

Fishes are a fascinating group of vertebrates known for their sexual plasticity and diversity. They share 70% of the genomes of other vertebrates and many central endocrine mechanisms underlying reproduction. This series of books on Sex Differentiation in Fish comprises of three separate books. Being the second, this book is a comprehensive elucidation of endocrine and behavioral mechanisms of sex differentiation in gonochoric and unisexual fishes and transdifferentiation in hermaphrodites. It (i) highlights the factors that regulate yolk accumulation in eggs, (ii) confirms the loss of bisexual potency by germ cells supporting somatic cells in gonochores, (iii) concludes the phenotypic changes in gonochores as intrasexual but intersexual in hermaphrodites, (iv) explains for the first time all hermaphrodites as potential hermaphrodites but as functional gonochores and the ability of all hermaphrodites to change sex (v) points out for the first time, the obligatory need for the presence of Primordial Germ Cells (PGCs) to induce and ensure sex change in hermaphrodites and secondary gonochores, (vi) recognizes the role played by behavior in transdifferentiation in hermaphrodites and differentiation in social status in gonochores that display Alternate Mating Strategy (AMS), (vii) compiles widely scattered information to show the social mediated sex change in hermaphrodites, when two or more juveniles, males or females are housed in isolation and change in social status in gonochores that display AMS and (viii) describes the negative effects of endocrine sex reversal, especially on the survival, growth and reproductive performance of sex reversed fishes and directs the need for developing YY male and WW female brooders to facilitate monosex aquaculture and (ix) proposes new hypotheses on sex differentiation in fish.

K16716



CRC Press
Taylor & Francis Group
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