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CHAPTER-13
**FACTORS AFFECTING MATURATION,
FECUNDITY AND BREEDING OF FISH
BROODSTOCK**

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Introduction:

Breeding in fishes is regulated by environmental factors that trigger internal physiological mechanisms. The final event of the breeding cycle, the release of eggs and milt resulting in spawning, can be controlled by placing the fish in an appropriate environment and by changing its internal regulatory mechanism by injecting hormones or other inducing substances. The internal mechanisms that regulate spawning are similar in most fish but the external environmental factors that control reproduction vary considerably among species.

Fishes, rely on cues from the external environment to achieve synchronisation of maturational events with changing season are called as Proximate factors or environmental conditions. A proximate factor to be capable of entraining reproductive development, it must be physiologically detectable, temporally predictable, and generate endocrine changes that drive the reproductive process (Sumpter, 1990). Abiotic and microbial factors play a significant role in fish breeding, early ontogeny and survival of spawn in high-density culture. The proper environmental conditions stimulate the reproduction process.

Effect on maturity, fecundity and Breeding of fishes:

Majority of the fishes are seasonal breeders which spawn at a specific period of the year. The fish spawning generally coincides with the favorable environmental factors such as optimum water quality parameter particularly temperature and photoperiod. Among the seasonal breeders, there is wide variation in the time of the year when breeding occurs. Fresh water temperate zone fishes spawn in spring and early summer, while others such as the salmonids do so in autumn. Similarly the fresh water fishes of the central Amazonian floodplain lakes spawn during the rainy season (Schwassmann, 1978). In the Indian subcontinent, a vast majority of the fresh water fishes breed during the monsoon season when rainfall is heaviest (Jhingran, 1966). Certain proximate environmental factors that act as cues for