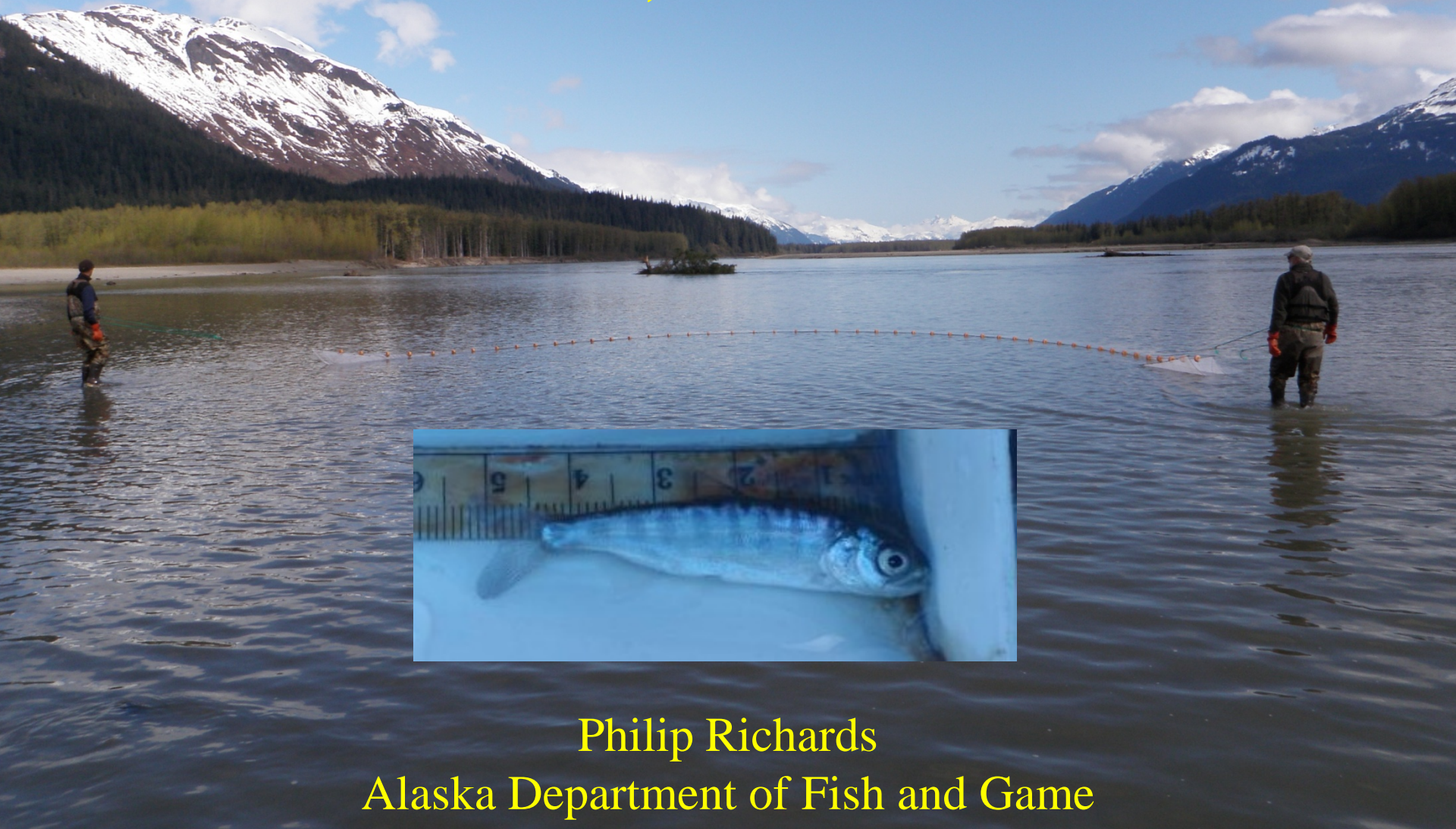


Implementing coded wire tag projects in large rivers to estimate Chinook salmon smolt abundance, harvest and survival

