



# Assessing the Atlantic Salmon and its subpopulations for The IUCN Red List of Threatened Species

Catherine Sayer

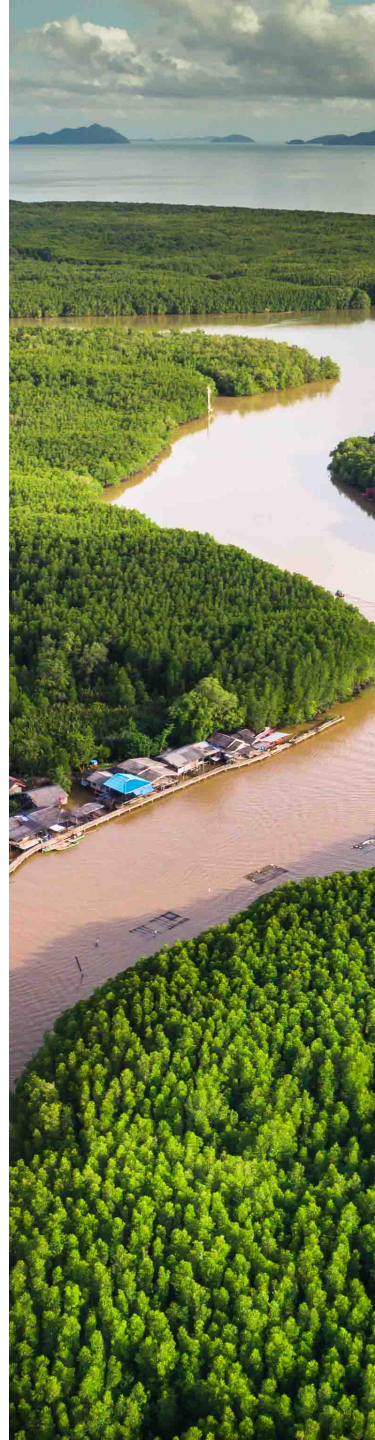
Lead – Freshwater Biodiversity

IUCN Biodiversity Assessment and Knowledge Team

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# OUTLINE

- 1. Freshwater biodiversity**
- 2. The IUCN Red List of Threatened Species**
- 3. Global Freshwater Fish Assessment**
- 4. Atlantic Salmon**
- 5. Atlantic Salmon English Chalkstream subpopulation**





**Wetlands cover less than 1% of the Earth's surface**

© Michel Roggo /roggo.ch



Support over  
**10%**  
of all known species



© Michel Roggo /roggo.ch





Provide ecosystem  
services worth up to  
**\$15 trillion**  
per year

© Kevin Smith






**64% of wetlands have been lost since 1990**

© Michel Roggo /roggo.ch



An aerial photograph of a mountain valley. The landscape is dominated by steep, rocky slopes with patches of green forest. A river flows through the valley, and several large, turquoise-colored lakes are visible. The sky is blue with some light clouds.

