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Osmoregulation and smolt physiology of sea-run brown trout (*Salmo trutta)*

Anadromous fish, ones that migrate from freshwater rivers to the ocean, such as *Salmo trutta* go through dramatic physiological changes in order to survive in marine waters. This sudden physical change is called a smolting event or, smoltification. As they move from freshwater to saltwater, water will passively move out and salts will move into their bodies. In order to compensate for this, they must increase the amount of salts being removed through the gills, increasing the activity of the enzyme Na^+/K^+ ATPase (NKA). After putting one year-old and two year-old freshwater *S. trutta* through a 24 hour saltwater challenge, they had a significantly increased plasma chloride concentration and no change in NKA activity. However given 21 days to acclimate, there was no difference in plasma chloride concentration with the freshwater fish and a higher NKA activity. Therefore, the results suggest that *S. trutta* do not have specific smolting events, but have a range of salinities at which they can survive like other euryhaline fish.