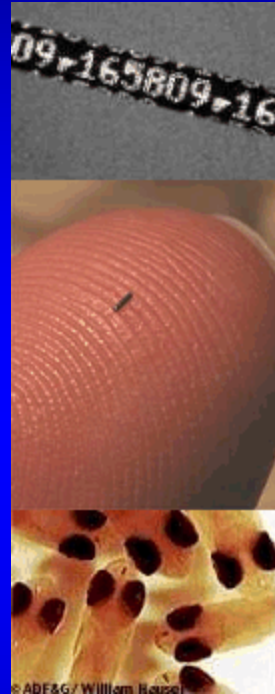


Philip Richards
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Outline

- **What is a coded wire tag (CWT)**
- **History of CWT programs in the Pacific Northwest**
- **Information CWTs provide – wild stocks**
- **How we implement wild stock CWT projects SEAK**
- **What we have learned**
- **Costs and challenges of tagging wild smolt**

Coded wire tag (CWT)



- **1.0 mm stainless steel wire**
- **Injected into snout**
- **Unique codes to identify release group**
- **All tagged fish are adipose clipped**

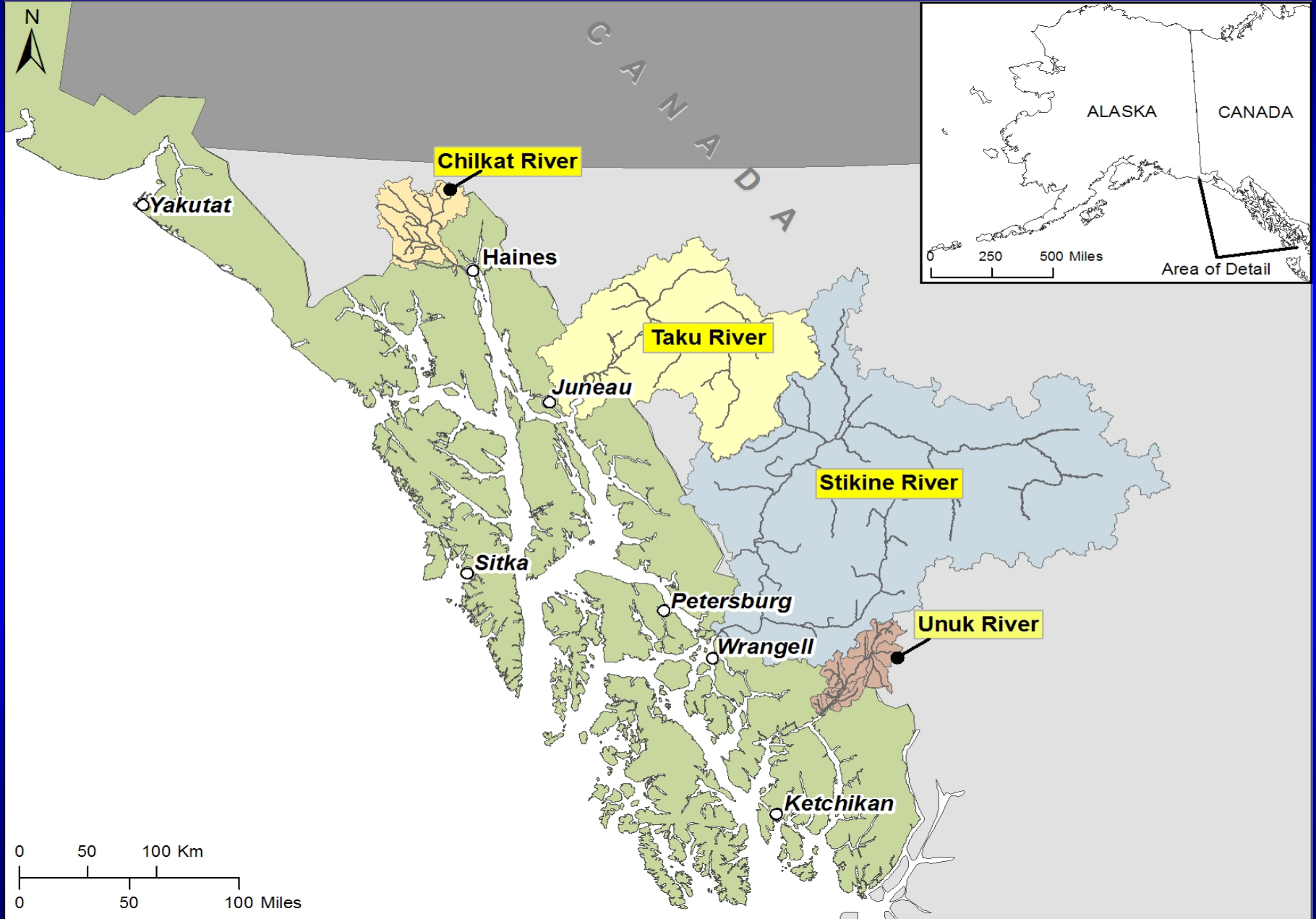
History

- **Coast wide ocean sampling and recovery programs including AK, B.C., WA, OR, and CA – in place for the past 40 years**
- **More than 50 million CWTs released annually**
- **Primarily used in hatcheries – some wild stocks tagged**
- **Remains the only stock identification tool that is Pacific coastwide in scope**

