

# SOCKEYE



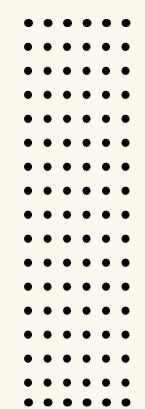
The health and long-term well-being of our **WILD PACIFIC SALMON** is inextricably linked to the availability of diverse and productive freshwater, coastal, and marine habitats.

# HIGH-VALUE HABITAT

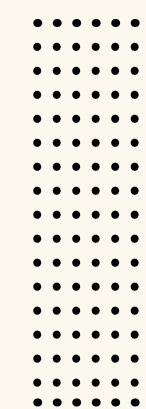
# THE SKEENA WATERSHED

## THE WILD SALMON POLICY AND HABITAT MAPPING

Canada's "Policy for the Conservation of Wild Pacific Salmon" places conservation of salmon and their habitats as the first priority for resource management. The Skeena is one of the most important and diverse salmon watersheds in the world. Of the five salmon species within the watershed, sockeye salmon are the most important commercially.

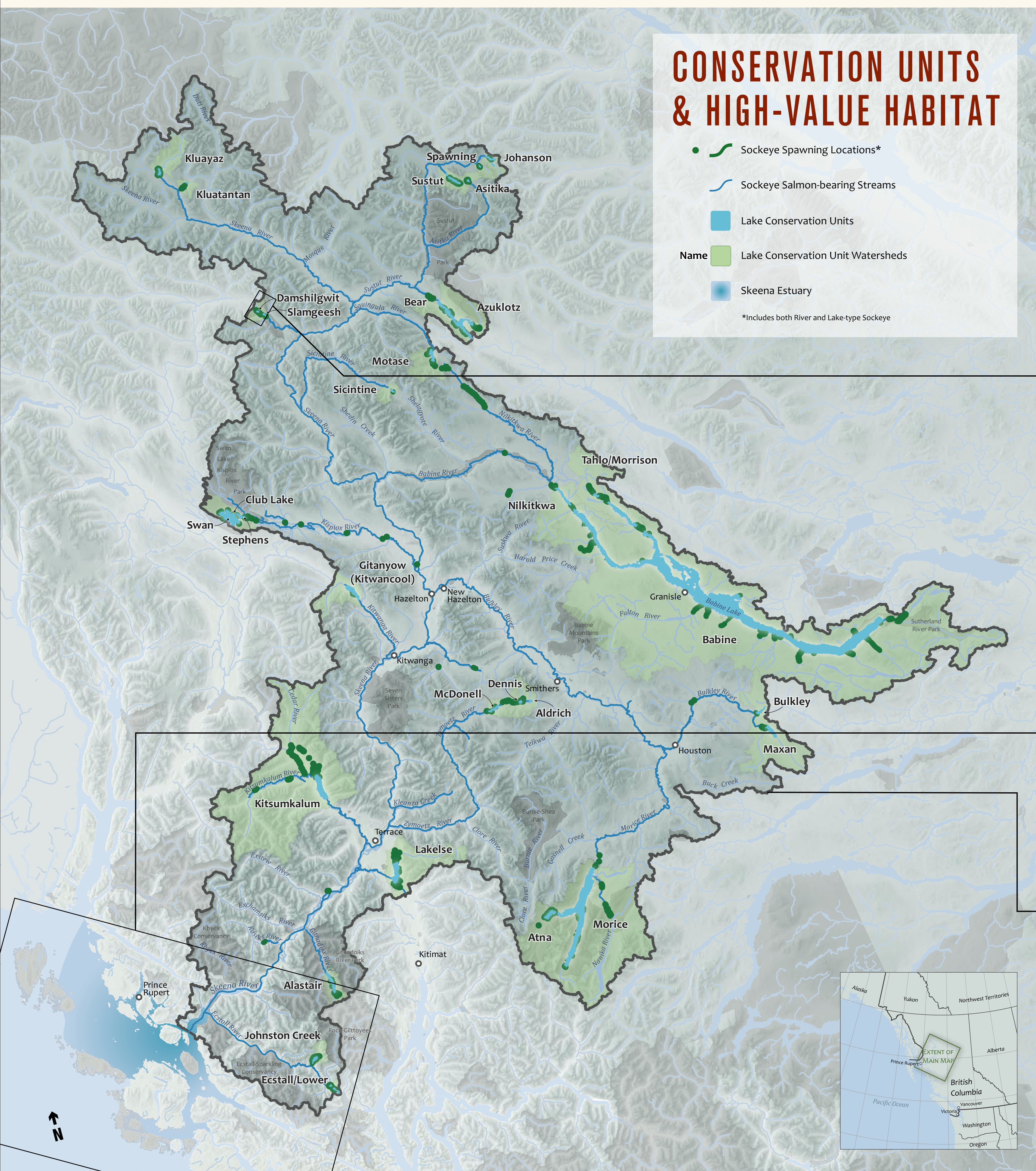


Identifying, protecting, restoring and rehabilitating aquatic habitats are critical to maintaining their integrity and sustaining ecosystems. These habitats range from the