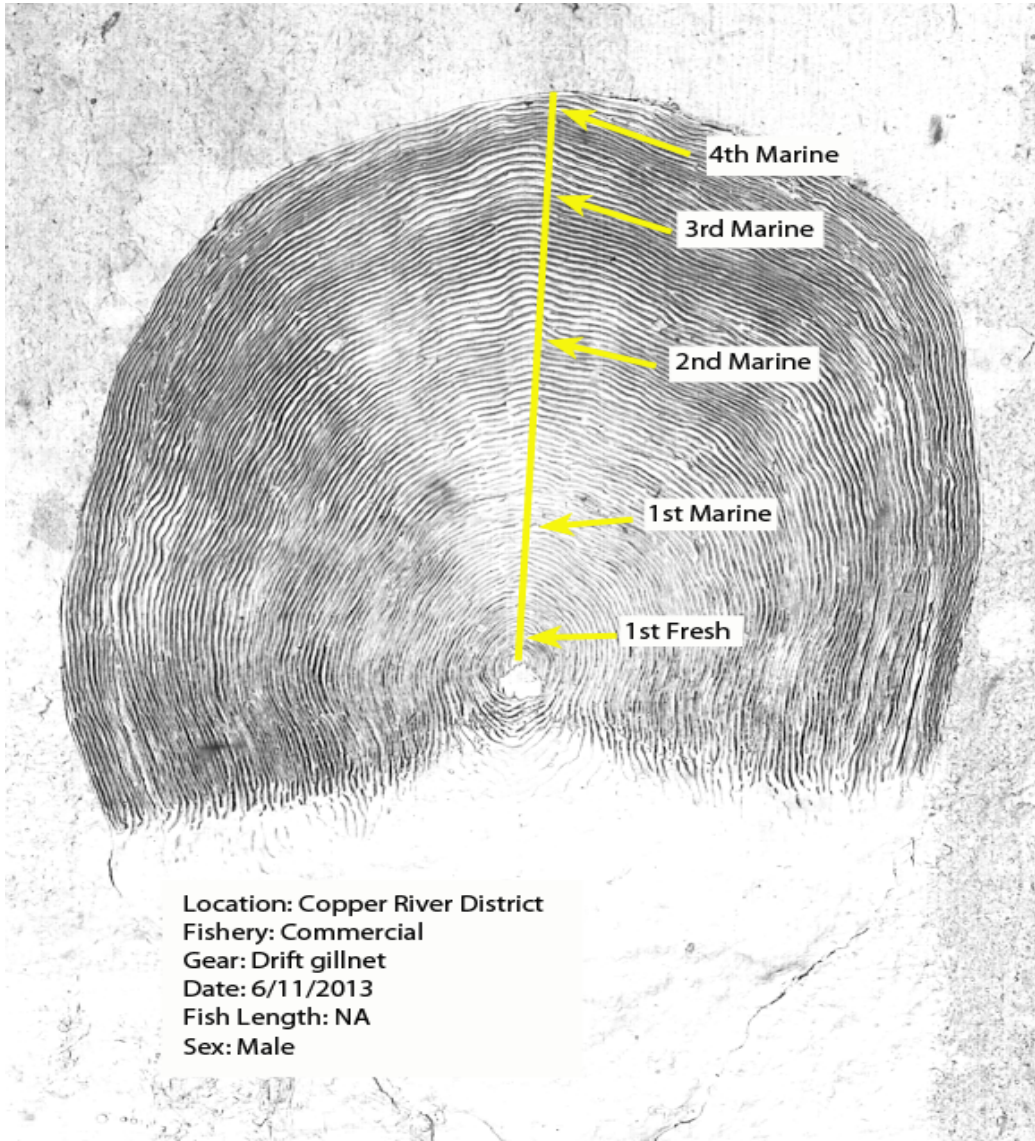
Use microfiche machine to read





Scale Jail


1st Marine
2nd Fresh
1st Fresh
Location: Copper River District
Fishery: Commercial
Gear: Drift gillnet
Date: 6/11/2013
Fish length: NA
Sex: Female


4th Marine
3rd Marine
2nd Marine
1st Marine
1st Fresh
Location: Copper River District
Fishery: Commercial
Gear: Drift gillnet
Date: 6/11/2013
Fish Length: NA
Sex: Male

