

Management of Nushagak River King Salmon



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Alaska Department of Fish and Game

RC 3, Tab 9 - Oral



Purpose of Presentation

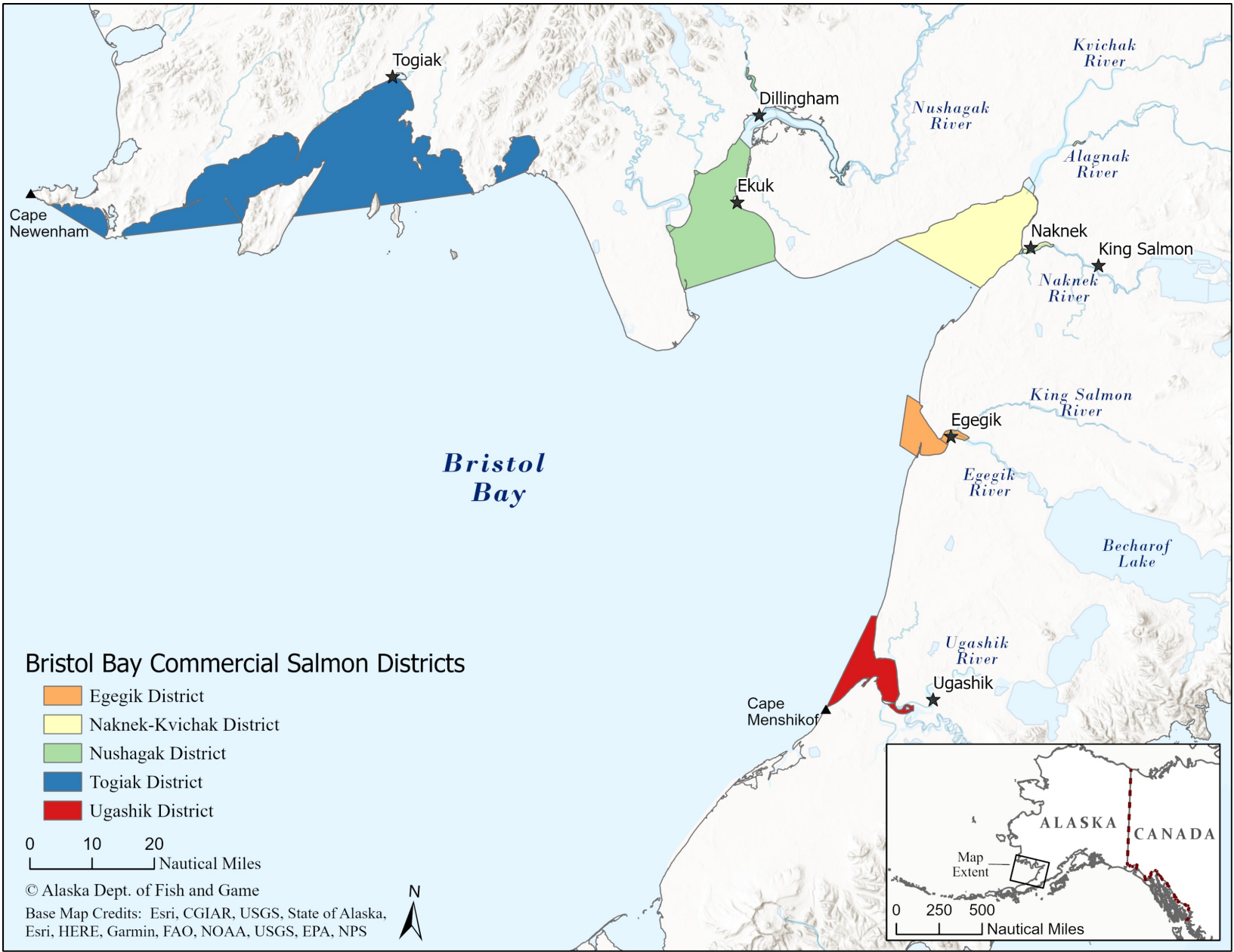
- Provide an overview of Nushagak River king assessment program and its shortcomings.
- Review commercial fisheries management decisions.
- Review sport fishery management decisions.