vast North Pacific Ocean to gravel beds in shallow streams hundreds of kilometres upstream, from tidal sedge-grass refuges to deep lakes, and from freshwater to saltwater, with the ever-changing Skeena River forming the critical link between them all.



## AN INTEGRAL PART OF THE SKEENA

In addition to their important role in human culture, salmon also play an important role in maintaining the health of aquatic ecosystems. In freshwater ecosystems, returning salmon transport marine-derived nutrients inland, sustaining aquatic and terrestrial animals and nourishing the entire ecosystem including subsequent generations of wild salmon.



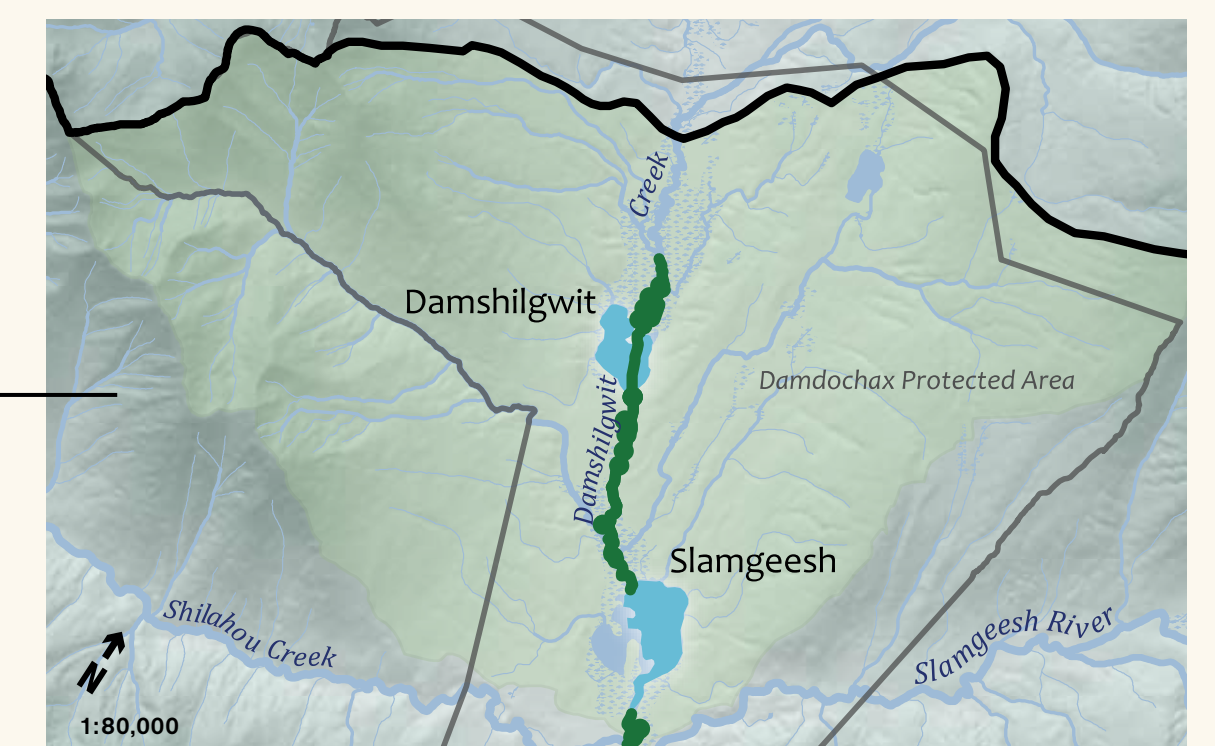
## CONSERVATION UNITS & HIGH-VALUE HABITAT

- Sockeye Spawning Locations\*
  - Sockeye Salmon-bearing Streams
  - Lake Conservation Units
  - Lake Conservation Unit Watersheds
  - Skeena Estuary
- \*Includes both River and Lake-type Sockeye