Only **37%** rivers over 1,000 km  
remain free-flowing

© Michel Roggo /roggo.ch



# Freshwater populations are declining faster than in any other biome



The last individuals of the Barada Spring Minnow

© Jörg Freyhof



**Freshwater vertebrate  
populations have  
declined**

**83% since 1970**



© Charlene N Simmons / Flickr



**27%**

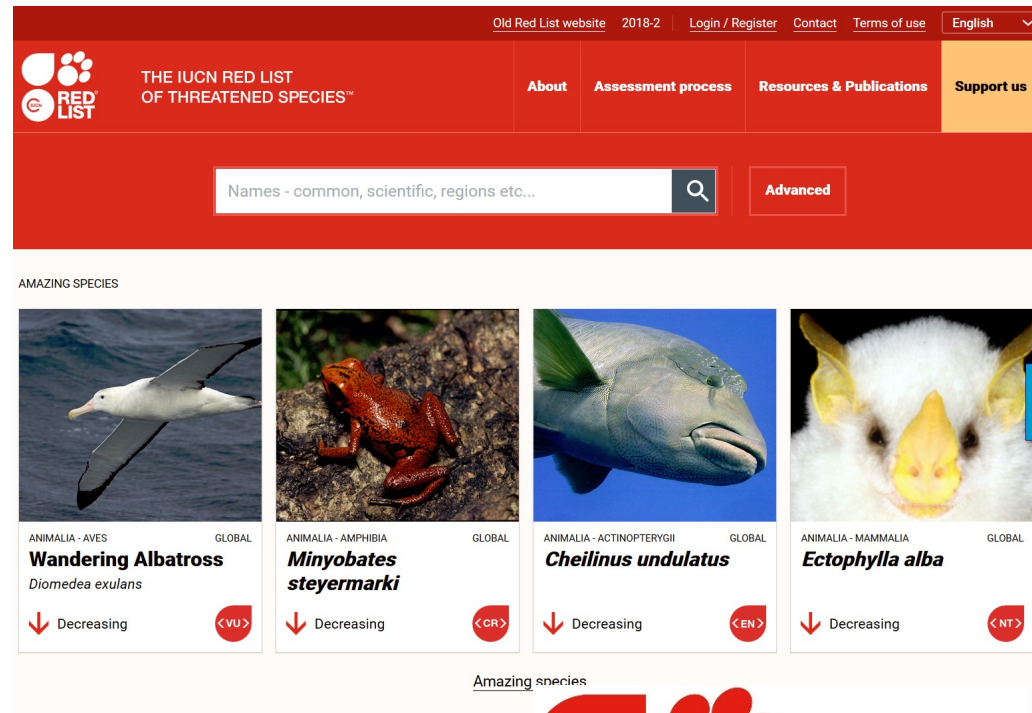
**freshwater species  
are threatened**



*World's most comprehensive information source for extinction risk of species at the global level*

- Species level data on distribution, population, habitats and ecology, use and trade, and conservation/research actions
- Extinction risk categories assigned to species based on data-driven and objective criteria
- Based on the best scientific information available, and produced by the world's leading species experts
- Online scientific journal – open access

[www.iucnredlist.org](http://www.iucnredlist.org)



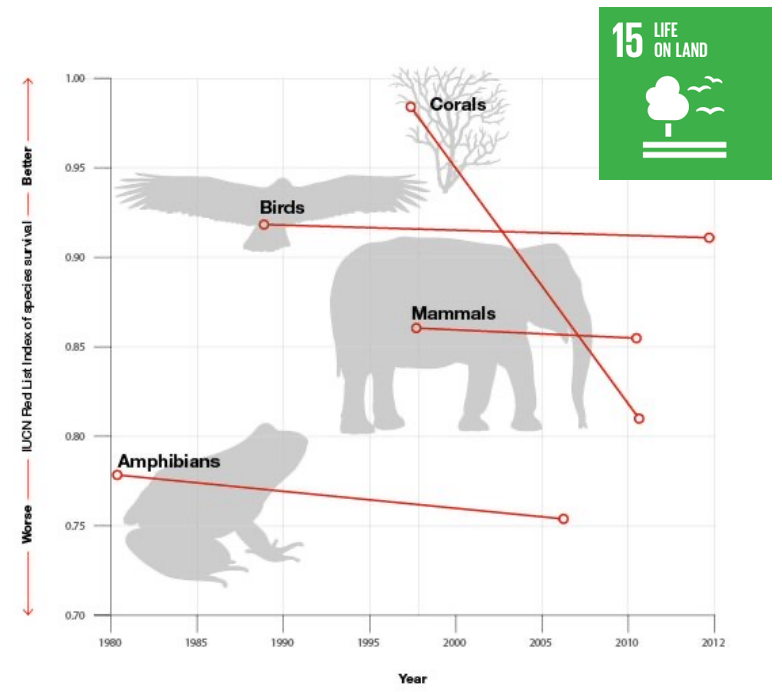
The screenshot shows the IUCN Red List website interface. At the top, there is a navigation bar with links for 'Old Red List website', '2018-2', 'Login / Register', 'Contact', 'Terms of use', and 'English'. Below this is a search bar with the text 'Names - common, scientific, regions etc...' and an 'Advanced' button. The main content area is titled 'AMAZING SPECIES' and features four species cards. Each card includes a photograph, the species name, its taxonomic classification, and its conservation status. The species shown are: Wandering Albatross (ANIMALIA - AVES, GLOBAL, Decreasing, <VU>), Minyobates steyermarki (ANIMALIA - AMPHIBIA, GLOBAL, Decreasing, <CR>), Cheilinus undulatus (ANIMALIA - ACTINOPTERYGII, GLOBAL, Decreasing, <EN>), and Ectophylla alba (ANIMALIA - MAMMALIA, GLOBAL, Decreasing, <NT>). A 'Feedback' button is visible on the right side of the species cards.





