

Family Coregonidae

Whitefishes and ciscoes

The family comprises a variety of medium-sized to large fishes with slender and compressed, silvery bodies covered by numerous small scales (60–110), a dorsal adipose fin, and very small or absent teeth. The family includes anadromous and pure freshwater species in northern Europe, Asia, and North America. Most species are pelagic, form schools, and feed on small crustaceans. In autumn, both sexes develop nuptial tubercles on each lateral scale.

Whitefish are renowned for their propensity to evolve rapidly, particularly in European, Siberian, and North American lakes, where they adapt to specific ecological conditions and form their own niches. This has resulted in recognising numerous species, often endemic to a single or few lakes.

The majority of species have a high commercial value and are intensively fished. Some are cultivated, with fry of many populations and species produced artificially and stocked outside their native range, resulting in hybrid stocks and other manipulations. The genetic integrity of several wild populations and species is under threat, with several species now extinct following the formation of hybrid swarms and habitat modification. Two species have been introduced to lakes in the Caucasus, with one of them forming an endemic species of hybrid origin.

The anadromous *Stenodus leucichthys* is frequently reported from West Asia and found in the Caspian Sea. However, we are unaware of any confirmed records of this species entering rivers in the region, and it appears to have always been restricted to the northern, European part of the sea. Fish from the remaining population in the Volga may occasionally enter the Asian part of the Caspian Sea. However, it is doubtful that they will enter rivers to

spawn and can be found in freshwater here. It The species is not included in the scope of this book. **Further reading.** Kottelat 1997 (species concepts, systematics, nomenclature).

Coregonus albula

Common name. Baltic cisco.

Diagnosis. Distinguished from Lake Sevan whitefish by:

- mouth superior, upper jaw shorter than lower one /
- 38–50 gill rakers. Size up to about 350 mm SL, many populations much smaller.

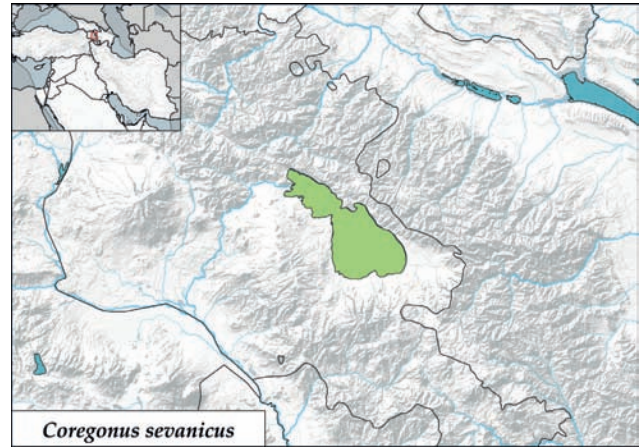
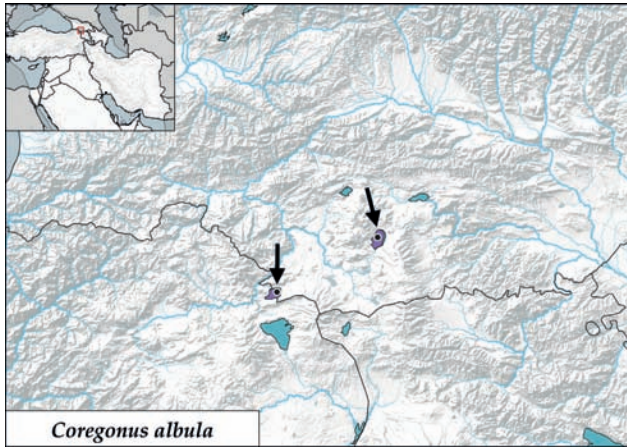
Distribution. Introduced in 1930s from Lake Ladoga (Russia) to Lake Paravani (Georgia) and Lake Kartsakhi (Aktaş, Türkiye). Native to Baltic basin, lakes of upper Volga drainage (Seliger, Vseluga, Perejaslavskoe), some lakes of White Sea and North Sea basins east of Elbe drainage. Anadromous in Gulf of Finland and marine in northernmost freshwater part of Gulf of Bothnia. North to about 69°N in Lake Inari, northern Finland. Native also all over northern Europe, Siberia and Pacific America, where *C. sardinella* is a synonym.

Habitat. Lacustrine and marine, in open water. At sea, foraging close to shore. Spawns on banks, 3–10 m deep, rarely down to 22 m or just below surface. Spawns deeper in clear lakes and closer to surface in humic lakes.

Biology. Anadromous, marine and freshwater populations. Spawns first time at 2–5 years (2–3 in Lake Onega), males usually earlier than females. Spawns in October (Central Finland) December (Northern Germany) at 6–7°C. Anadromous populations begin river migration in August (Neva). Eggs hatch March–April, and juveniles migrate to sea in late summer of first year in anadromous populations. Larvae pelagic, near surface and usually near coast. Adults usually in deep waters during day, moving to upper layers at night. Feeds on zooplankton.



Coregonus albula; Lake Breiter Luzin, Germany; ~120 mm SL.



Conservation status. Non-native; introduced for commercial fisheries.

Further reading. Svärdson 1979 (morphology, distribution); Nikolsky & Reshetnikov 1970 (systematics); Yerli 2019 (introduced record from Türkiye).

Coregonus sevanicus

Common name. Sevan whitefish.

Diagnosis. Distinguished from *C. albula* by: ● mouth terminal or inferior, upper jaw longer than or equal to lower one / ● 27–36(38) gill rakers. Size up to about 350 mm SL.

Distribution. Armenia: Lake Sevan. Introduced from Lake Sevan to Lake Issykul (Kyrgyzstan) in 1973 and from there to Charvak Reservoir (Uzbekistan) in 1980s. Likely introduced to other lakes in former Soviet Union.

Habitat. Lacustrine, spawns in lakes.

Biology. Pelagic, spawns in autumn and early winter along shores. Feeds on plankton and benthic invertebrates.

Conservation status. Not assessed due to the very poor knowledge about this species.

Remarks. Two species were introduced in Lake Sevan in 1920s: *Coregonus ludoga* from Lake Ladoga and *C. maraenoides* from Lake Chudskoe (both in northern European Russia). These two species naturalised and hybridised in Lake Sevan, and an intermediate phenotype was subsequently described as *Coregonus lavaretus sevanicus*. Introducing this whitefish may have been one reason for the collapse of trout populations in Lake Sevan. *Coregonus sevanicus* is treated here as a valid species of hybrid origin. However, due to the lack of recent data, we cannot confirm or reject any taxonomic hypothesis related to this species. *Coregonus ludoga* was also introduced in Lake Tabatskuri in Georgia from the Volkhov hatchery in the 1930s. Still, the species has not been recorded for at least the last 50 years, and we suspect that the population may have been extirpated.

Further reading. Dadikyan 1986 (description); Elanidze 1983 (Lake Tabatskuri); Pipoyan et al. 2012 (Lake Sevan); Kuljanishvili et al. 2020 (introduction).



Coregonus sevanicus; Charvak Reservoir, Uzbekistan; ~190 mm SL. © A. Rozimov.