Information CWTs Provide - Wild Stocks

- Smolt abundance**
- Marine survival - smolt to adult survival rates**
- Marine distribution - where stocks are caught**
- Harvest - how many are caught**
- Precise population statistics used for stock assessment and management, including escapement goal analysis**

Wild Stock CWT Projects in Southeast Alaska



Objectives of CWT Programs in Southeast Alaska

- Estimate the abundance of Chinook salmon smolt leaving each river**
- Estimate the length and weight of Chinook salmon smolt**
- Estimate marine harvest**
- Estimate marine survival (smolt to adult)**
- Overwinter survival (fry to smolt) Chilkat and Unuk Rivers**

Implementing CWT Projects – Where to start??

- 1. Reliable and accurate method to estimate adult abundance**
 - In Southeast Alaska - adult mark-recapture projects**
- 2. Biological sampling**
 - Age & sex apportioning by brood year**
 - Length at Age**
 - CWT sampling for Marked Fraction inriver**
- 3. Marine harvest sampling for CWTs**
 - Local and region wide catch sampling – 20% harvest sampled**
 - All have to be in place before starting a CWT project**

Smolt Capture

- Seines & Minnow Traps







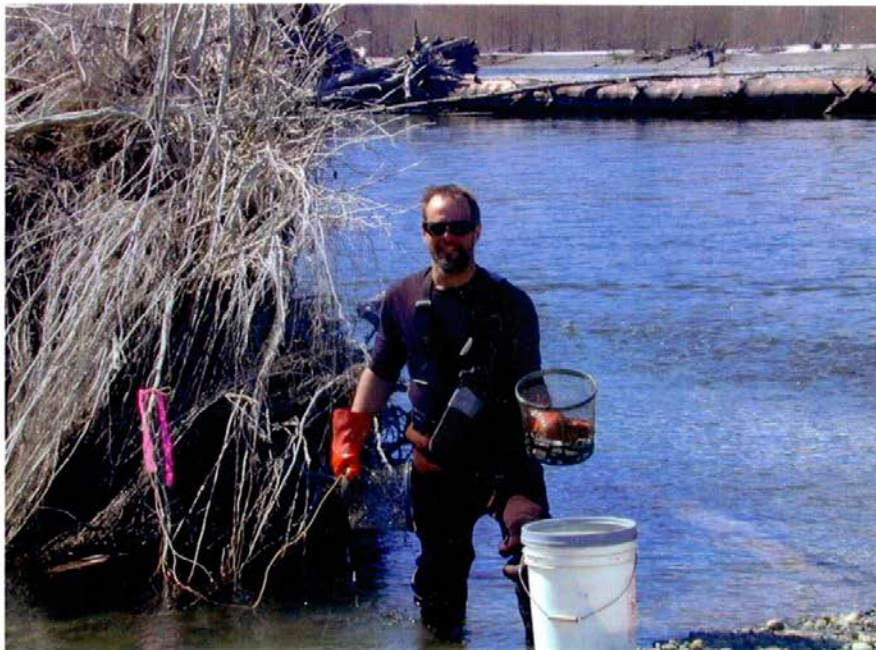


Tagging smolt



Special Publication No. 06-31

Juvenile Salmon Capture and Coded Wire Tagging Manual



David L. Magnus, A. Dale Brandenburger, Kent F. Crabtree,
Keith A. Pahlke and Scott A. McPherson