- Education and public awareness raising
- Analyses
- Conservation planning and priority setting
- International conservation policy
- Influencing funding allocations
- Private sector decision making

# IUCN RED LIST USES

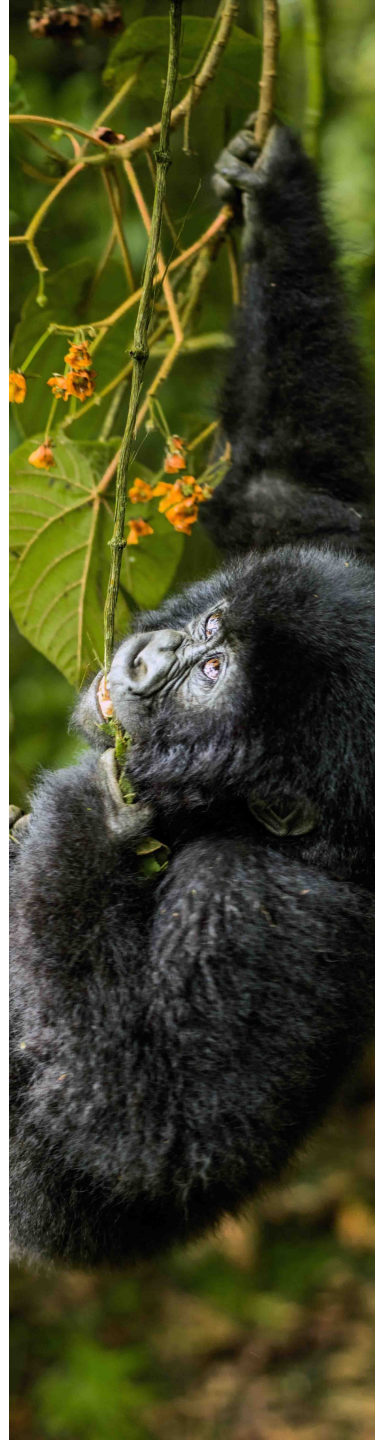
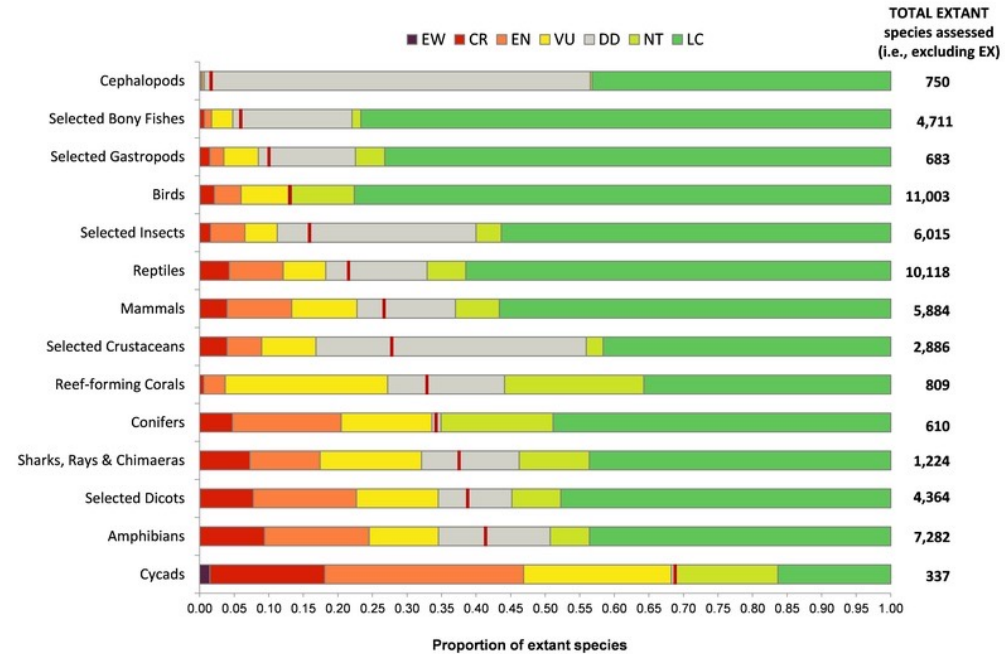




**More than 41,000 species are threatened with extinction**

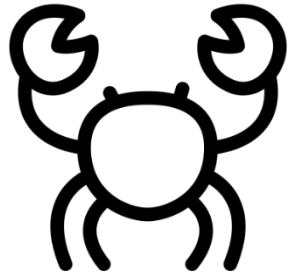
That is still 28% of all assessed species.