Biology

Quiz - 4 questions

Last Modified: Jul 14, 2015 at 12:00 PM

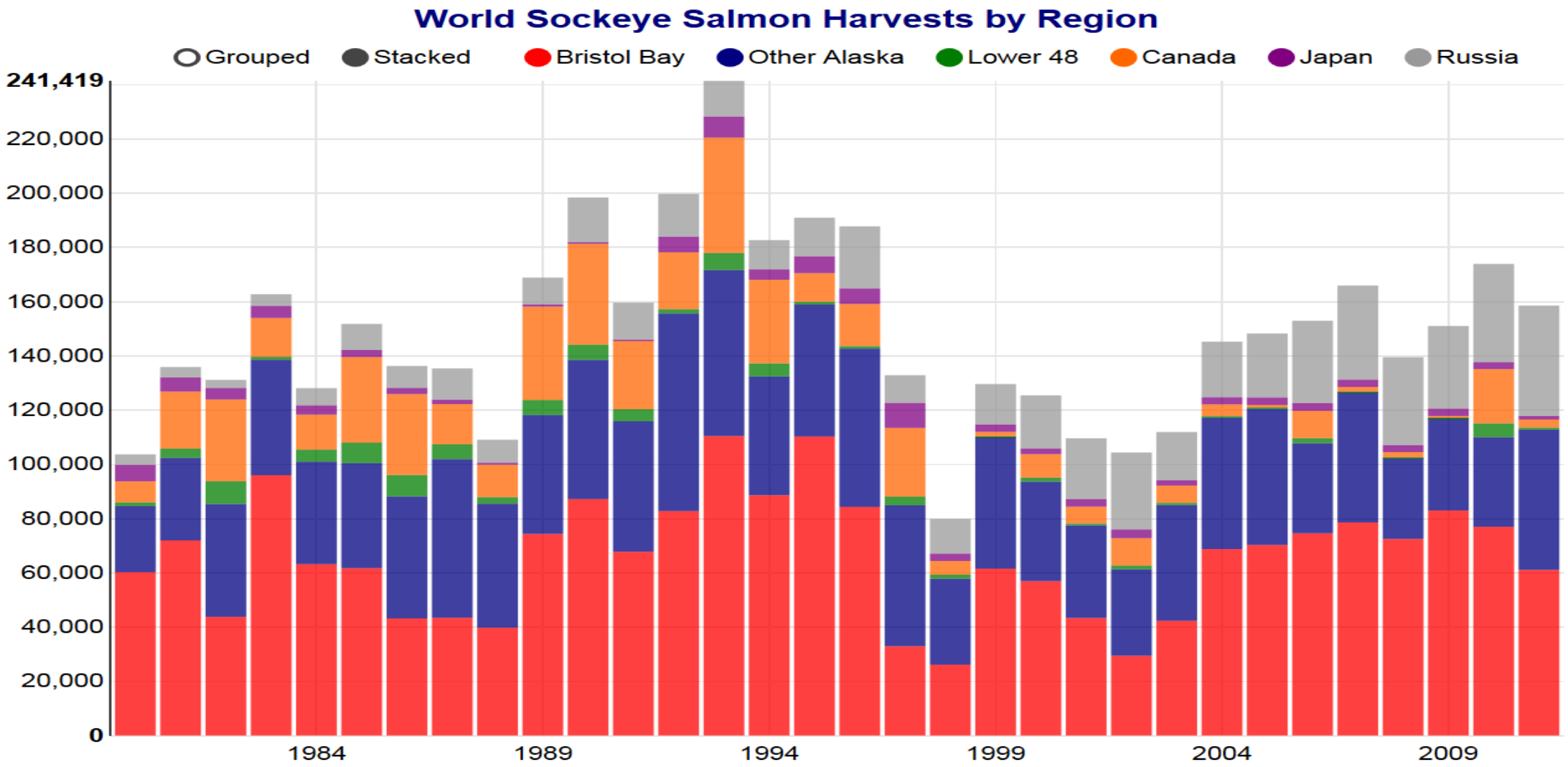
PROPERTIES

On passing, 'Finish' button:	Goes to Slide
On failing, 'Finish' button:	Goes to Slide
Allow user to leave quiz:	After user has completed quiz
User may view slides after quiz:	At any time
Show in menu as:	Single item