## CONSERVATION UNITS

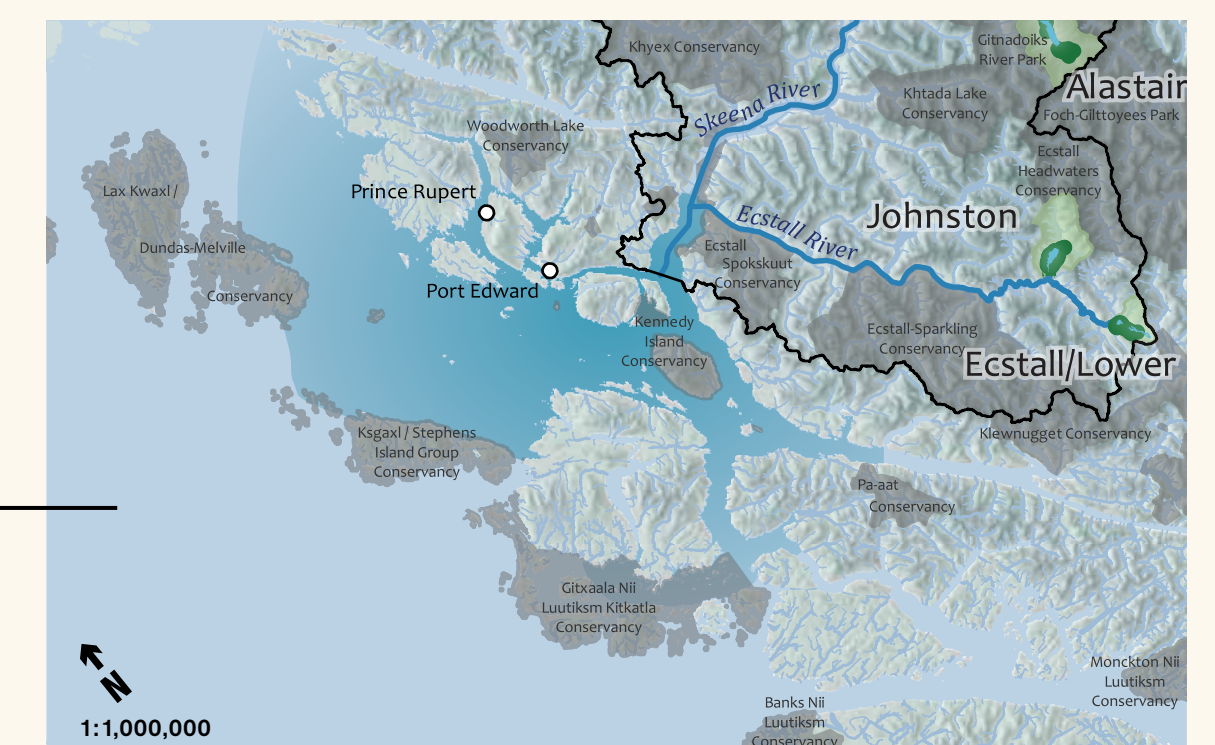
### IDENTIFYING UNIQUE AND IRREPLACEABLE GROUPS OF SOCKEYE

- > Within the Wild Salmon Policy, Conservation Units (CUs) are identified as the mechanism for maintaining biological diversity
- > Each wild salmon population within the CU has developed a unique array of genetic, physical, and behavioural adaptations
- > Within the Skeena, over 30 sockeye CUs have been identified. Most are associated with an individual "nursery" lake (shown on the map at left)
- > Two CUs for Skeena sockeye that rear in rivers have been proposed, however the biology of these river-type sockeye is less well understood
- > Maintaining healthy population levels within each CU requires sufficient numbers of returning salmon each year and the protection of their critical habitat