<p>AMPHIBIANS</p> <p><b>41%</b></p>	<p>MAMMALS</p> <p><b>27%</b></p>	<p>CONIFERS</p> <p><b>34%</b></p>
<p>BIRDS</p> <p><b>13%</b></p>	<p>SHARKS &amp; RAYS</p> <p><b>37%</b></p>	<p>REEF CORALS</p> <p><b>33%</b></p>
<p>SELECTED CRUSTACEANS</p> <p><b>28%</b></p>	<p>REPTILES</p> <p><b>21%</b></p>	<p>CYCADS</p> <p><b>69%</b></p>

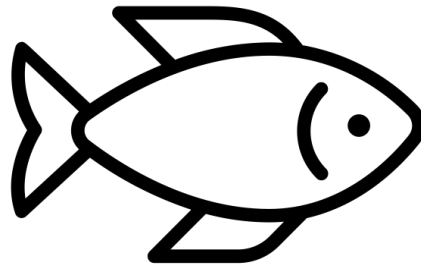




## INCREASING THE REPRESENTATION OF FRESHWATER BIODIVERSITY



**Decapod crustaceans  
(crabs, crayfishes,  
shrimps)**



**Fishes**



**Molluscs**



**Wetland-dependent plants**

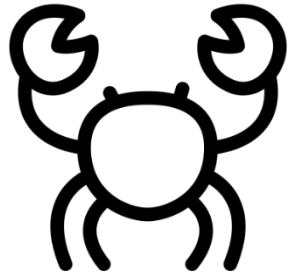


**Odonates (dragonflies and  
damselflies)**

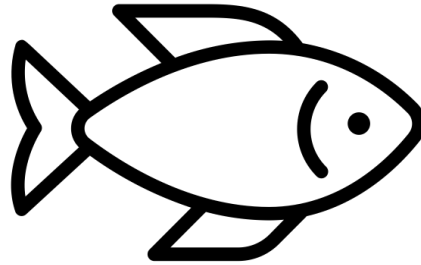




## INCREASING THE REPRESENTATION OF FRESHWATER BIODIVERSITY



**Decapod crustaceans  
(crabs, crayfishes,  
shrimps)  
2009-2014**



**Fishes  
2023**



**Molluscs**



**Wetland-dependent plants**

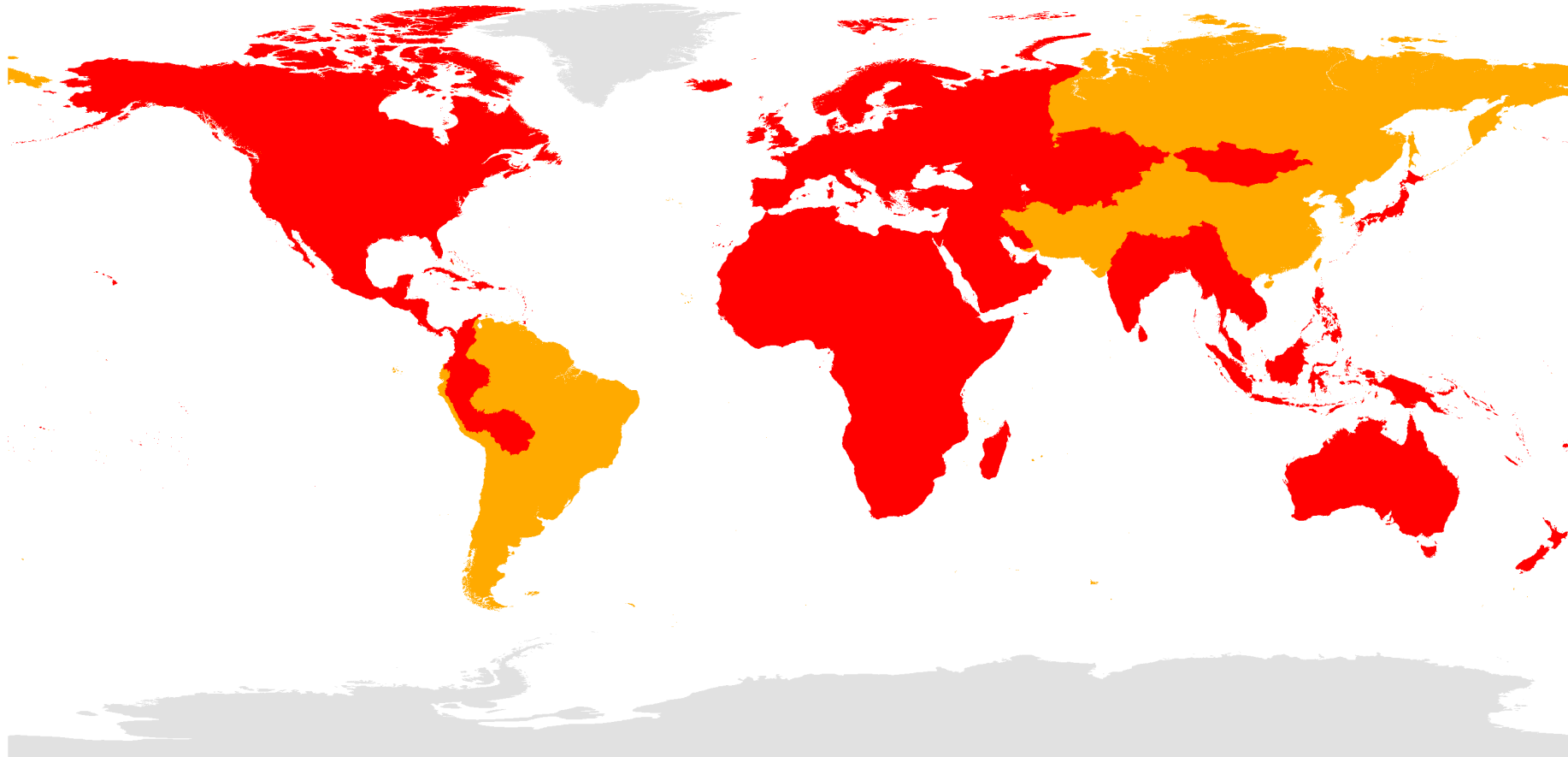


**Odonates (dragonflies and  
damselflies)  
2021**







# *IUCN Red List of Threatened Species Global Assessment of Freshwater Fishes*



## Legend

-  Regions complete
-  Regions under way

**73.7% freshwater fishes  
assessed**





# Atlantic Salmon

*Salmo salar*

## ABSTRACT

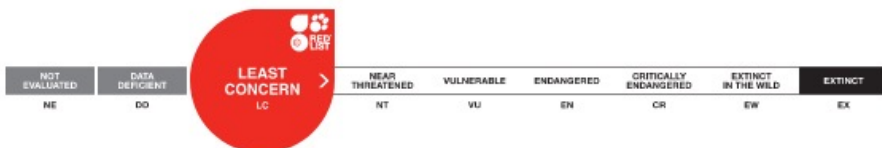
Atlantic Salmon *Salmo salar* has most recently been assessed for *The IUCN Red List of Threatened Species* in 1996. *Salmo salar* is listed as Lower Risk/least concern.

Download

Text Overview

### THE RED LIST ASSESSMENT

World Conservation Monitoring Centre. 1996. *Salmo salar*. *The IUCN Red List of Threatened Species* 1996: e.T19855A9...



LAST ASSESSED  
**01 August 1996**

SCOPE OF ASSESSMENT  
Global

[Assessment in detail](#)

**POPULATION TREND**  
Unspecified

**NUMBER OF MATURE INDIVIDUALS**  
[Population in detail](#)

**HABITAT AND ECOLOGY**  
Wetlands (inland),  
Marine Neritic,  
Marine Oceanic,  
Marine Coastal/Supratidal

[Habitat and ecology in detail](#)

**GEOGRAPHIC RANGE**

Leaflet | Powered by Esri | RUGO, Esri, HERE, FAO, NOAA, AAFC, NRCan

Distribution data is not mapped for this species.



Sockeye Salmon

Resources & Publications Support us

# Sockeye Salmon

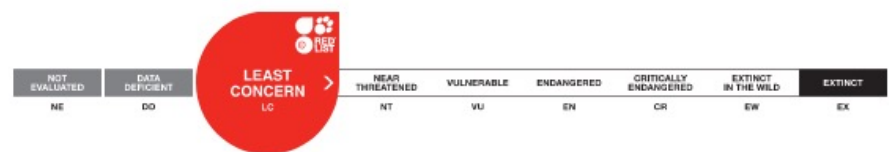
*Oncorhynchus nerka*

ABSTRACT

Sockeye Salmon *Oncorhynchus nerka* has most recently been assessed for *The IUCN Red List of Threatened Species* in 2010. *Oncorhynchus nerka* is listed as Least Concern.

THE RED LIST ASSESSMENT

Rand, P.S. 2011. *Oncorhynchus nerka*. *The IUCN Red List of Threatened Species* 2011: e.T135301A4071001. <https://dx...>