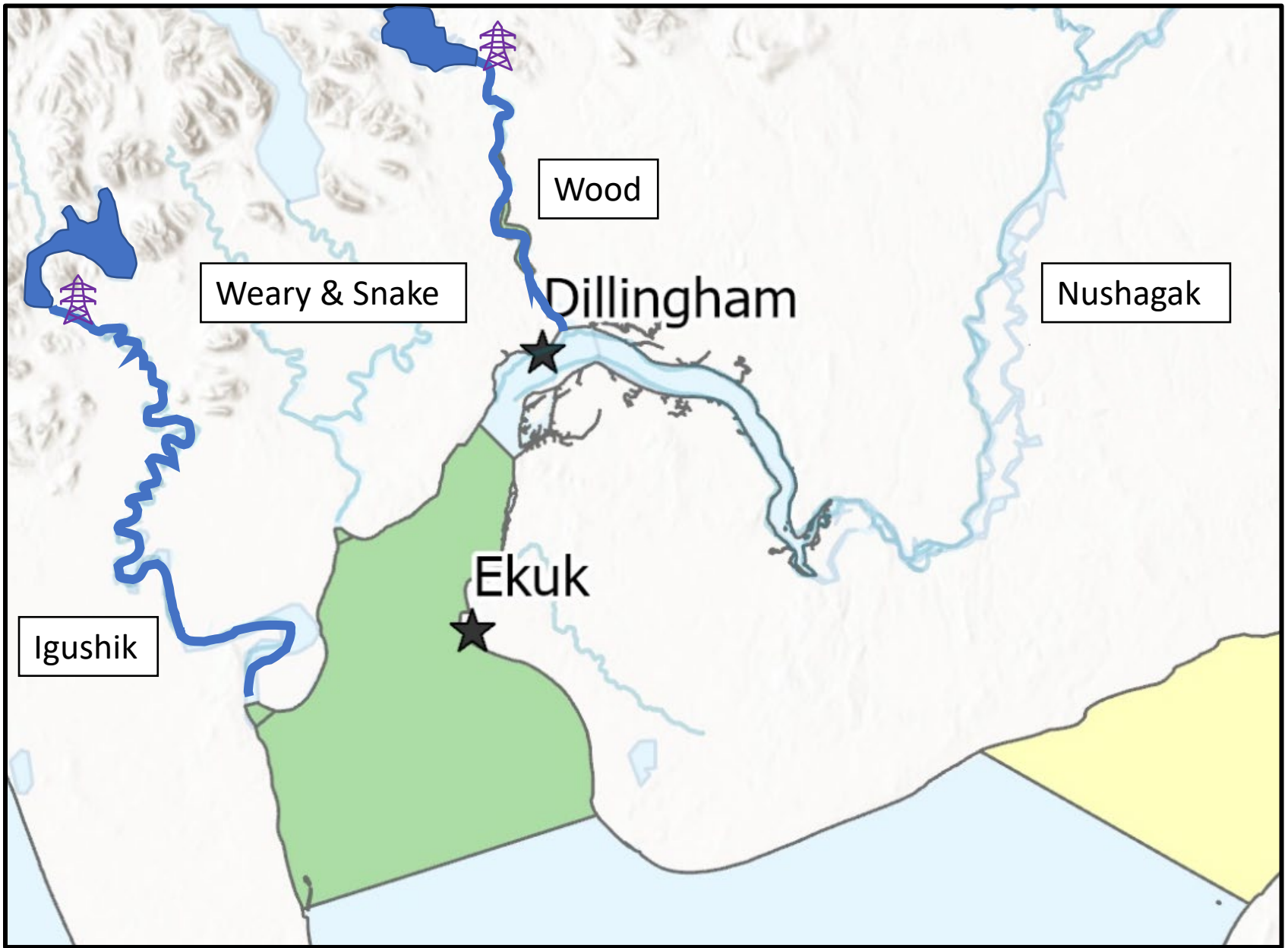


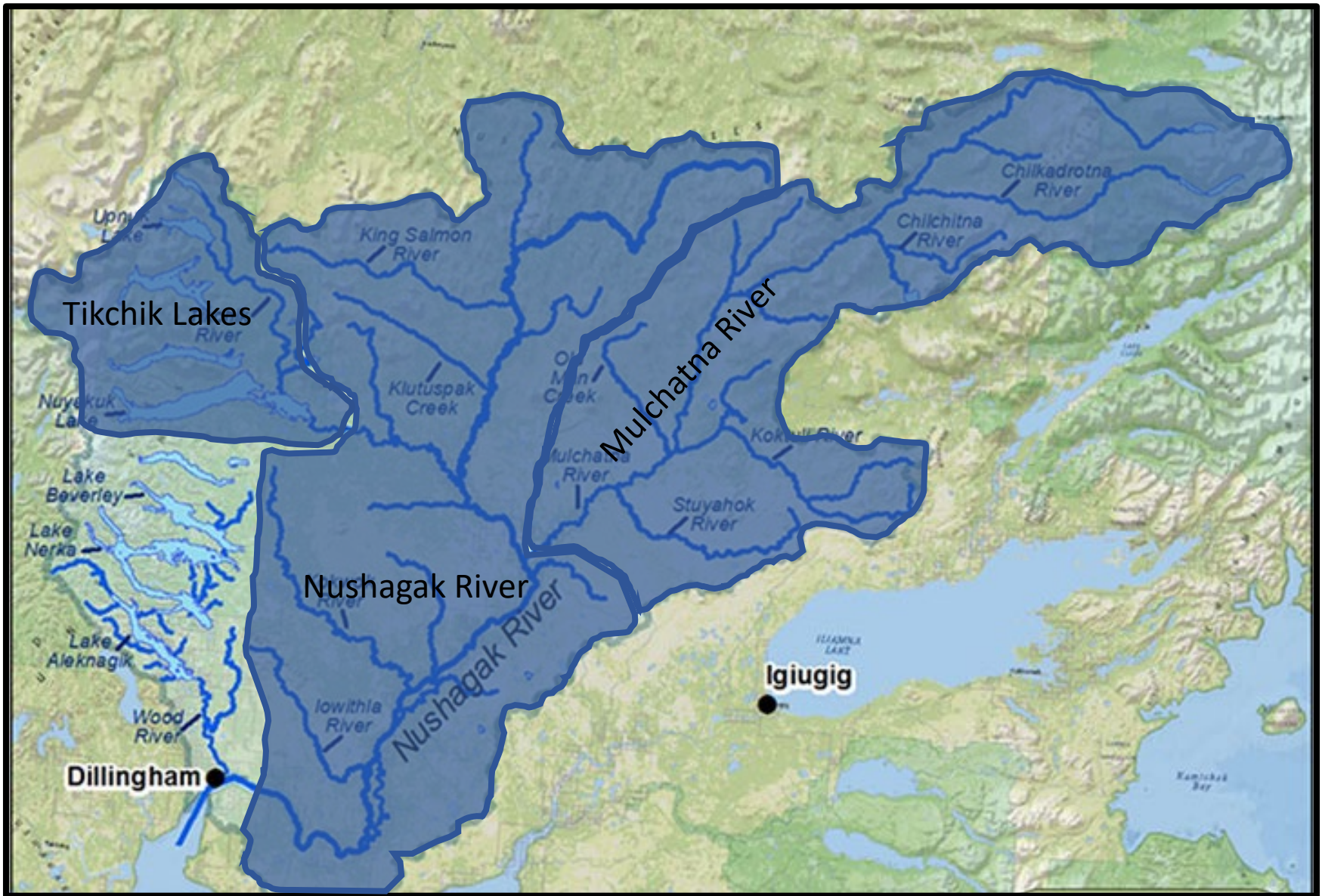
Proposals Related to Nushagak king salmon

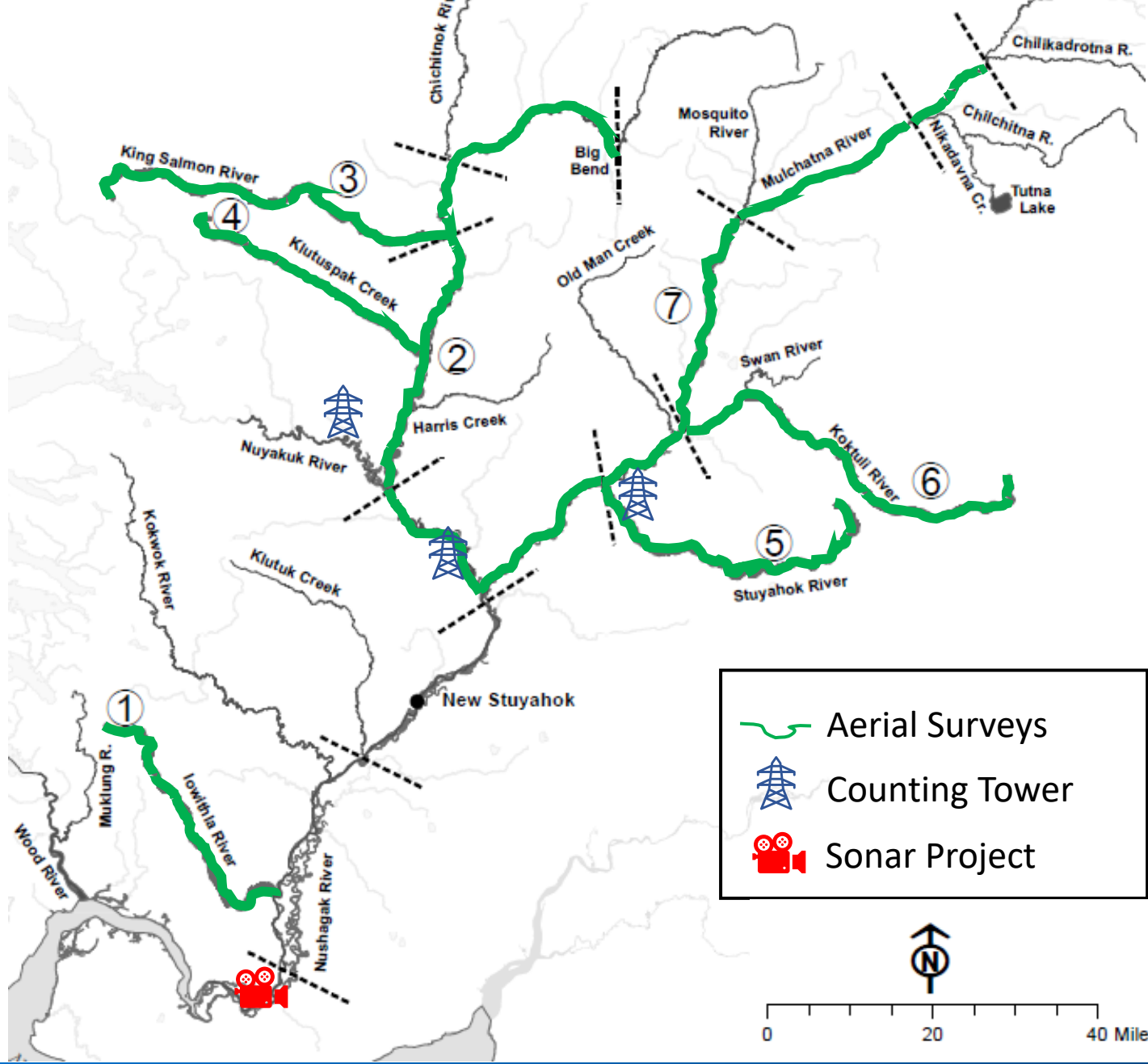
- Proposals 11–13:
 - Nushagak King Management Plan
- Proposal 28:
 - King Salmon Sport Fishing Closure
- Proposal 31–32:
 - Reporting of King Salmon Harvest
- Proposal 61:
 - Commercial King Salmon Harvest reporting by Size Class
- Nushagak King Salmon Stock of Concern Action Plan