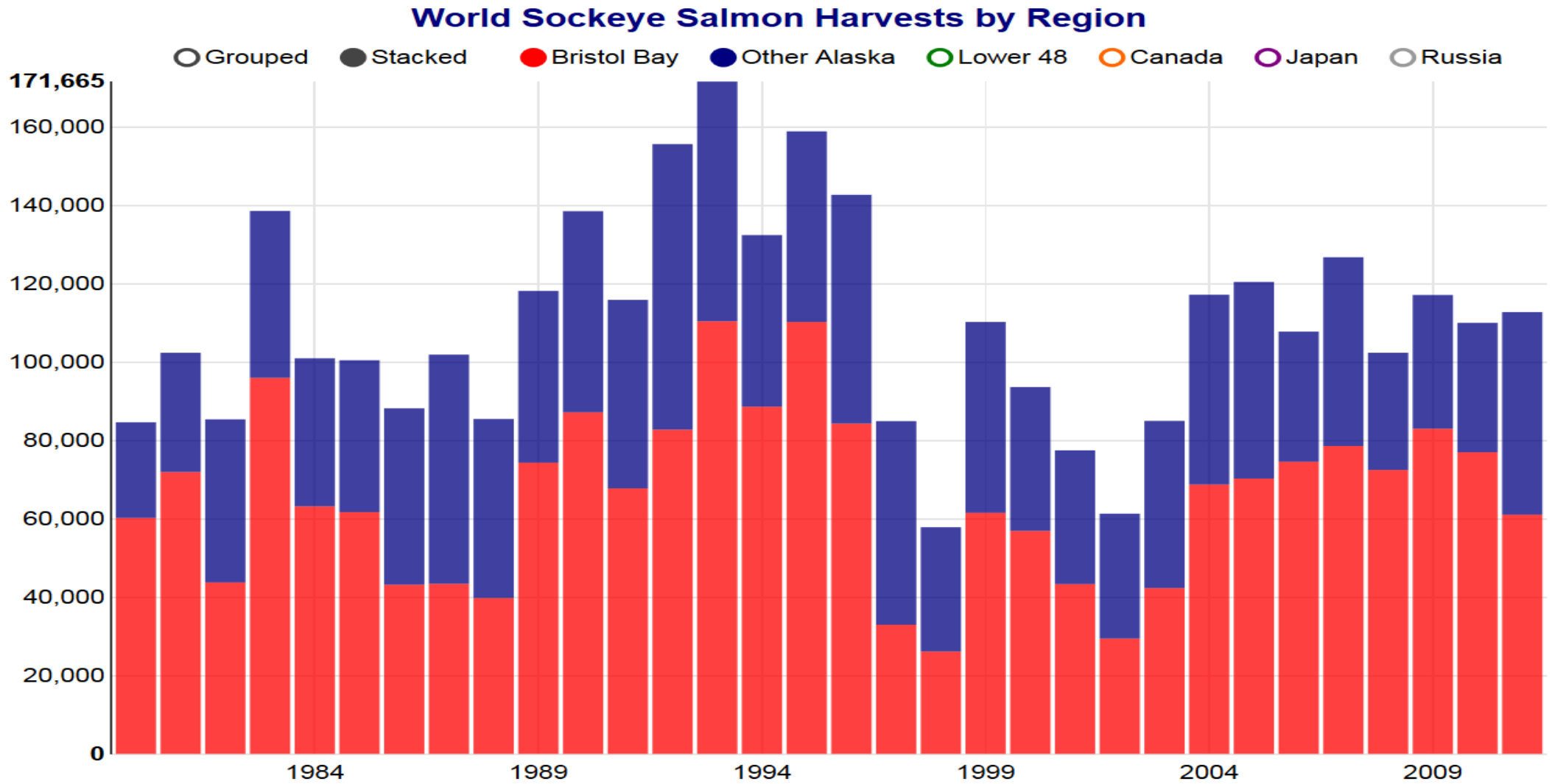
Edit in Quizmaker

Edit Properties

Why is Bristol Bay Important?



Why is Bristol Bay Important?



What is special about Bristol Bay???

- Largest Wild Salmon Run!
- Hatcheries!

Bristol Bay

Salmon Management

N

Bristol Bay Management

Divided into 5 management districts

- Naknek-Kvichak
- Egegik
- Ugashik
- Nushagak
- Togiak

The objective is to reach a pre determined escapement for each system while harvesting excess salmon

Management Districts

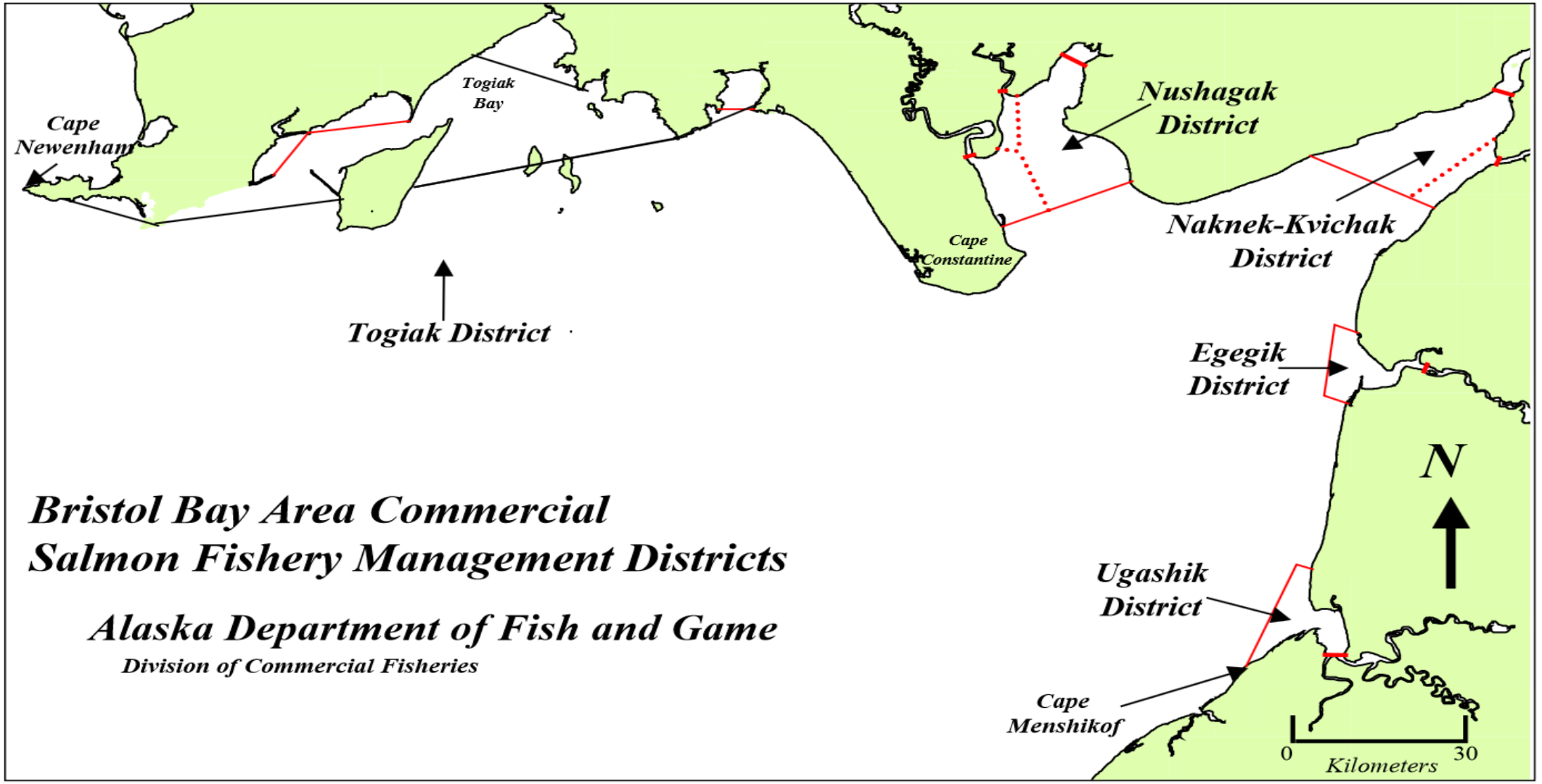


Figure 1.–Bristol Bay area commercial fisheries salmon management districts.