- INFRA-SPECIFIC TAXA ASSESSED
- [Oncorhynchus nerka ALASKA COASTAL DOWNWELLING, EASTERN GULF OF ALASKA](#)
- [Oncorhynchus nerka ALASKA COASTAL DOWNWELLING, WESTERN GULF OF ALASKA](#)
- [Oncorhynchus nerka ALSEK RIVER](#)
- [Oncorhynchus nerka ANADYR CURRENT](#)
- [Oncorhynchus nerka ANADYR RIVER](#)
- [Oncorhynchus nerka BERING-ALASKAN MIXING](#)
- [Oncorhynchus nerka BERING SLOPE/KAMCHATKA CURRENTS](#)
- [Oncorhynchus nerka COLUMBIA RIVER: Okanogan R/Osoyoos Lk](#)
- [Oncorhynchus nerka COLUMBIA RIVER: Payette R](#)
- [Oncorhynchus nerka COLUMBIA RIVER: Redfish Lk](#)
- [Oncorhynchus nerka COLUMBIA RIVER: Suttle Lk/Deschutes R](#)
- [Oncorhynchus nerka COLUMBIA RIVER: Upper, Headwater/Arrow, Whatsan Lk](#)
- [Oncorhynchus nerka COLUMBIA RIVER: Wallowa Lk](#)
- [Oncorhynchus nerka COLUMBIA RIVER: Wenatchee](#)
- [Oncorhynchus nerka COLUMBIA RIVER: Yakima R](#)
- [Oncorhynchus nerka COOK INLET](#)
- [Oncorhynchus nerka COPPER RIVER](#)
- [Oncorhynchus nerka EASTERN ARCTIC \(COLD\)](#)
- [Oncorhynchus nerka EASTERN ARCTIC CURRENT \(WARM\)](#)
- [Oncorhynchus nerka FRASER RIVER, LILLOOET: Birkenhead \(late\)](#)
- [Oncorhynchus nerka FRASER RIVER, LOWER: Big Silver \(late\)](#)
- [Oncorhynchus nerka FRASER RIVER, LOWER: Chilliwack Lk \(early summer\)](#)
- [Oncorhynchus nerka FRASER RIVER, LOWER: Cultus Lk \(late\)](#)
- [Oncorhynchus nerka FRASER RIVER, LOWER: Harrison River \(late\)](#)

Download Text Overview

LAST ASSESSED  
24 November 2010

SCOPE OF ASSESSMENT  
Global

[Assessment in detail](#)

**POPULATION TREND**  
Stable

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NUMBER OF MATURE INDIVIDUALS  
[Population in detail](#)

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HABITAT AND ECOLOGY  
**Wetlands (inland), Marine Neritic, Marine Oceanic, Marine Coastal/Supratidal**  
[Habitat and ecology in detail](#)

**GEOGRAPHIC RANGE**

[Geographic range in detail](#)

