

## Tolerance of eggs and hatchlings of neritic cephalopods to salinity changes

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Nabhitabhata, J., P. Asawangkune, S. Amornjaruchit & P. Promboon. 2001. Tolerance of eggs and hatchlings of neritic cephalopods to salinity changes. - Phuket Marine Biological Center Special Publication 25(1): 91-99.

Hatching of eggs of two species of neritic cephalopods, the bigfin squid (*Sepioteuthis lessoniana*) and pharaoh cuttlefish (*Sepia pharaonis*) differed significantly following brief immersion at eight levels of salinity, 12-44 ‰ at 4 ‰ intervals. More than 80 % of eggs of both species hatched in 24, 28 and 32 ‰ as did cuttlefish eggs at 36 ‰. Bigfin squid eggs failed to hatch in 12 and 40 ‰ and eggs of cuttlefish failed to hatch in 16, 20, 40 and 44 ‰. Optimum salinity range for hatching was estimated at 21.8-36.6 ‰ for bigfin squid and 22.5-37.5 ‰ for cuttlefish. Outside the optimum range, the salinity tended to cause premature hatching, death of the embryos before organogenesis at high salinity, and abnormal development at low salinity. Survival of hatchlings of both species differed significantly after brief change to the eight levels of salinity in 24 hrs. The highest survival was in 28 and 32 ‰ for bigfin squids (more than 70 %) and in 24, 28, 32 and 36 ‰ for cuttlefish (more than 80 %). The range of optimum salinity for the survival was 23.2-35.5 ‰ for bigfin squid and 21.4-39.4 ‰ for pharaoh cuttlefish. Survival during gradual change of salinity was similar to that following sudden change. The benthic cuttlefish tolerated low salinity better than planktonic squid. Short-term immersion of hatchlings in salinities outside the optimum range, within the tolerable time, may be applied in control and treatment of diseases and parasites in aquaculture.

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