

# Pretty in pink?

## The uncertain risk of the invasive salmonid

### *Oncorhynchus gorbuscha* on Norwegian *Salmo salar*

#### *Salmo salar*

- Native, wild throughout Norway<sup>(5)</sup>
- Culturally significant<sup>(4)</sup>
- Valuable fishery<sup>(4)</sup>
- Steep decline in recent years<sup>(1,4)</sup>

#### Atlantic Salmon VS Pink Salmon

Illustrated by Amalie E. Paulsen

#### *Oncorhynchus gorbuscha*

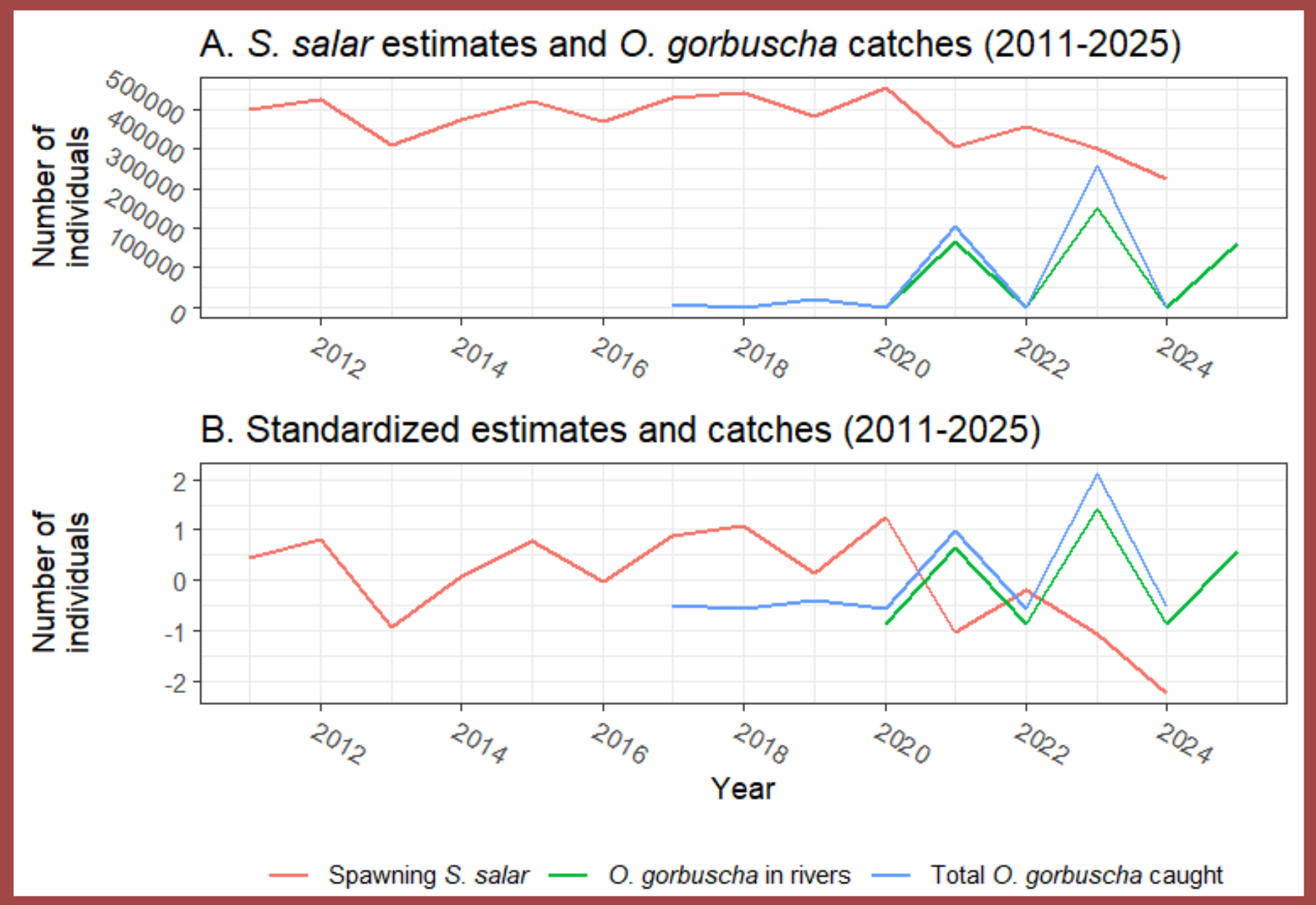
- Invasive, especially in Northern Norway<sup>(25)</sup>
- Larger odd-year groups since 2017<sup>(2,19,39)</sup>
- Aggressive behavior (native range)<sup>(28)</sup>
- Large population increase in recent years<sup>(2,19,42)</sup>

Which effects do *O. gorbuscha* have on Norwegian wild *S. salar* populations, and can they be better assessed with current data?



### Methods

This study is based on a **literature review** of the invasive pink salmon (*O. gorbuscha*) and its interactions with Atlantic salmon (*S. salar*) in Norway. From August-October 2025, we searched Web of Science, Google Scholar<sup>(38)</sup>, and Norwegian agencies for studies on occurrence, ecological effect, biological interactions, and relevant statistical data (mainly 2012-2025)<sup>(7-19)</sup>. All variables were **standardised** to allow comparison between species with large population differences.



Sources: <sup>(7-19)</sup>

### Our main findings

| Mechanism                        | Description                                                                                                                                                                             | Potential consequences for <i>S. salar</i>                                                                                                                                            |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Genetic transfer                 | Hybridisation is not documented in the wild, and genetic introgression is considered highly unlikely due to strong species separation <sup>(23,24)</sup> .                              | Minimal or no risk of introgression <sup>(23)</sup> .                                                                                                                                 |
| Feeding competition              | Both species feed on similar marine prey, and juvenile <i>O. gorbuscha</i> also consume freshwater invertebrates, overlapping with the diet of <i>S. salar</i> smolts <sup>(49)</sup> . | Abundant <i>O. gorbuscha</i> may reduce <i>S. salar</i> growth and survival through food competition <sup>(49)</sup> .                                                                |
| Spawning competition             | Autumn spawning by <i>O. gorbuscha</i> may disturb gravel beds and reduce spawning habitat <sup>(50)</sup> .                                                                            | Reduced spawning success and increased competition between species <sup>(50)</sup> .                                                                                                  |
| Disease transfer                 | <i>O. gorbuscha</i> can carry salmon lice and other pathogens; more resistant than <i>S. salar</i> , they may act as reservoirs <sup>(51,52)</sup> .                                    | Increase in parasite transmission risk to wild <i>S. salar</i> in rivers and at sea <sup>(51,52)</sup> .                                                                              |
| Ecosystem effects                | High <i>O. gorbuscha</i> abundance can alter nutrient dynamics and food webs in freshwater and marine systems <sup>(23)</sup> .                                                         | Indirect negative effects on <i>S. salar</i> from reduced prey and altered ecosystems <sup>(23)</sup> .                                                                               |
| Expanded geographic distribution | <i>O. gorbuscha</i> population has surged since 2017, spreading along Norway's coastline <sup>(2,19,23)</sup> .                                                                         | <i>O. gorbuscha</i> has appeared across most of <i>S. salar</i> 's home range over the past years, making its impact difficult to assess without further study <sup>(2,19,23)</sup> . |



Our sources can be found here:



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