Bristol Bay Management

All five species of P. Salmon

- Sockeye 24.8 M
- Chum 0.9M
- Pink 0.3M (even years)
- Coho 0.08M
- Chinook 0.07M

Management focuses on discrete stocks

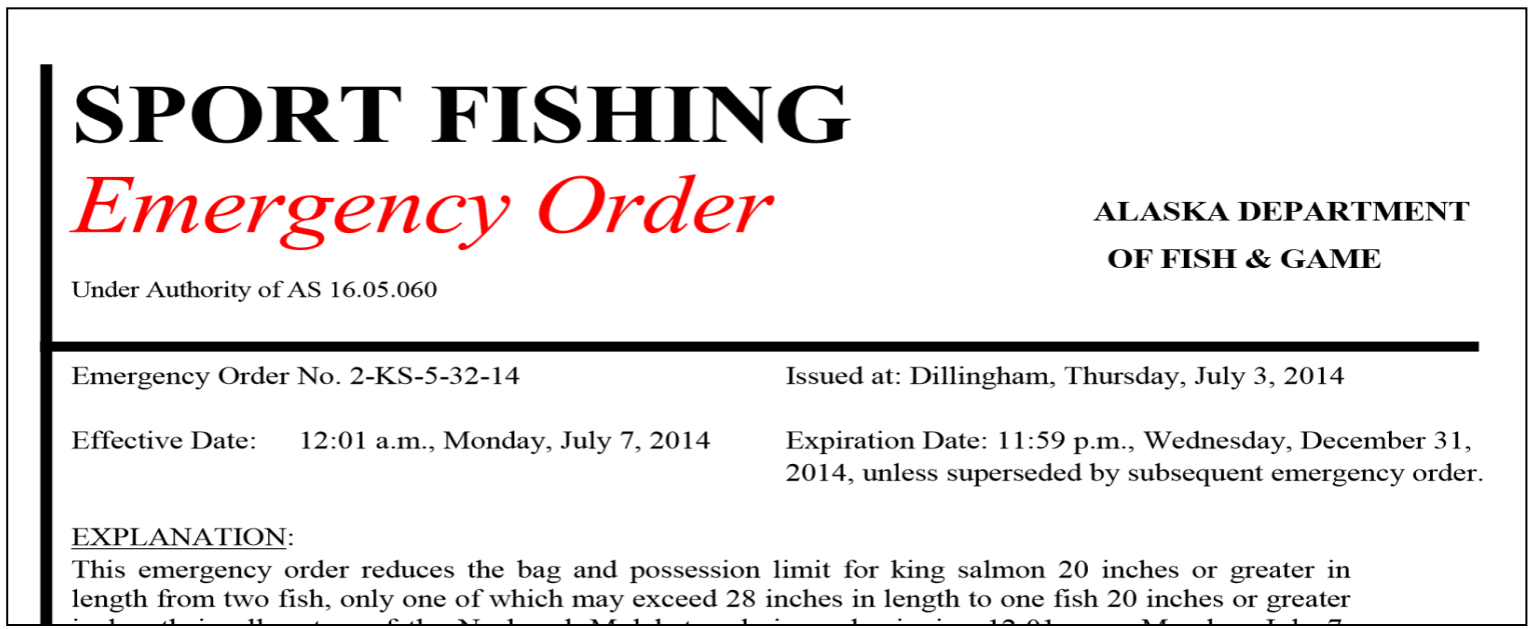
- Harvest mainly at the mouth of major river systems.
- WHY is This?

Management focuses on Escapement goals which are based on a Sustainable Yield

Primary management tools:

- regulation of fishing times
- Regulation of area
- Regulating pre-determined fishing schedules

Often done through Emergency Order (EO)



SPORT FISHING

Emergency Order

ALASKA DEPARTMENT OF FISH & GAME

Under Authority of AS 16.05.060

Emergency Order No. 2-KS-5-32-14 — Issued at: Dillingham, Thursday, July 3, 2014

Effective Date: 12:01 a.m., Monday, July 7, 2014 — Expiration Date: 11:59 p.m., Wednesday, December 31, 2014, unless superseded by subsequent emergency order.