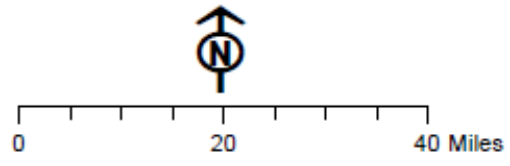


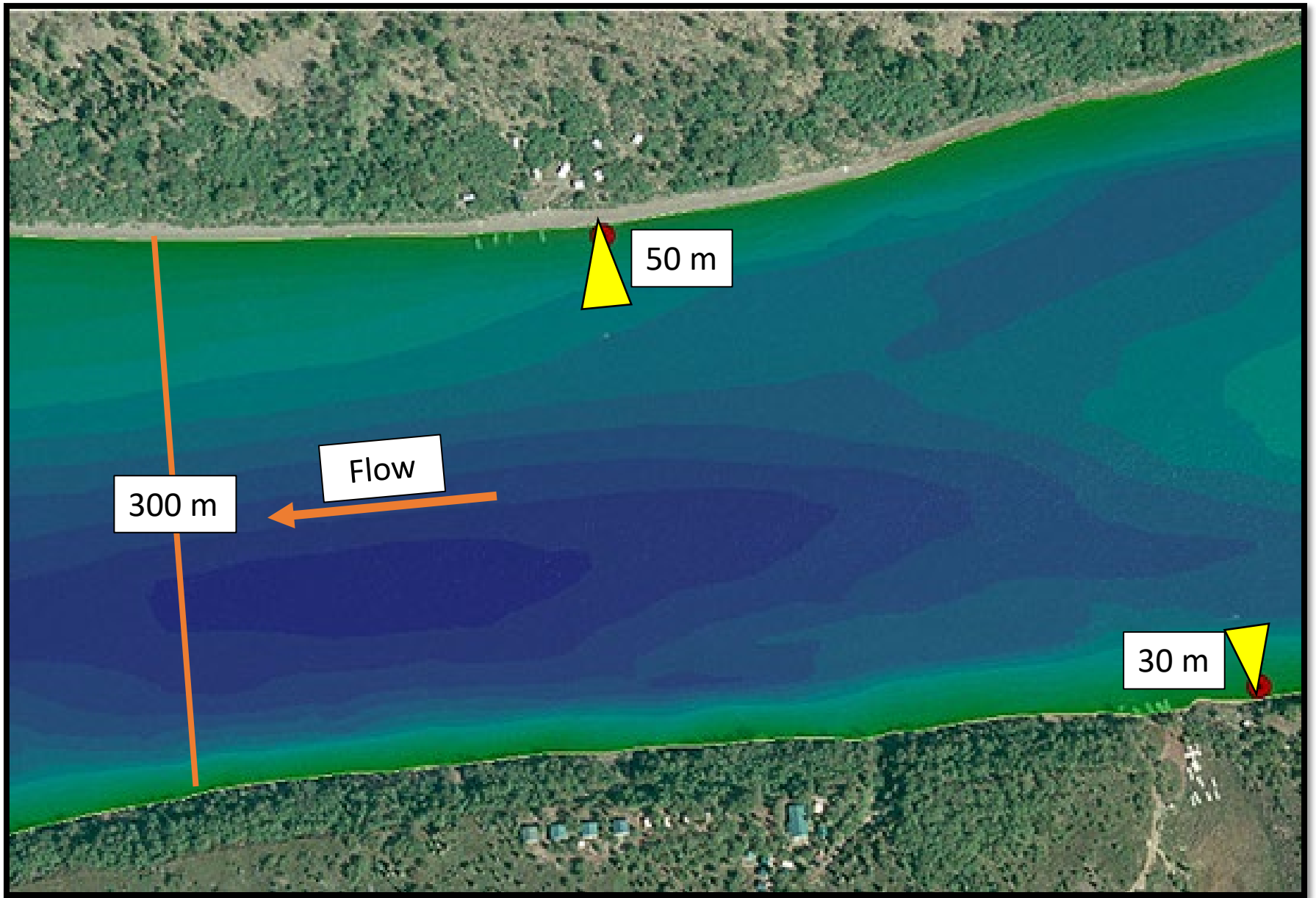


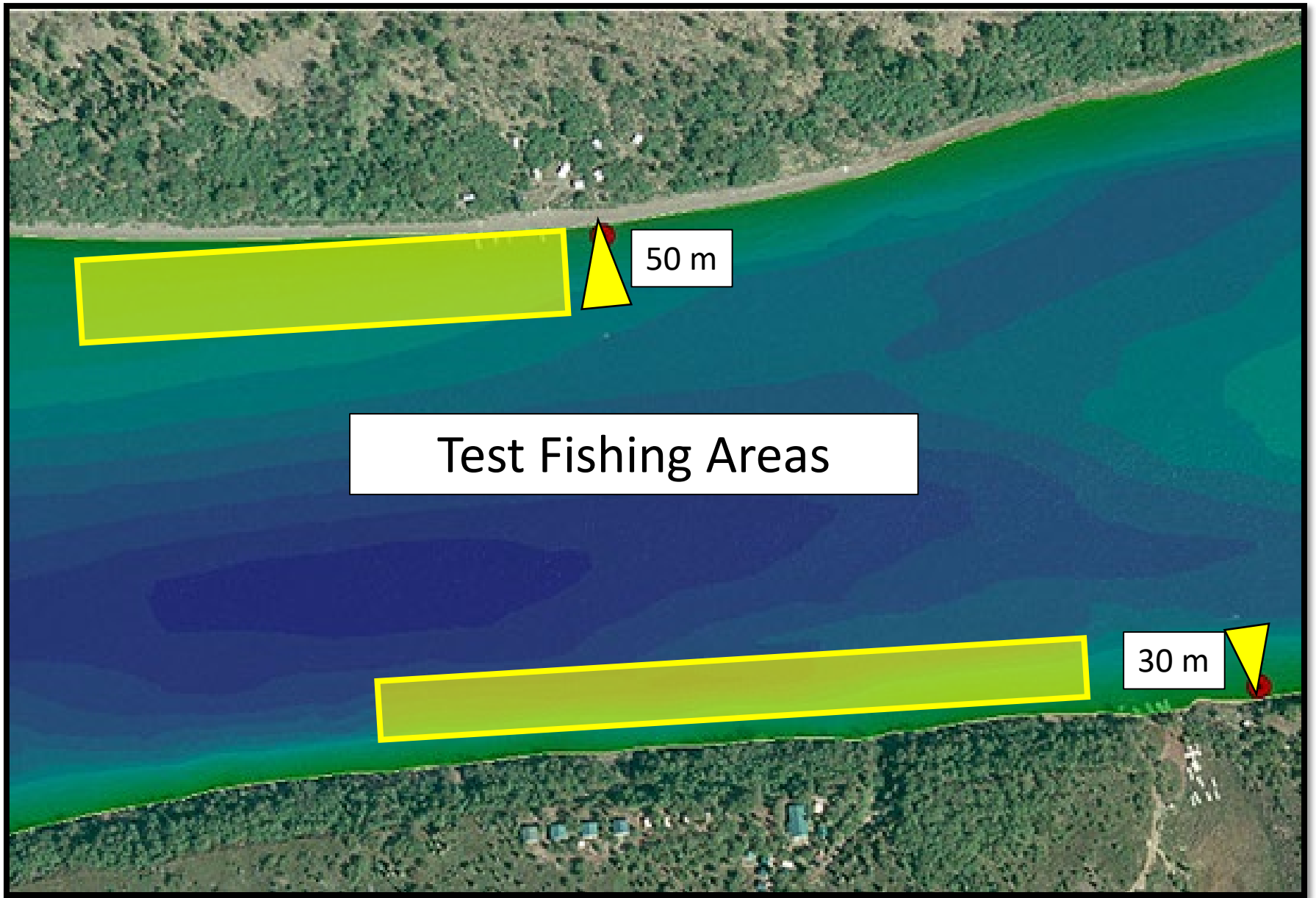