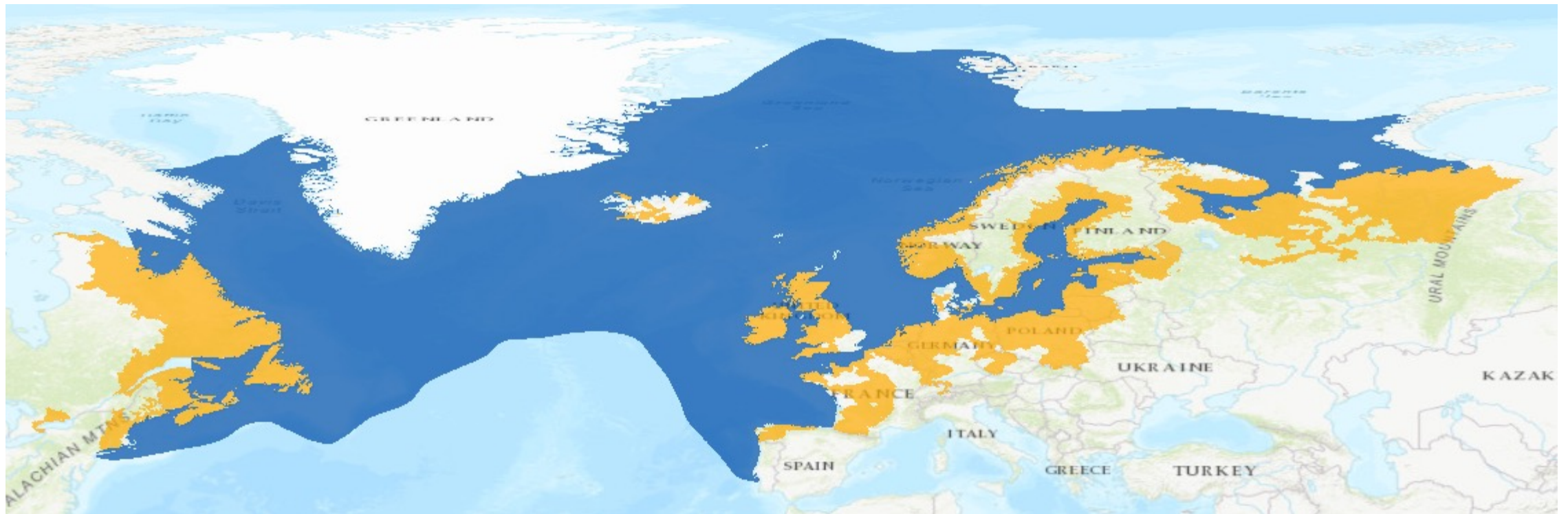
EXTANT (RESIDENT)  
EXTINCT

**Plus 98 subpopulations**



## Atlantic Salmon – species level

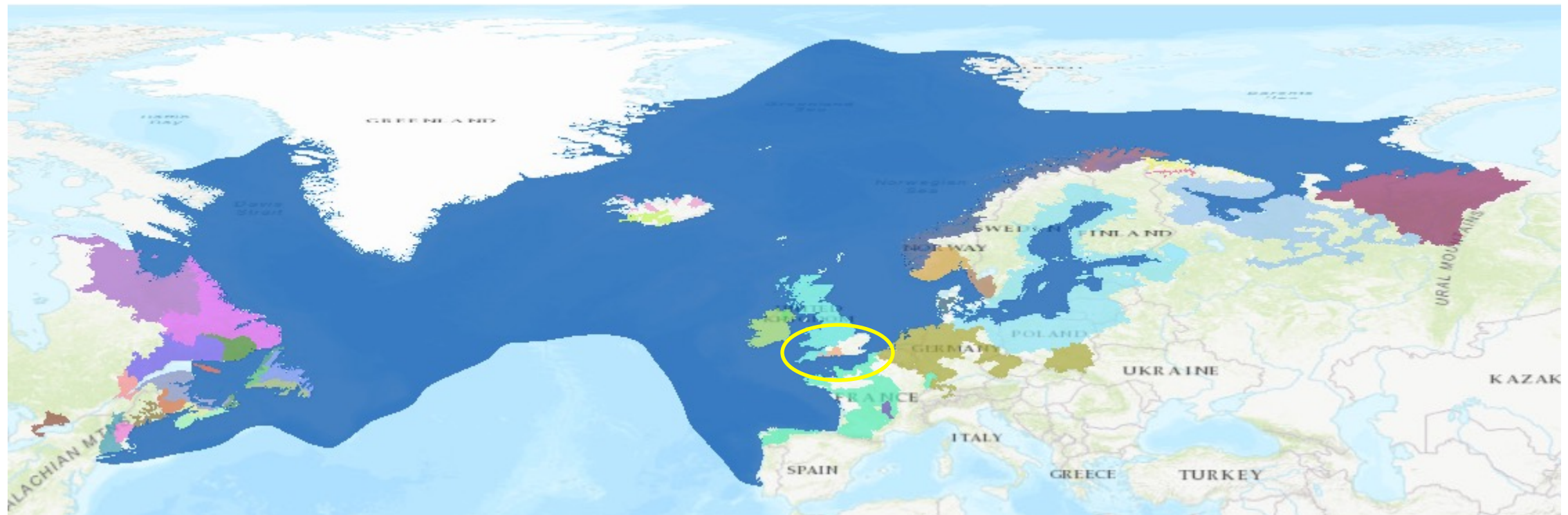
- Distributed across c. 2,500 rivers from c. 40° N northwards, on both sides of the Atlantic
