C-2.3 Development and Application of Assessment Systems for the Effects of Acidification on Inland-Water Fish Ecosystems in East Asia.

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It is necessary to clarify ecological and physiological response of fish to acidic environment, in order to develop the assessment systems for the effects of acidification on fish ecosystems. In the present study, experimental analysis revealed that ① low acidity such as pH6 levels was enough to inhibit up-stream migration in hime salmon and spawning behavior in brown trout, ② sublethal low pH exposure (pH4.5) induced abnormal elevation of plasma estradiol-17 β in immature carp, ③ V-ATPase which activates H^+-pump in gill chloride cells was important for acid-tolerance of dace in Lake Osorezan, ④ acid exposure (pH4.5) temperature- and calcium-dependently induced acidosis and affected ion regulation in eel, ⑤ acid water did not caused an increase in serum cortisol levels in coho salmon smolt in the season of down-stream migration.