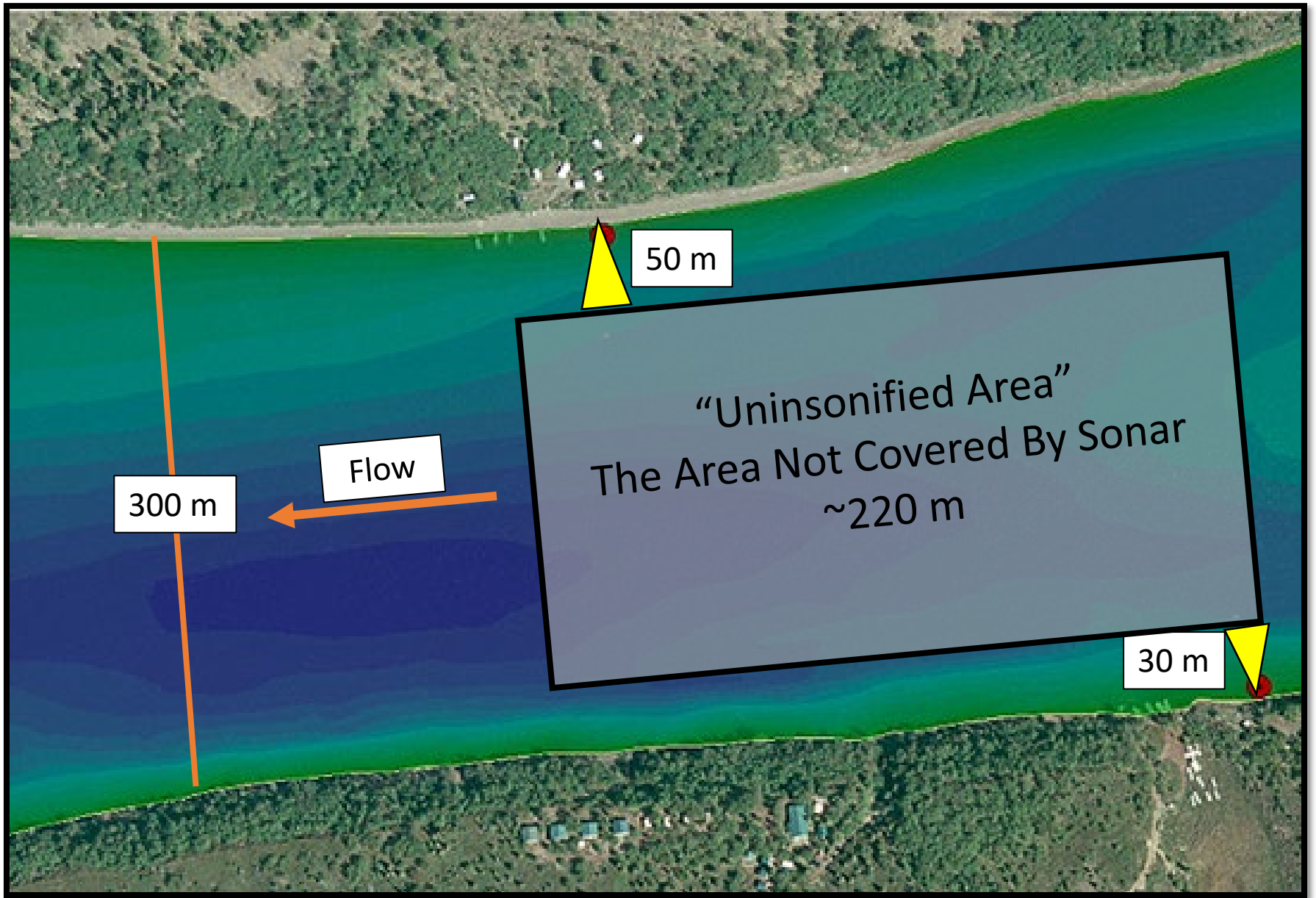


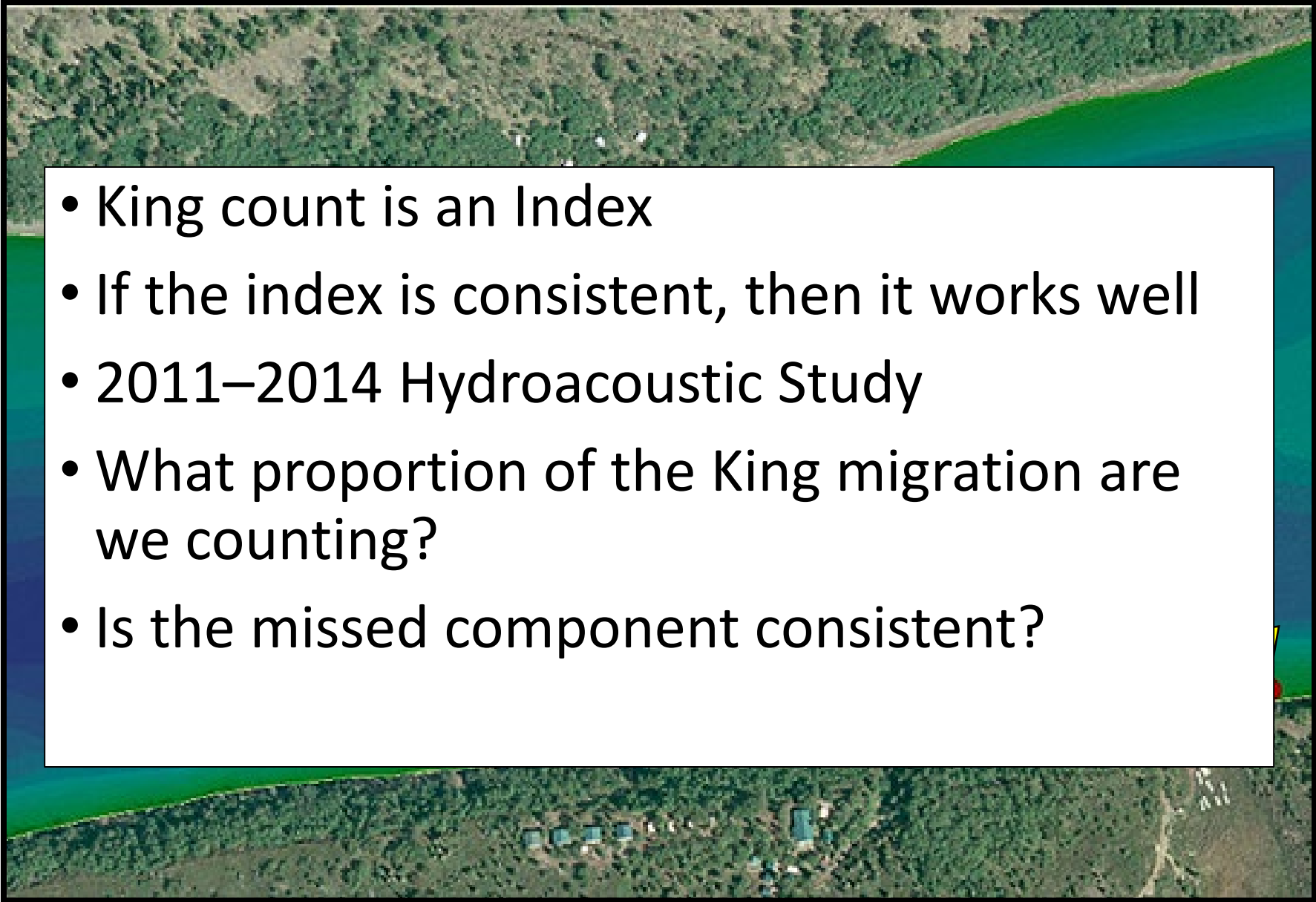
-  Aerial Surveys
-  Counting Tower
-  Sonar Project