- Anadromous (migrates up rivers from sea to spawn)





# Atlantic Salmon - 40 subpopulations

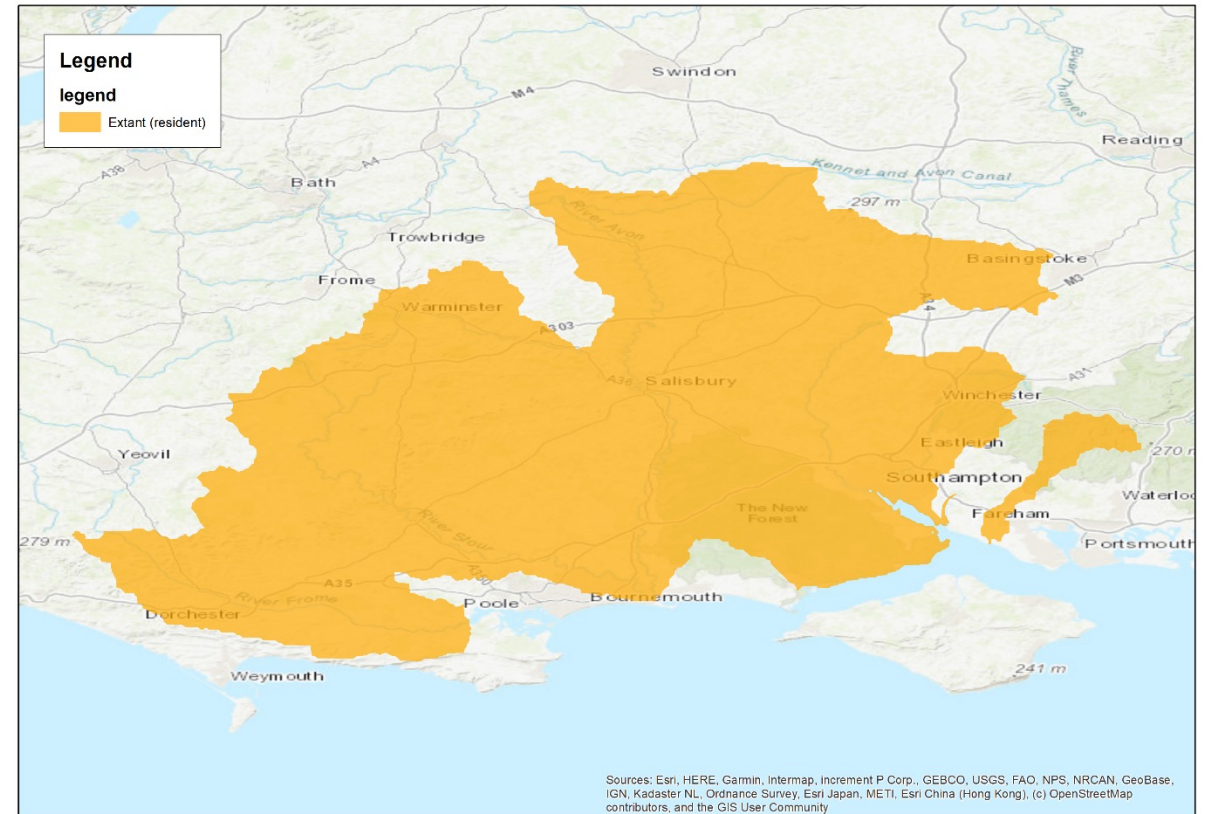
- Europe: Gilbey et al. 2018
- Canada: COSEWIC assessments
- US: ESA assessments