EXPLANATION:
This emergency order reduces the bag and possession limit for king salmon 20 inches or greater in length from two fish, only one of which may exceed 28 inches in length to one fish 20 inches or greater

Commercial Regulations

Legal gear for salmon

Drift net

- 150 Fathom
- 2 permits same boat = 200 fathom
- 1862 permits in BB

Set net

- 50 Fathom
- 978 permits

Pre Season Forecasts

Use statistical Models to forecast salmon return

- Returns for each age class are forecasted
- Based on Adult returns from previous year
- Siblings from previous years

2013 Returns were predicted 26.6M Sockeye

- 16.6M predicted harvest

Numbers are based on sum of 9 systems

- Kvichak, Alagnak, Naknek, Egegik, Ugashik, Wood, Igushik, Nushagak-Mulchatna, and Togiak

Forecasts

Forecasts look at 4 major age classes

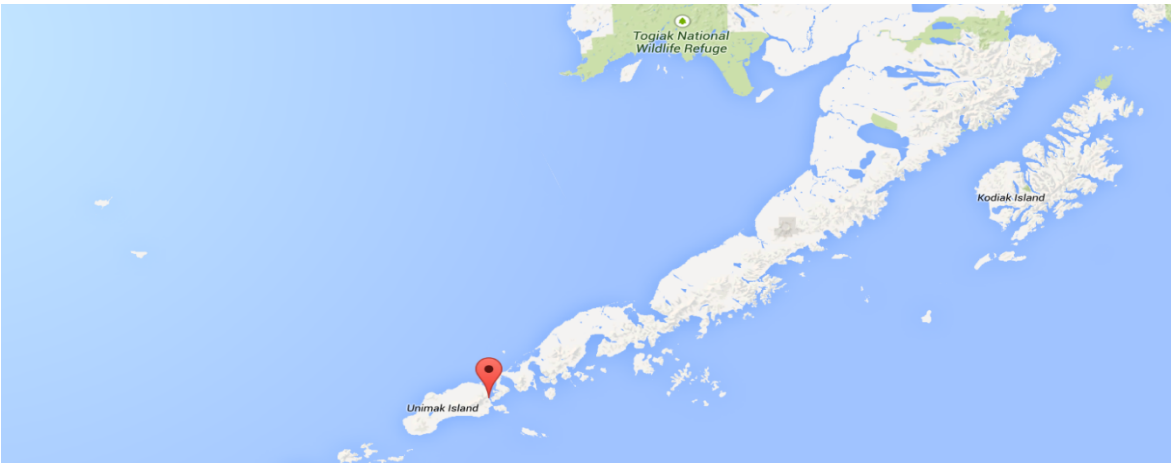
1.2, 1.3, 2.2, 2.3

Escapement and return data from 1972-2009

Indicators of run strength

Managers use this information to self check

- False pass commercial fishery
- Off shore test fishery Port Molar
- Genetic stock information
- District test fishery programs
- Commercial fishery early performance



Forecast vs Reality

Table 1.–Average price, weight, harvest, and value of salmon harvest in Bristol Bay, 2014

Species	Price/lb	Weight (lb)	Number of Fish	Total Weight	Value
Sockeye	$1.20	5.6	28,809,695	160,576,037	$192,691,244
Chinook	$0.80	14.9	12,761	189,664	$151,731
Chum	$0.30	6.2	556,759	3,459,244	$1,037,773
Pink	$0.28	3.5	1,302,446	4,532,526	$1,269,107
Coho	$0.90	6.0	266,385	1,590,537	$1,431,483
Totals			30,948,046	170,348,008	$196,581,338

Forecast vs Reality

Table 2.–Allocation of Bristol Bay drift and set gillnet harvest, 2014.[a]

District	Drift Gillnet Percent of Harvest Allocated /Caught	District Set Gillnet Percent of Harvest Allocated /Caught	Section Set Gillnet Percent of Harvest Allocated /Caught
Naknek/Kvichak	84% / 83%	16% / 17%	Naknek: 8% / 9% Kvichak: 8% / 8%
Egegik	86% / 89%	14% / 11%	Not applicable
Ugashik	90% / 83%	10% / 17%	Not applicable
Nushagak[a]	74% / 73 %	26% / 27%	Nushagak: 20% / 20% Igushik: 6% / 7%

Forecast vs Reality

Table 3.–Difference of Bristol Bay sockeye salmon actual run versus forecast, 2014.

District	Inshore Forecast	Inshore Run	% Difference from Forecast
Naknek/Kvichak	10,510,000	19,661,944	87% Above
Egegik	4,650,000	8,327,389	79% Above
Ugashik	1,810,000	2,112,525	17% Above
Nushagak	8,880,000	9,961,404	12% Above
Togiak	720,000	577,656	20% Below
Totals	26,580,000	40,640,918	53% Above

Forecast vs Reality

Table 5.–Bristol Bay sockeye salmon goals and escapement, 2014.

River System	Goal Range	Escapement
Kvichak River	2,000,000–10,000,000	4,458,540
Naknek River	800,000–1,400,000	1,474,428
Egegik River	800,000–1,400,000	1,382,466
Ugashik River	500,000–1,200,000	640,158
Nushagak River	370,000–840,000	618,493
Wood River	700,000–1,500,000	2,764,614
Igushik River	150,000–300,000	340,590
Togiak River	120,000–270,000	151,934
Total		11,831,223

Management

Quiz - 4 questions

Last Modified: Jul 14, 2015 at 12:04 PM

PROPERTIES

On passing, 'Finish' button:	Goes to Slide
On failing, 'Finish' button:	Goes to Slide
Allow user to leave quiz:	After user has completed quiz
User may view slides after quiz:	At any time
Show in menu as:	Single item