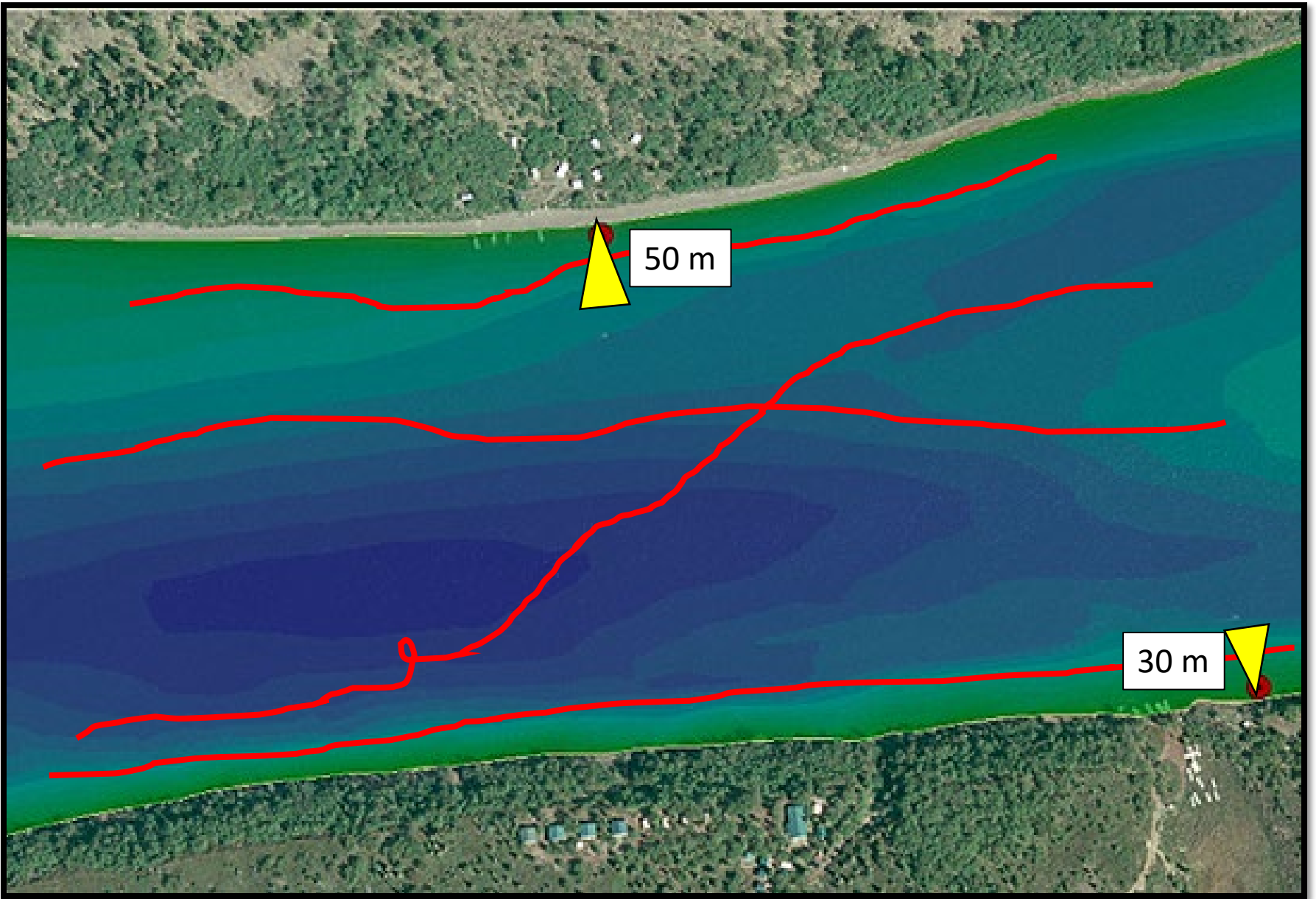




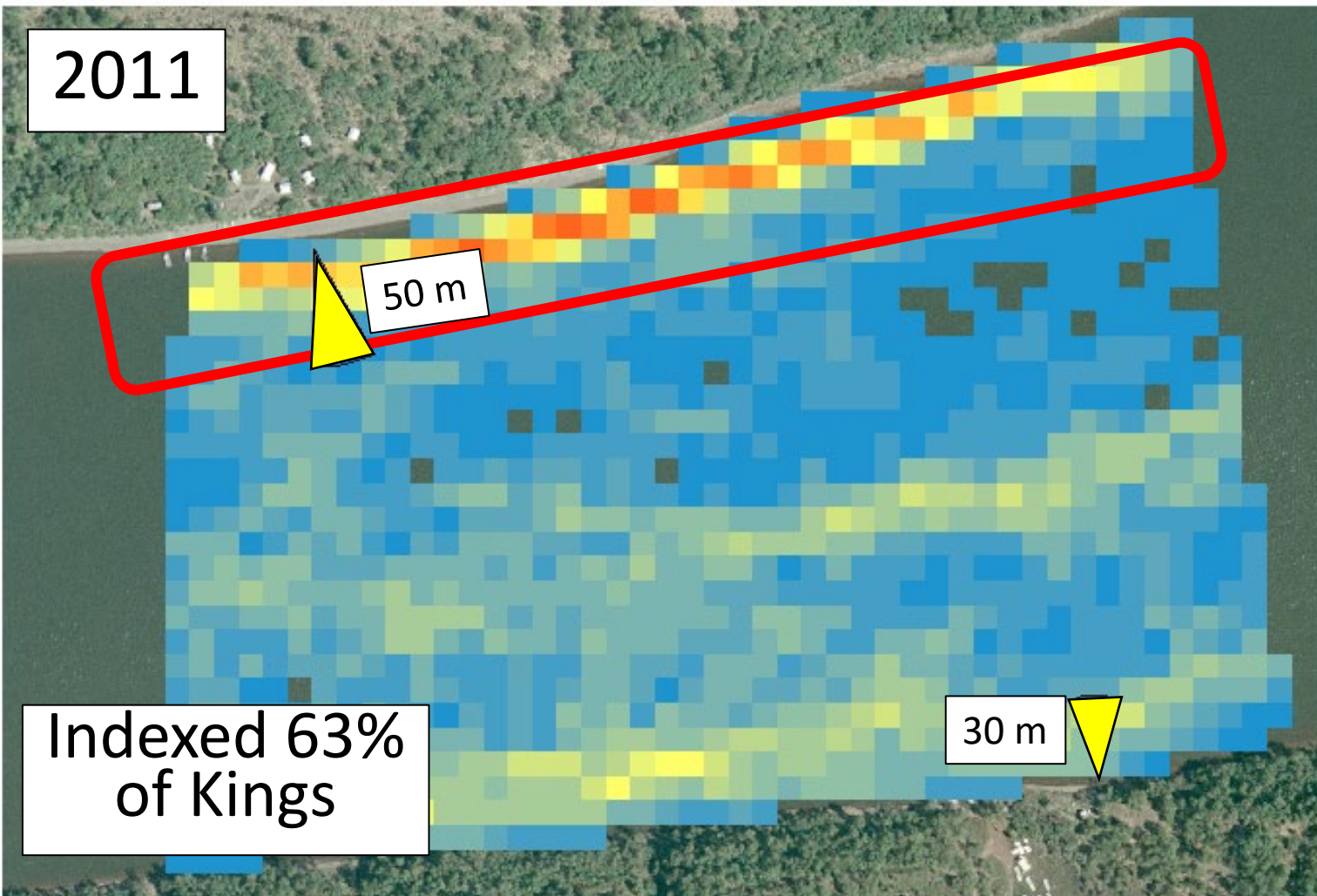


- 
- King count is an Index
 - If the index is consistent, then it works well
 - 2011–2014 Hydroacoustic Study
 - What proportion of the King migration are we counting?
 - Is the missed component consistent?



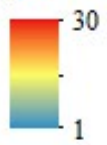


2011

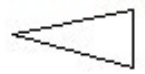


Indexed 63%
of Kings

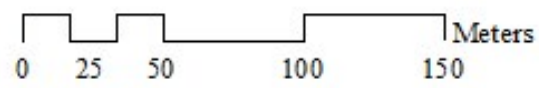
Number of fish detected
(normalized to N = 100)



DIDSON coverage



Cell size 10 m x 10 m



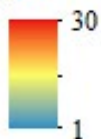
2014

50 m

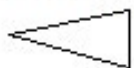
30 m

Indexed 43%
of Kings

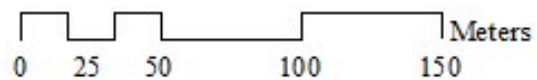
Number of fish detected
(normalized to N = 100)



DIDSON coverage



Cell size 10 m x 10 m



Hypothetical Years (Goal: 55,000–120,000)