December 2006

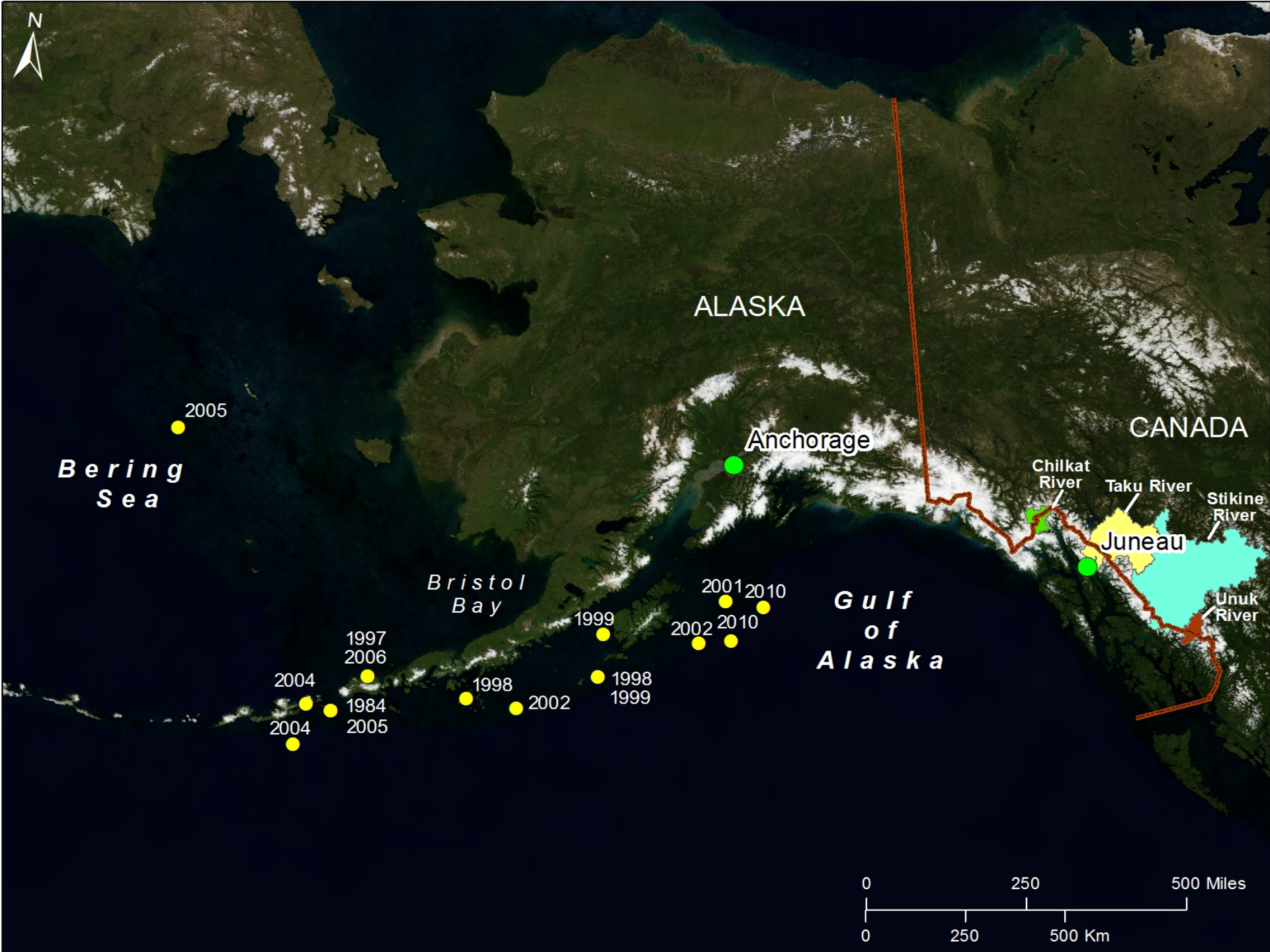
Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



Results – Stikine River

- **2002 Spawning escapement = 50,875**
- **Tagged 26,630 smolt in 2004**
- **Inspected 8,359 adults 2005-2009 (88 marked)**
- **2,533,065 smolt (SE 266,648) CV = 11%**
- **50 smolt/spawner**
- **1.38 return per spawner**
- **2.8% marine survival (smolt to adult)**
- **14,874 marine harvest (SE 1,688) (27% exploitation)**



Costs and challenges

- **Annual operational cost = \$80,000 to \$100,000**
- **Equipment startup (tagging machines, boats, traps, tag shed, etc...) = \$100,000**
- **Environmental – weather, ice, water level**
- **Time – it takes 5-8 years to get results after tagging starts**
- **Knowledge of habitat – need experienced crew**
- **Field logistics – always complicated in Alaska**

Questions!