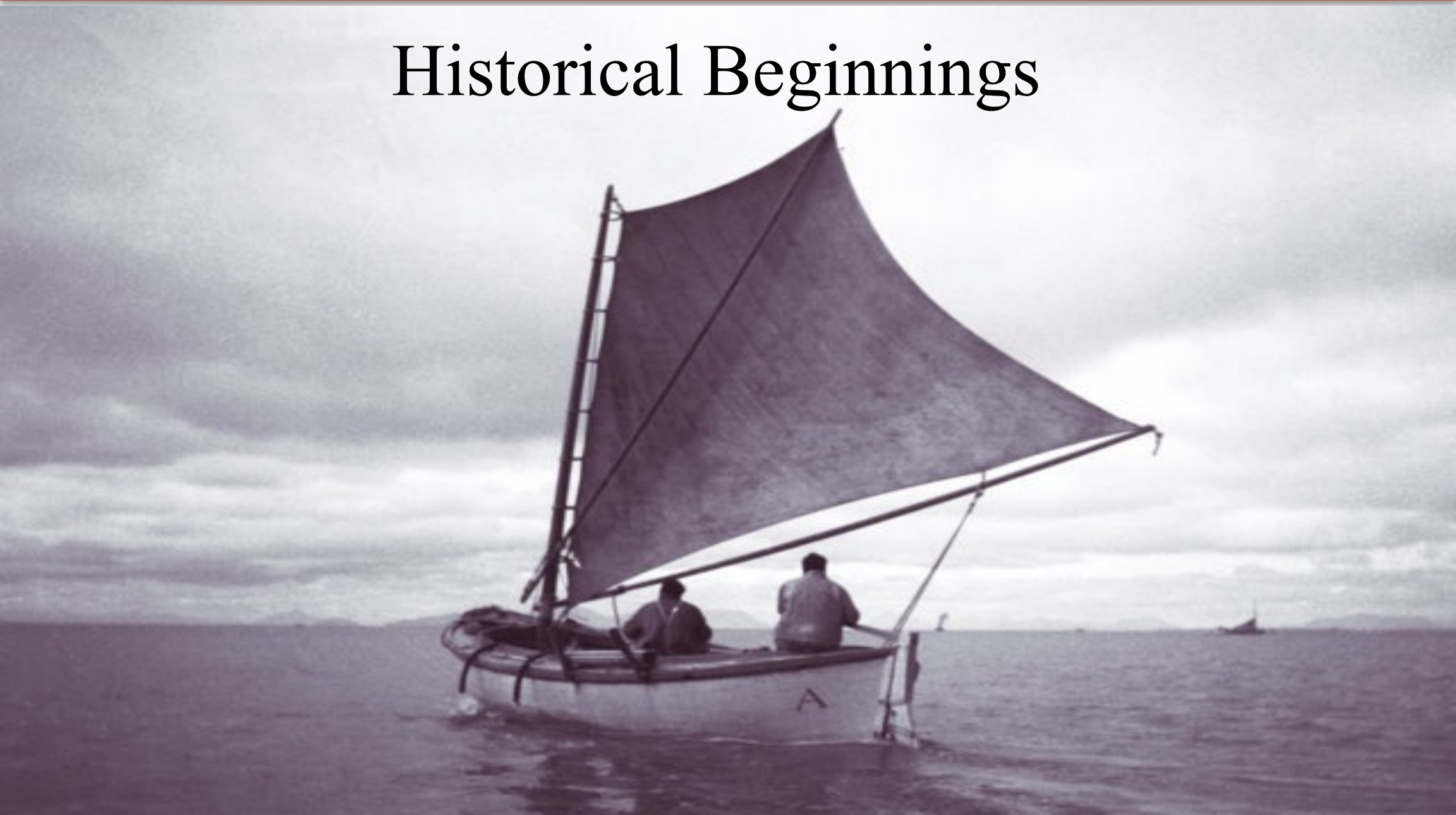
Edit in Quizmaker

Edit Properties

Bristol Bay Drift Netting

Indy Walton

Historical Beginnings



Historical Beginnings

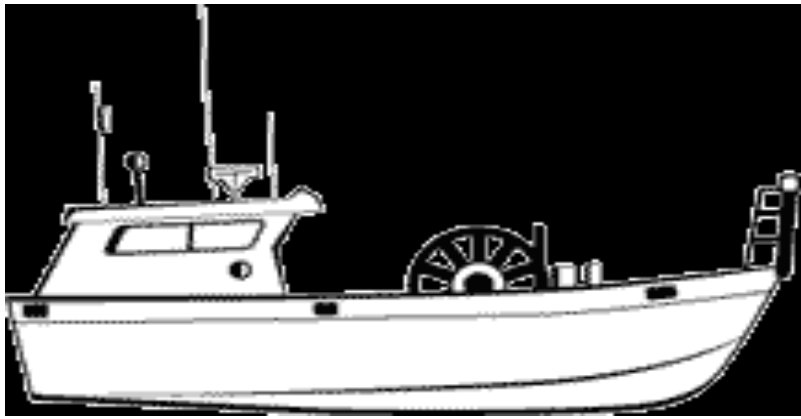
Set Netting

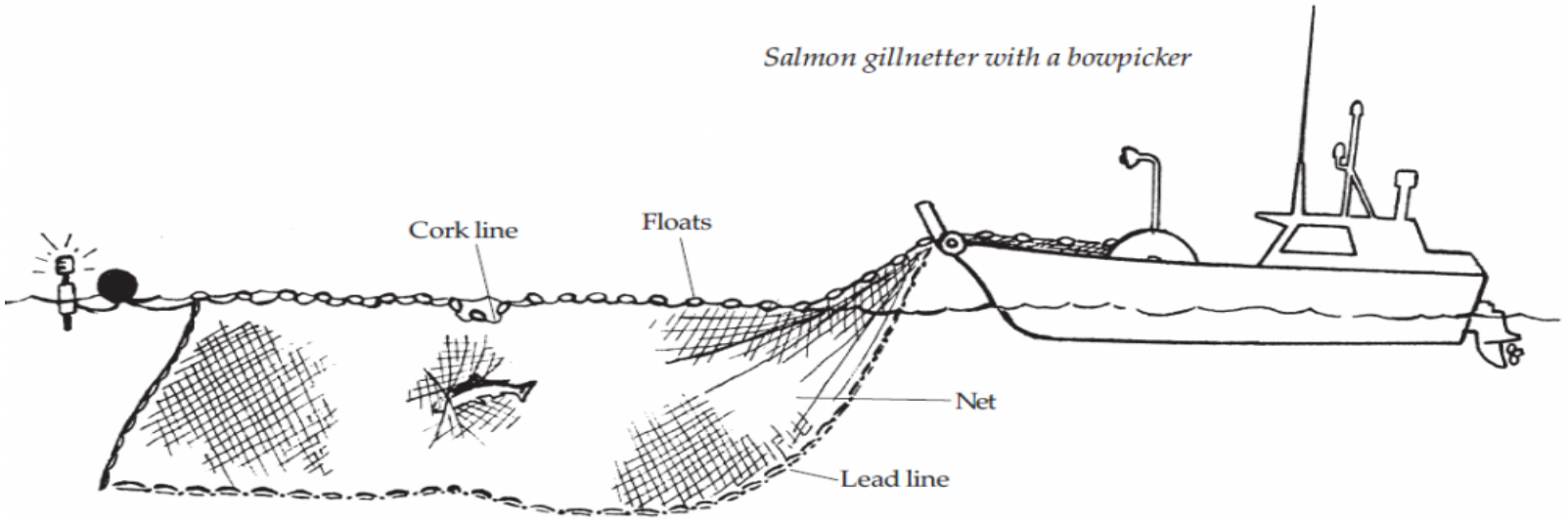
Set Net

Fisheries

Gillnet


AURORA B




Salmon gillnetter with a bowpicker
Cork line
Floats
Net
Lead line


56296
BG

F/V Double Dippin’

F/V Double Dippin’