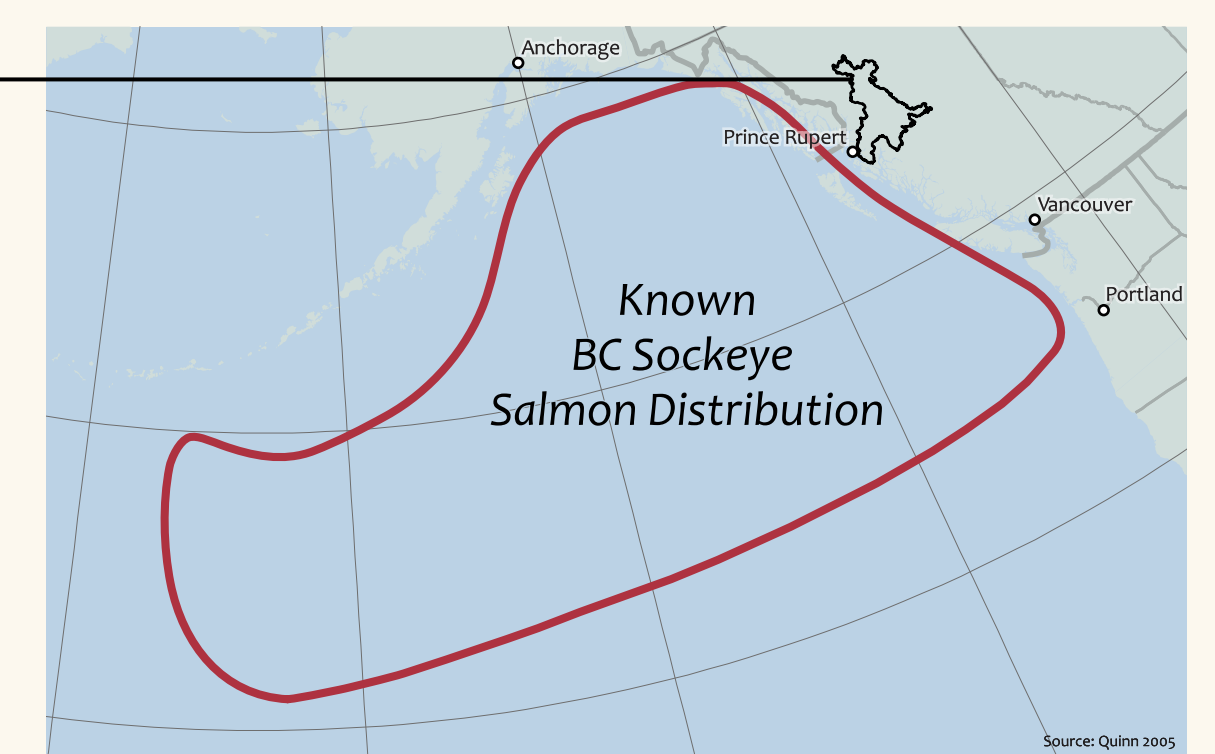
### FRESHWATER / LAKES AND RIVERS

The sockeye lifecycle begins and ends with spawning in freshwater, typically in a tributary of, or adjacent to, a large lake. Eggs are laid in fine gravel and need cool, clean water with sufficient flow to supply oxygen. After hatching, free-swimming fry migrate to the nursery lake where they feed in both littoral (shore) areas and open waters.



### COASTAL / ESTUARY

After one or two years in freshwater, sockeye (now known as smolts) migrate to the Skeena estuary, an ever-changing mix of salt and freshwater. Here they make the remarkable adaptation to the marine environment before typically traveling northward along the coast and offshore.



### MARINE / OCEAN

Adult Skeena sockeye salmon leave coastal waters and migrate into the oceanic zone of the subarctic Pacific, where they feed and mature, usually for two or three years, until their migration back to their birthplace for spawning.



## SOCKEYE SALMON HABITAT FEATURES

Salmon occupy diverse and wide-ranging habitats. Each population (or Conservation Unit) has adapted to the specific habitat characteristics of its natal stream, lake and river segment. Changes to any part of the salmon's habitat — from the temperature of the water to the amount of fine sediment in spawning streams — can impact survival.



## CLIMATE CHANGE REQUIRES HABITAT PROTECTION

Among many potential threats to salmon habitat caused by human activities, that of climate change is of particular concern for Skeena sockeye.

- > River flow likely to decrease while river temperatures will increase
- > Changes in ocean currents, winds, temperatures and plankton productivity affect adult survival
- > Climate effects will be significant and additive to other pressures

The best way of allowing Pacific salmon to adapt to future changes is to maintain the genetic diversity of wild salmon and the integrity of their habitat and ecosystems.

Skeena  
WATERSHED  
INITIATIVE



This poster is one of several products prepared in 2010 by Ecotrust Canada for the Habitat Subcommittee of the Skeena Watershed Initiative to compile and share existing sockeye salmon habitat data. Other products include an atlas of Conservation Units, a larger map of the watershed, an annotated bibliography, and electronic (PDF) versions of the printed materials. Photo: Sam Beebe / Ecotrust (Skeena River); Gary Fiegehen (sockeye) Comments/Reprints: Pacific Salmon Foundation, skeena@psf.ca