# Atlantic Salmon – English Chalkstream subpopulation

- **Restricted distribution**
  - Five English Chalkstreams
    - Frome, Piddle, Avon, Test, Itchen
    - All considered “high risk” rivers by NASCO
    - All considered “at risk” or “probably at risk” by 2013 Water Framework Directive
  - Spans c. 70km along the southern coast
  - Despite chalkstreams found from NE to SW England
- Genetically distinct from individuals in neighbouring non-chalk rivers





## Atlantic Salmon – English Chalkstream subpopulation

- **Population trends**
  - Rod catch data from the Environment Agency
  - In last three generations (12 years)
    - Overall – **19% decline**
    - Itchen – **47% decline**
    - Test – **1% decline**
    - Avon (Hants) – **29% increase**
    - Piddle – **80% decline**
    - Frome – **21% decline**



© Michel Roggo /roggo.ch



# Atlantic Salmon – English Chalkstream subpopulation

- **Threats**

- Over abstraction of water in summer months
  - Unable to maintain acceptable flow
- Barriers, e.g. weirs and sluices
  - Impede fish passage and impact hydrology
- Agriculture
  - Increased sedimentation and nutrient enrichment leading to algal overgrowth
- Pollution
  - Raw sewage overflow from inundated treatment works during wet weather
- Invasive species
  - Changes to habitat and community structure
- All exacerbated by climate change



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# Atlantic Salmon – English Chalkstream subpopulation

- **Conservation actions**
  - River restoration
    - Removal or modification of structures
    - Re-alignment and re-meandering of the rivers
    - Working to understand and manage water abstraction
  - (Voluntary) fishing regulations
    - Catch and release
    - Restrictions on number and type of hooks
  - Increased and improved monitoring schemes







# Atlantic Salmon

*Salmo salar*

### ABSTRACT

Atlantic Salmon *Salmo salar* has most recently been assessed for *The IUCN Red List of Threatened Species* in 1996. *Salmo salar* is listed as Lower Risk/least concern.

Download

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## Re-assessment to be published in July 2023

### THE RED LIST ASSESSMENT

World Conservation Monitoring Centre. 1996. *Salmo salar*. *The IUCN Red List of Threatened Species* 1996: e.T19855A9...

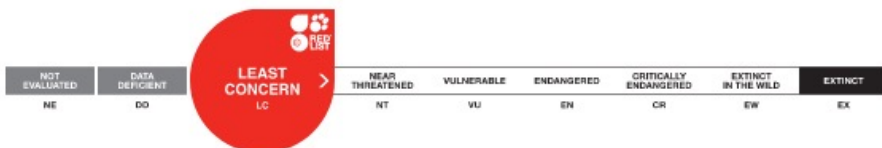
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Marine Oceanic,  
Marine Coastal/Supratidal

[Habitat and ecology in detail](#)

**GEOGRAPHIC RANGE**

[Geographic range in detail](#)

Distribution data is not mapped for this species.





# Thank you for listening

Catherine Sayer

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Knowledge Team

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