Fisheries

Fisheries


Hanna Sofia
Dillingham, AK
Double Dippin'
SOLDOTNA, AK
POUND BY POUND

Fisheries

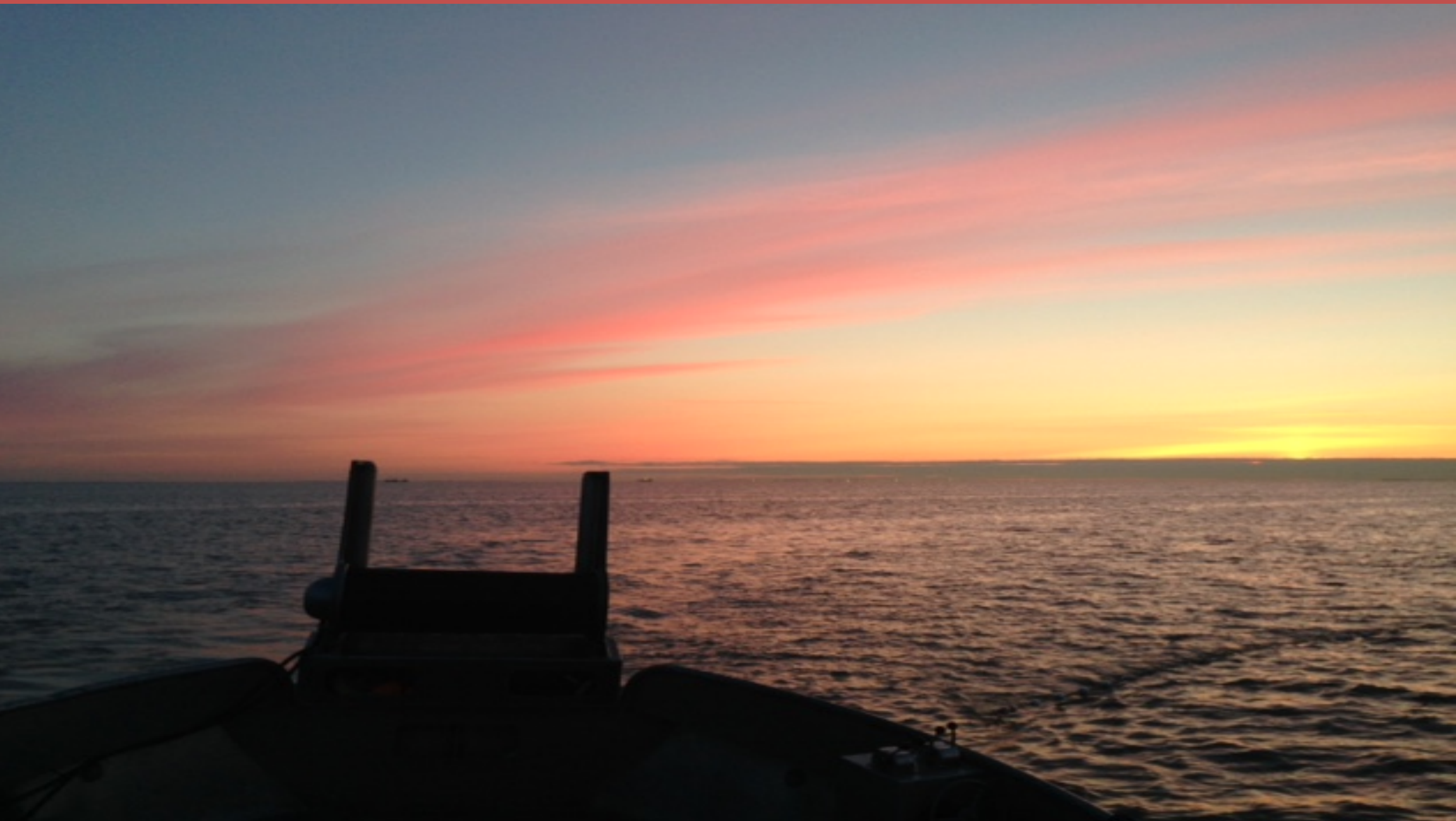

39204

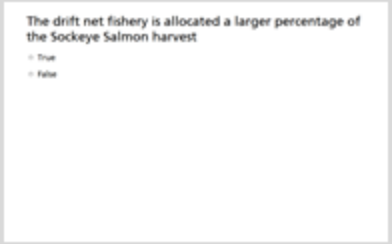
Fisheries

Fisheries


642510
Double Dippin'

Fisheries





Fishery

Quiz - 3 questions

Last Modified: Jul 14, 2015 at 12:12 PM

PROPERTIES

On passing, 'Finish' button:	Goes to Slide
On failing, 'Finish' button:	Goes to Slide
Allow user to leave quiz:	After user has completed quiz
User may view slides after quiz:	At any time
Show in menu as:	Single item

Edit in Quizmaker

Edit Properties

Frequently asked ?s

Fisheries Technology

- Do permits cost the same regardless of region?
- Can you describe the trip getting your boat from Homer to Bristol Bay?
- How do Emergency Orders work?
- What species are captured in Bristol Bay?
- How much do permits cost?
- Can you transfer permits?
- Can you fish set and drift net fisheries at the same time?
- Do you use different colored nets?
- What are crew wages like?

Frequently asked ?s

Fisheries Technology

- Do permits cost the same regardless of region?
- Can you describe the trip getting your boat from Homer to Bristol Bay?
- How do Emergency Orders work?
- What species are captured in Bristol Bay?
- How much do permits cost?
- Can you transfer permits?
- Can you fish set and drift net fisheries at the same time?
- Do you use different colored nets?
- What are crew wages like?

Frequently asked ?s

Fisheries Technology

- Do permits cost the same regardless of region?
- Can you describe the trip getting your boat from Homer to Bristol Bay?
- How do Emergency Orders work?
- What species are captured in Bristol Bay?
- How much do permits cost?
- Can you transfer permits?
- Can you fish set and drift net fisheries at the same time?
- Do you use different colored nets?
- What are crew wages like?

Frequently asked ?s

Fisheries Technology

- Do permits cost the same regardless of region?
- Can you describe the trip getting your boat from Homer to Bristol Bay?
- How do Emergency Orders work?
- What species are captured in Bristol Bay?
- How much do permits cost?
- Can you transfer permits?
- Can you fish set and drift net fisheries at the same time?
- Do you use different colored nets?
- What are crew wages like?

Frequently asked ?s

Fisheries Technology

- Do permits cost the same regardless of region?
- Can you describe the trip getting your boat from Homer to Bristol Bay?