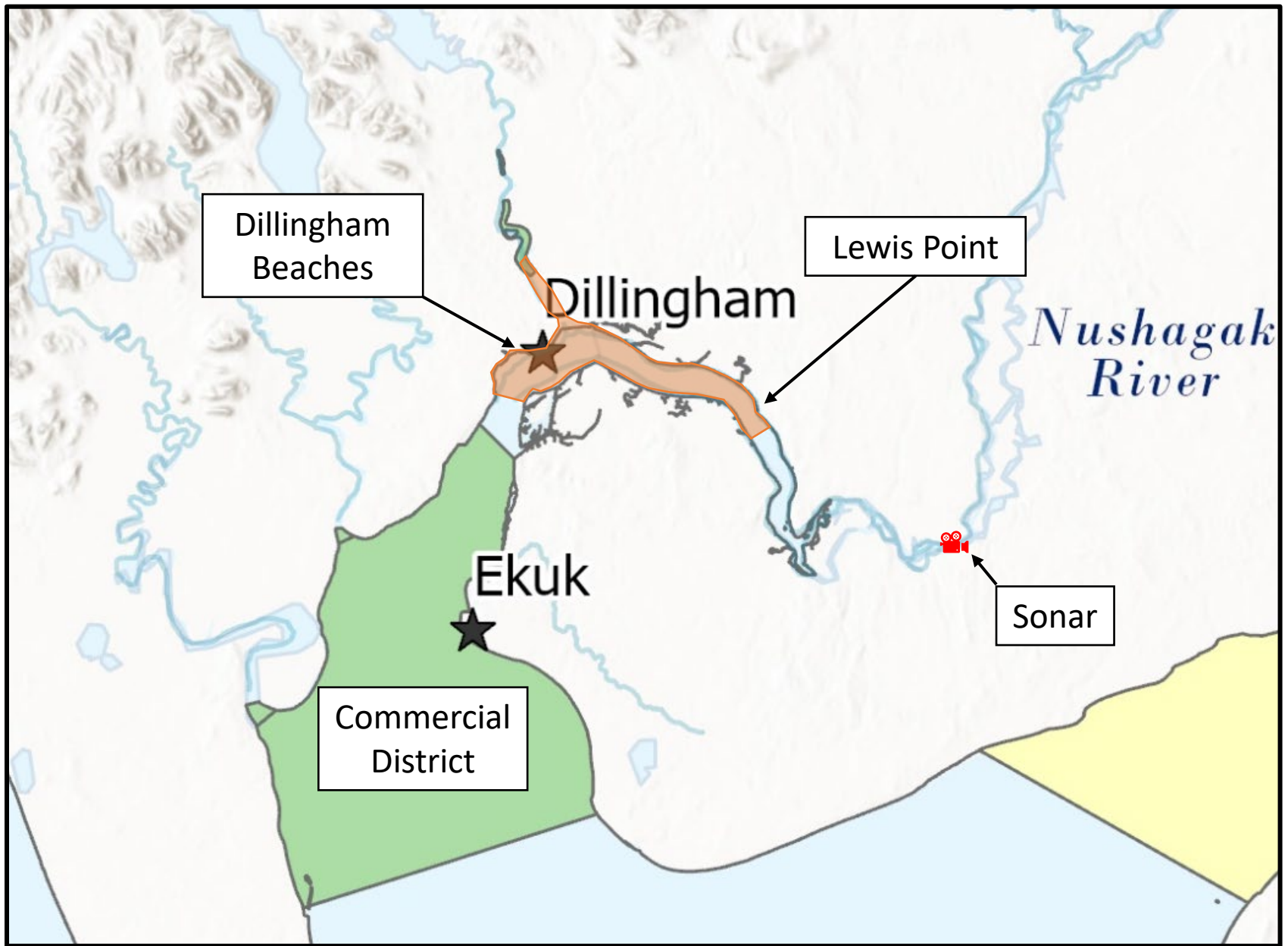
Year 1

- Sonar Count
 - 45,000
- Proportion
 - 43%
- Actual Escapement
 - 105,000

Year 2

- Sonar Count
 - 65,000
- Proportion
 - 63%
- Actual Escapement
 - 104,000









Summary

- Sonar King “count” is an inconsistent index of abundance.
- Environmental factors influence the index.
- Biological factors influence the index.
 - Net Saturation of sockeye
 - Congestion in the sonar.
- Secondary information plays an important role.



Commercial Fisheries Management

- Manage sockeye salmon stocks for sustainability and economic benefit
- Achieve king salmon goals
- Finding a balance between controlling sockeye salmon escapement and achieving king salmon goals is a challenge



Management Challenges

	King SEG	Upper end of Goal	Upper end of Goal	Commercial	
	55,000-120,000	900,000	1,800,000	Sockeye	King
Year	Nushagak King Index	Nushagak Sockeye	Wood Sockeye	Harvest	Harvest
2015	98,000	797,000	1,941,000	5,593,000	50,700
2016	125,000	680,500	1,310,000	8,110,000	25,000
2017	56,500	2,844,000	4,274,000	12,322,500	33,400
2018	97,000	1,247,000	7,507,000	24,230,000	36,600
2019	48,000	705,000	2,073,000	14,756,000	22,700
2020	43,000	1,228,500	2,244,000	8,935,500	7,500
2021	55,000	4,683,000	4,410,000	18,283,000	4,300
2022	44,000	3,414,000	3,711,000	22,725,000	5,300
AVG 97-16	133,000	581,000	1,638,765	5,973,000	40,400



Conflicting goals

- The 2017-2022 average sockeye salmon harvest is 17 million compared to the 6 million average from 97-16
- Poor king returns from strong parent years
- Larger sockeye runs are achieving the 100k Wood River trigger earlier into the king salmon run
- Smaller king runs amplify this issue.



Caveats

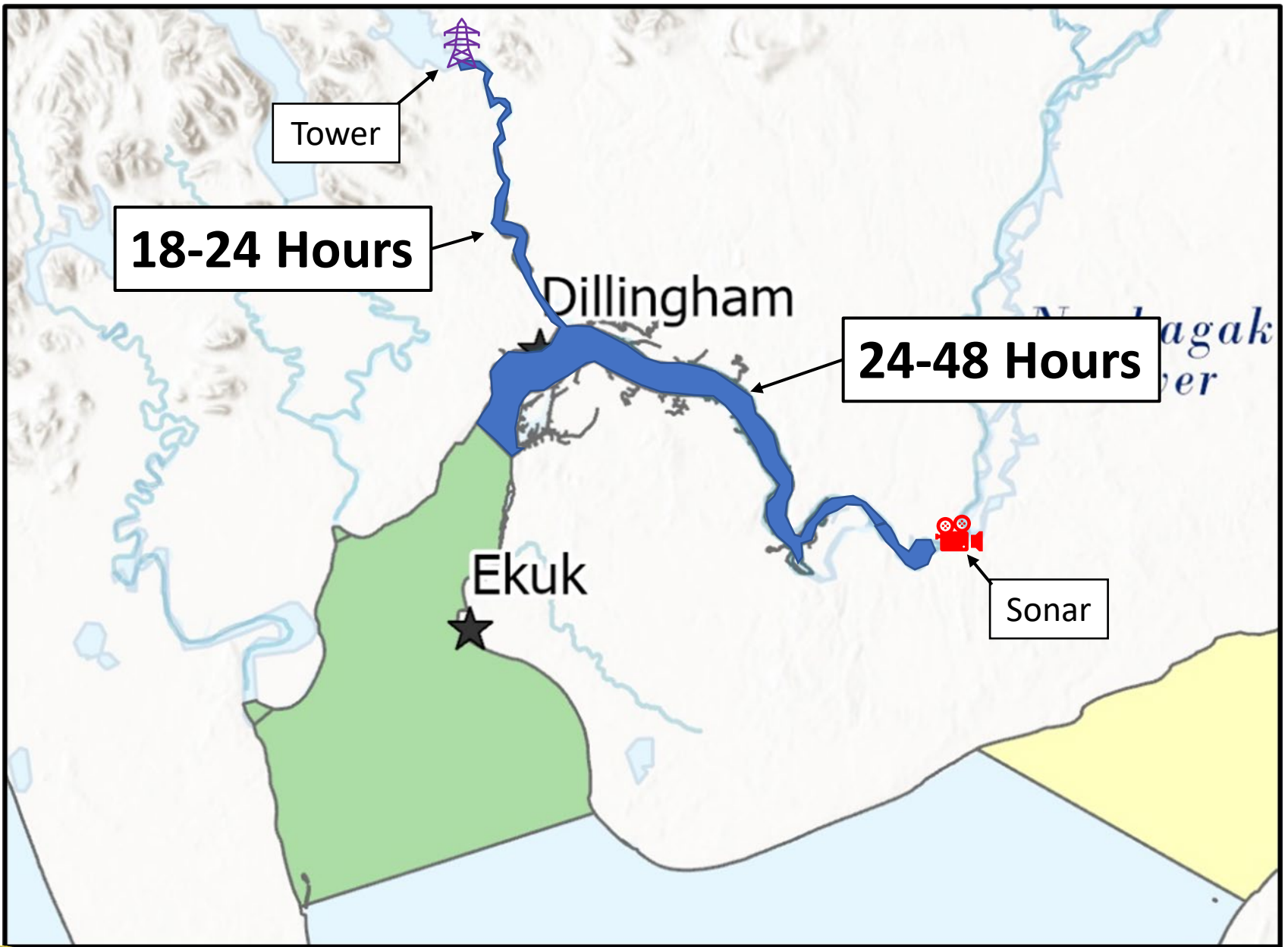
- Reported commercial king salmon harvest is underestimated based on processor production reports in 21 and 22
- The Department is trying to improve understanding of commercial harvest disparity
- Total king return, all harvest plus index count, in 2021 and 2022 was less than 95,000



