Chapter 14

How did freshwater and saltwater fish survive the Flood?

- **How did saltwater fish survive dilution of the sea water with fresh water, or how did freshwater types survive in salt water?**
- **And how did plants survive?**

IF the whole Earth were covered by water in the Flood, then there would have been a mixing of fresh and salt waters. Many of today's fish species are specialized and do not survive in water of radically different saltiness to their usual habitat. So how did they survive the Flood?

Note that the Bible tells us that only land-dwelling, air-breathing animals and birds were on the Ark (Gen. 7:14–15, 21–23).

We do not know how salty the sea was before the Flood. The Flood was initiated by the breaking up of *"the fountains of the great deep"* (Gen. 7:11). Whatever *"the fountains of the great deep"* were (see Chapter 9), the Flood must have been associated with massive earth movements, because of the weight of the water alone, which would have resulted in great volcanic activity.

Volcanoes emit huge amounts of steam, and underwater lava creates hot water/steam, which dissolves minerals, adding salt to the water. Furthermore, erosion accompanying the movement of water off the continents after the Flood would have added salt to the oceans. In other words, we would expect the pre-Flood ocean waters to be less salty than they were after the Flood.

The problem for fish coping with saltiness is this: fish in fresh water

tend to absorb water, because the saltiness of their body fluids draws in the water (by osmosis). Fish in saltwater tend to lose water from their bodies because the surrounding water is saltier than their body fluids.

Saltwater/freshwater adaptation in fish today

Many of today's marine organisms, especially estuarine and tidepool species, are able to survive large changes in salinity. For example, starfish will tolerate as low as 16–18% of the normal concentration of sea salt indefinitely. Barnacles can withstand exposure to less than one-tenth the usual salt concentration of sea water.

Eels, like many sea creatures, can move between salt and fresh water.

There are migratory species of fish that travel between salt and fresh water. For example, salmon, striped bass and Atlantic sturgeon spawn in fresh water and mature in salt water. Eels reproduce in salt water and grow to maturity in freshwater streams and lakes. So, many of today's species of fish are able to adjust to both fresh water and salt water.

There is also evidence of post-Flood specialization within a kind of fish. For example, the Atlantic sturgeon is a migratory salt/freshwater species but the Siberian sturgeon (a different species of the same kind) lives only in fresh water.

Many families[1] of fish contain both fresh- and saltwater species. These include the families of toadfish, garpike, bowfin, sturgeon, herring/anchovy, salmon/trout/pike, catfish, clingfish, stickleback, scorpionfish, and flatfish. Indeed, most of the families alive today have both fresh- and saltwater representatives. This suggests that the ability to tolerate large changes in salinity was present in most fish at the time of the Flood. Specialization, through natural selection, may have resulted in the loss of this ability in many species since then (see Appendix to Chapter 1).

Hybrids of wild trout (freshwater) and farmed salmon (migratory species) have been discovered in Scotland,[2] suggesting that the differences between freshwater and marine types may be quite minor.

1. 'Family' is one of the main levels of classification for fish. In fish there is plenty of evidence for hybridization within families—the trout/salmon family, for example—suggesting that families may often represent the biblical 'kind' in fish.
2. Charron, B., Escape to sterility for designer fish, *New Scientist* **146**(1979):22, 1995.

Indeed, the differences in physiology seem to be largely differences in degree rather than kind.

The kidneys of freshwater species excrete excess water (the urine has low salt concentration) and those of marine species excrete excess salt (the urine has high salt concentration). Saltwater sharks have high concentrations of urea in the blood to retain water in the saltwater environment whereas freshwater sharks have low concentrations of urea to avoid accumulating water. When sawfish move from salt water to fresh water they increase their urine output twenty fold, and their blood urea concentration decreases to less than one-third.

Major public aquariums use the ability of fish to adapt to water of different salinity from their normal habitat to exhibit freshwater and saltwater species together. The fish can adapt if the salinity is changed slowly enough.

So, many fish species today have the capacity to adapt to both fresh and salt water within their own lifetimes.

Aquatic air-breathing mammals such as whales and dolphins would have been better placed than many fish to survive the Flood, not being dependent on clean water to obtain their oxygen.

Many marine creatures would have been killed in the Flood because of the turbidity of the water, changes in temperature, etc. The fossil record testifies to the massive destruction of marine life, with marine creatures accounting for 95% of the fossil record.[3] Some, such as trilobites and ichthyosaurs, probably became extinct at that time. This is consistent with the Bible account of the Flood beginning with the breaking up of the *"fountains of the great deep"* (i.e. beginning in the sea; 'the great deep' means the oceans).

Image by Marcus Österberg sxc.hu

Freshwater trout can hybridize with (saltwater) salmon.

There is also a possibility that stable fresh-

3. There is a huge number of marine fossils. If they really formed in the manner claimed by evolutionists (over hundreds of millions of years), then transitional fossils showing gradual change from one kind to another should be most evident here. But they are conspicuous by their absence. Furthermore, fossils of such things as jellyfish, starfish, and clams are found near the bottom of the fossil record of multi-cellular organisms, and yet they are still around today, fundamentally unchanged.

and saltwater layers developed and persisted in some parts of the ocean. Fresh water can sit on top of salt water for extended periods of time. Turbulence may have been sufficiently low at high latitudes for such layering to persist and allow the survival of both freshwater and saltwater species in those areas.

Survival of plants

Many terrestrial seeds can survive long periods of soaking in various concentrations of salt water.[4] Indeed, salt water impedes the germination of some species so that the seed lasts better in salt water than fresh water. Other plants could have survived in floating vegetation masses, or on pumice from the volcanic activity. Pieces of many plants are capable of asexual sprouting.

Many plants could have survived as planned food stores on the Ark, or accidental inclusions in such food stores. Many seeds have devices for attaching themselves to animals, and some could have survived the Flood by this means. Others could have survived in the stomachs of the bloated, floating carcasses of dead herbivores.

The olive leaf brought back to Noah by the dove (Gen. 8:11) shows that plants were regenerating well before Noah and company left the Ark.

Conclusion

There are many simple, plausible explanations for how fresh- and saltwater fish and plants could have survived the Flood. There is no reason to doubt the reality of the Flood as described in the Bible.

Recommended reading: John Woodmorappe, *Noah's Ark: A feasibility study,* Institute for Creation Research, Santee, CA, 1996.

4. Howe, G.F., Seed germination, sea water, and plant survival in the Great Flood, *Creation Research Quarterly* **5**:105–112, 1968. Ironically, Charles Darwin similarly proved that some seeds could survive months of soaking in sea water.