

FACTSHEET ON THE IMPACT OF SALMON FARMS ON WILD SALMON & SEA TROUT STOCKS



IMPACTS OF ESCAPED FARMED SALMON ON WILD SALMON

Wild salmon from different rivers are genetically distinct and have uniquely adapted to their individual native river since as far back as the last Ice Age.

- There is compelling international evidence to show that escaped farmed salmon pose a high risk to wild salmon populations. Negative effects include both ecological interactions and the genetic impacts of inter-breeding.
- Inter-breeding of farmed salmon with wild salmon has the potential to genetically alter native populations, and reduce their ability to survive.
- Repeat escapes of farmed salmon causes serious on going damage to wild stocks and can lead to salmon extinction in their native rivers, particularly where wild stock numbers are low.
In Norway, all classified wild salmon rivers have been negatively impacted by farmed salmon escapes. 8 salmon rivers have been critically threatened or have lost their native wild stocks, 107 salmon rivers are classified as "threatened" or "vulnerable" while 211 rivers are classified as "in need of special attention".
- A recent genetic study in Scotland has shown evidence of the presence of Norwegian strain farmed salmon at almost all of the Scottish sites surveyed and confirmed several cases of direct escapees sampled in the wild. The levels of inter breeding between farmed and wild salmon along the Scottish west coast was significant.
- Annual escapes exceeding half a million farmed salmon are reported regularly in Norway. In Ireland, the primary cause of escapes from salmon farms has been storm damage and a single escape of over 80,000 farmed salmon has occurred in recent years.



IMPACTS OF SEA LICE ON WILD SALMON AND SEA TROUT

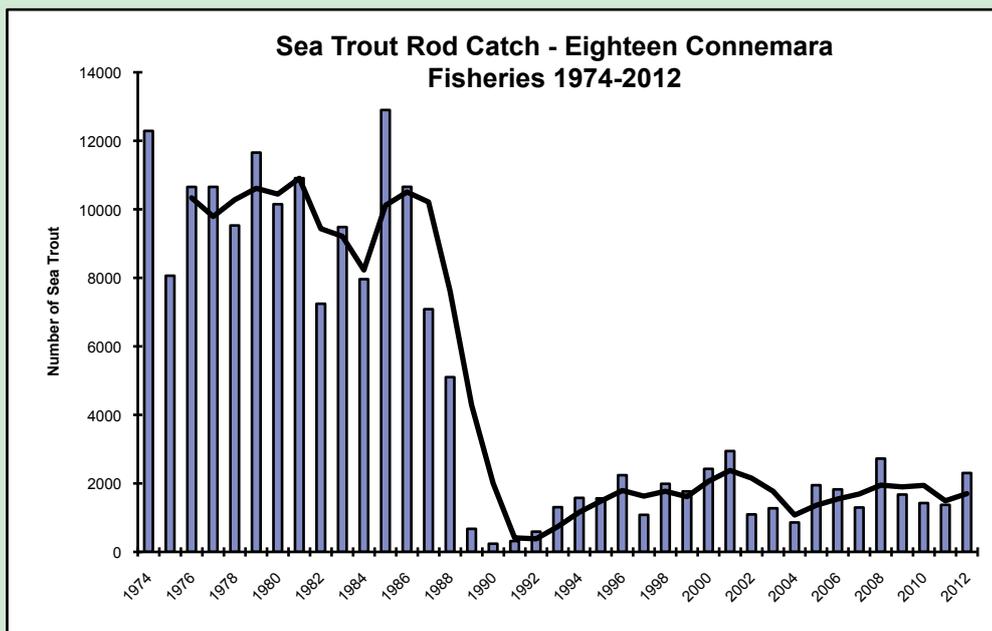
Sea trout are the migratory form of brown trout and usually leave freshwater after two or three years to feed at sea before returning to home rivers. They forage in estuaries and along the coast and naturally carry small numbers of sea lice with no ill effects. Juvenile salmon leave freshwater, usually after two years, and migrate out to sea to feed offshore.

- The presence of salmon farms has been shown to significantly increase the level of sea lice infestation on sea trout in Ireland, Scotland and Norway. These sea lice infestations have been shown to follow the development of marine salmon aquaculture.
- Sea lice from marine salmon farms were a major contributory factor in the sea trout stock collapses observed in salmon aquaculture areas in western Ireland, western Scotland and western Norway in the 1990's.
- Sea lice infestation may result in lack of growth and reproductive failure in sea trout and lead to increased secondary infection and greater predation. Heavy lice infestations can lead to osmotic stress resulting in death.



- A sea trout stock collapse occurred in the Burrishoole index catchment entering Clew Bay over the 1987-1990 period and this stock has failed to recover. Sea lice from marine salmon farms were implicated in this additional marine mortality.
- Research was carried out on salmon smolts migrating through aquaculture bays in the west of Ireland. Results indicate that the return of fish as adult salmon one year later was almost double for fish which were pre-treated against sea lice infection than that of non-treated fish. These results show that sea lice outbreaks have the potential to be an important factor regulating wild Atlantic salmon stock sizes.

- International research, from Ireland and Norway indicates that 39% of salmon mortalities were attributable to sea lice, likely acquired during early marine migration in areas with salmon farms. An increase in the mortality of salmon smolts can therefore be expected in locations where farm sea lice levels are not maintained at sufficiently low levels in spring.
- Recent research from Scotland Marine Science confirms previous findings from the west of Ireland that sea lice from salmon farms can negatively impact sea trout over a distance of up to 30km from the salmon farm.
The magnitude of the sea lice impact is even greater again the nearer the salmon farms are located to rivers mouths.
- In the intensive farming fjord in Norway (Hardangerfjord), most rivers have been closed for many years due to low numbers of salmon and sea trout in rivers. The combined impacts of sea lice and escaped farmed salmon are considered to be the main factors contributing to these closures.
- Sea lice infection pressure on wild salmonids has increased in recent years in Norway and sea lice has had a stock reducing effect on sea trout along large parts of the Norwegian coast, and also on salmon smolts in some areas.
- Studies from Ireland, Scotland, and Norway have shown that in bays where salmon farming takes place the vast majority of sea lice originate from salmon farms. Studies have shown that as few as 11 sea lice can lead to salmon smolt mortality,
- Following a sea lice infestation and a resultant collapse in sea trout stocks in western fisheries during the early nineties, sea lice control protocols were introduced in the mid 1990's to control sea lice on salmon farms nationally. However, despite the protocols in place, monthly lice monitoring shows that sea lice levels regularly breach protocol levels.



*Graph of sea trout rod catch from 18 Connemara fisheries over the 1974-2012 period.
The sea trout stock collapse is evident over the 1989-1990 period.
Since 1990, angling has been on a catch and release basis.
The sea trout catch has failed to recover to pre-collapse levels.*