Current regulations

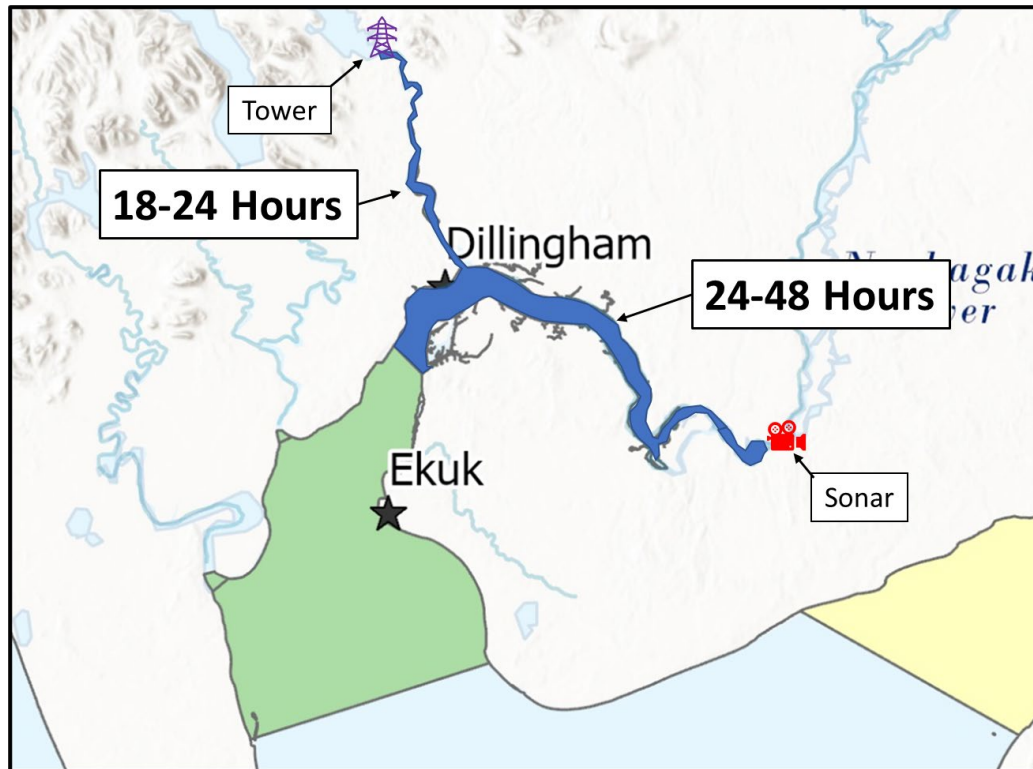
- 5AAC 06.361 Nushagak-Mulchatna King Salmon Management Plan
- (b)(1) inriver goal of 95,000 allows for 55,000-120,000 spawning escapement
- (d)(1) project below inriver goal mesh is restricted to <5.5” mesh
- (e)(1) below 55,000 spawning escapement 100,000 sockeye salmon escapement projected in Wood River trigger
- (e)(2) close sport fishery
- (e)(3) restrict subsistence fishery





Escapement at time of 1st opening

<u>Date of opener</u>	<u>Wood Sockeye (with lag)</u>	<u>Nushagak King (with lag)</u>	<u>Nushagak sockeye (with lag)</u>	<u>Sockeye harvest</u>
June 22, 2017	158,000 (308,000)	4,300 (17,000)	290,000 (780,000)	477,000
June 23, 2022	147,000 (247,000)	27,700 (34,900)	275,000 (897,000)	832,000



Summary

- The department has taken conservative action in excess of what is required by the management plan
- King salmon escapement and total run has been poor since 2017
- In some years, the inriver goal is unattainable even if there were no harvest
- King salmon are a stock of management concern, not a conservation concern
- The main issue is finding a balance between controlling sockeye salmon escapement and achieving king salmon goals



Nushagak Drainage sport fishing effort, and king salmon catch and harvest by location, 2019.			
Site	Angler Days	Catch	Harvest
<u>Black Point to Sonar</u>	4481	12838	3600
<u>Sonar to Mulchatna River</u>	5979	8570	2083
<u>Mulchatna River</u>	4595	356	140
<u>Nuyakuk River</u>	1283	914	111
Other Nushagak	1832	1635	372
Total	18170	24313	6306



2018 Board Actions

- 5 AAC 06.361 (d)(2) & (3) repealed
 - Triggers restricting sport fishing when the run was projecting within the escapement goal but below the inriver goal.
 - Portage Creek Sonar king salmon enumeration issues.
 - Provide manager with flexibility to act based on a wider range of information.



2017

- EO issued June 21, effective June 23
 - Bag and possession limits for fish over 20” reduced to 1 per day 1 in possession. Annual reduced to 2 fish.
 - 2,832 king salmon past the sonar through June 20.



2019

- EO issued July 1, effective July 3
 - Bag and possession limits for fish over 20” reduced to 1 per day 1 in possession. Annual reduced to 2 fish.
 - 32,271 king salmon past the sonar through June 30.

- EO issued July 8, effective July 10
 - Retention of king salmon and use of bait prohibited.
 - 39,829 king salmon past the sonar through July 7.



2020

- EO issued July 8, effective July 10
 - Bag and possession limits for fish over 20” reduced to 1 per day 1 in possession. Annual reduced to 2 fish.
 - 37,994 king salmon past the sonar through July 7.



2021

- EO issued June 24, effective June 27
 - Bag and possession limits for fish over 20” reduced to 1 per day 1 in possession. Annual reduced to 2 fish.
 - 7,814 king salmon past the sonar through June 23.



2022

- EO issued July 5, effective July 7
 - Bag and possession limits for fish over 20” reduced to 1 per day 1 in possession. Annual reduced to 2 fish.
 - 41,250 king salmon past the sonar through July 4.
- EO issued July 11, effective July 13
 - Retention of king salmon and use of bait prohibited.
 - 42,772 king salmon past the sonar through July 10.



Summary

- Total harvest of 6,306 fish in 2019 with approximately 57% of the harvest occurring below the sonar and 43% above the sonar.
- 2018 Board actions gave sport fish managers flexibility to factor in other information in addition to the sonar count.
- The department has taken conservative action in the sport fishery by issuing Emergency Orders in 5 of the last 6 seasons.
 - Ranging from bag, possession, and annual limit reductions to non-retention with the use of bait prohibited.



Questions