- How do Emergency Orders work?
- What species are captured in Bristol Bay?
- How much do permits cost?
- Can you transfer permits?
- Can you fish set and drift net fisheries at the same time?
- Do you use different colored nets?
- What are crew wages like?

Frequently asked ?s

Fisheries Technology

- Do permits cost the same regardless of region?
- Can you describe the trip getting your boat from Homer to Bristol Bay?
- How do Emergency Orders work?
- What species are captured in Bristol Bay?
- How much do permits cost?
- Can you transfer permits?
- Can you fish set and drift net fisheries at the same time?
- Do you use different colored nets?
- What are crew wages like?

Frequently asked ?s

Fisheries Technology

- Do permits cost the same regardless of region?
- Can you describe the trip getting your boat from Homer to Bristol Bay?
- How do Emergency Orders work?
- What species are captured in Bristol Bay?
- How much do permits cost?
- Can you transfer permits?
- Can you fish set and drift net fisheries at the same time?
- Do you use different colored nets?
- What are crew wages like?

Frequently asked ?s

Fisheries Technology

- Do permits cost the same regardless of region?
- Can you describe the trip getting your boat from Homer to Bristol Bay?
- How do Emergency Orders work?
- What species are captured in Bristol Bay?
- How much do permits cost?
- Can you transfer permits?
- Can you fish set and drift net fisheries at the same time?
- Do you use different colored nets?
- What are crew wages like?

Frequently asked ?s

Fisheries Technology

- Do permits cost the same regardless of region?
- Can you describe the trip getting your boat from Homer to Bristol Bay?
- How do Emergency Orders work?
- What species are captured in Bristol Bay?
- How much do permits cost?
- Can you transfer permits?
- Can you fish set and drift net fisheries at the same time?
- Do you use different colored nets?
- What are crew wages like?

Frequently asked ?s

Fisheries Technology

- Do permits cost the same regardless of region?
- Can you describe the trip getting your boat from Homer to Bristol Bay?
- How do Emergency Orders work?
- What species are captured in Bristol Bay?
- How much do permits cost?
- Can you transfer permits?
- Can you fish set and drift net fisheries at the same time?
- Do you use different colored nets?
- What are crew wages like?

Video Resources

No videos for this module