STOCK IDENTIFICATION OF TWO COMMERCIAL CARPS, *LABEO ROHITA* (HAMILTON-BUCHANAN, 1822) AND *CYPRINUS CARPIO* LINNAEUS, 1758 FROM DIFFERENT LOCALITIES OF PUNJAB AND HIMACHAL PRADESH

SUMMARY

The four stocks of *Cyprinus carpio communis* L. and *Labeo rohita* (Ham.) from the four localities namely Gobindsagar reservoir, Ropar wetland, Fish pond and Harike wetland has been investigated using morphometric and meristic methods (box plots, DFA and PCA) and molecular methods (*CtI* and *Cyt b*).

The analysis clearly reveals that we have heterogeneous populations of both *C. carpio communis* L. and *L. rohita* (Ham.), with more number of environmentally controlled characters in *C. carpio communis* L. than *L. rohita* (Ham.). The reason is obvious because as *C. carpio communis* L. being exotic has wider ability to sustain in all the types of environments.

The characters like HD, ED, Pre Or, Post Or, MBW and M’BW have been found to be important for the stock identification in *C. carpio communis* L. Similarly, Post Or, Pre A, DPA and M’BW have been found to be characters important for the identification of *L. rohita* (Ham.) stocks. Meristic characters have been found to be of no use for the separation of stocks in both the fishes.

The SEM of regenerated scale of both fishes from the four localities shows different configuration of the villi and the inter-villous space in the focus region and this can be successfully employed for the identification of stocks from different localities.

Molecular analysis has shown only limited variability in the four stocks of both the fishes. Therefore, it can be said that we need to adopt a holistic approach combining various techniques for the identification of stocks of various fishes and not just rely on one particular technique.