

Study of Water Bodies in Larsemann Hills, Ingrid Chirstensen Coast, East Antarctica

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The work conducted on various water bodies situated in the Larsemann hills (proposed site for the third Indian station in Antarctica) involved collection of samples from the water bodies designated as L-1 to L-12 (after GSI-2005). Water samples could be collected from water bodies marked as L-1, L-2, L-3, L-7, L-8 and L-9 only. It was not possible to collect the water samples from water bodies marked as L-4, L-5, L-6, L-10, L-11 and L-12 as they all were frozen to such an extent as to make it impossible to drill a hole for procuring the sample. The water samples from L-1, L-2, L-3, L-8 and L-9 were collected only after digging through the ice sheet covering the water bodies completely. The main water body (L-7, comparatively bigger) was partially frozen towards the margins only.

Preliminary Primary production experiment was conducted in the surface water of (L5) water body, where from plankton samples have also been collected besides Water body designated as L7 for investigation.



Collection of samples using plankton net

The source of water into these tarns is mainly from the accumulated snow in respective catchments areas during the winter months. There are no permanent Glaciers feeding these tarns. As such, the amount of snow which accumulates during the winter is alone the main source of water.

The nearness of the sea cautions about the availability of fresh water in plenty. The elemental composition of the rocks and their leaching needs to be worked and understood under varying climatic conditions for working out the nutrient budget of the water bodies in detail. This is of utmost significance for restricting the bio- magnification of lethal elements.

The morphological characteristics of the main water body (L-7 situated in Larsemann hills reveals its Tarn nature, having theoretically high residence time. It thus is advisable to conduct thorough investigation of this water body which is supposed to be the main potable water source to the inhabitants of new base. The inputs from its respective water shed areas needs to be worked out for better understanding of the routing of elements into the water body. Since the hydraulic detention influences the accumulation of nutrients, it as such, becomes necessary to work out this feature in detail.