Genetic Sampling System for Fisheries

LVL technologies

The need of high-quality sample processing

The field of fisheries genetics has developed significantly in recent years due in a large part to the technological advances in genetic sequencing. It is now possible to genotype large numbers of samples at large numbers of genetic markers, in order to identify population or stock structure, for relatively low costs. This has renewed the interest in the application of genetic methods to the field of fish stock identification for the purpose of defining appropriate levels for the aggregation of assessment data and for the implementation of management measures. As levels of sampling increase and international genetic sampling programs are developed, there is a need for a specific genetic sample collection tool in order to ensure that a standardized collection and storage method is implemented, which ensures high quality samples and enables downstream automation of sample processing.

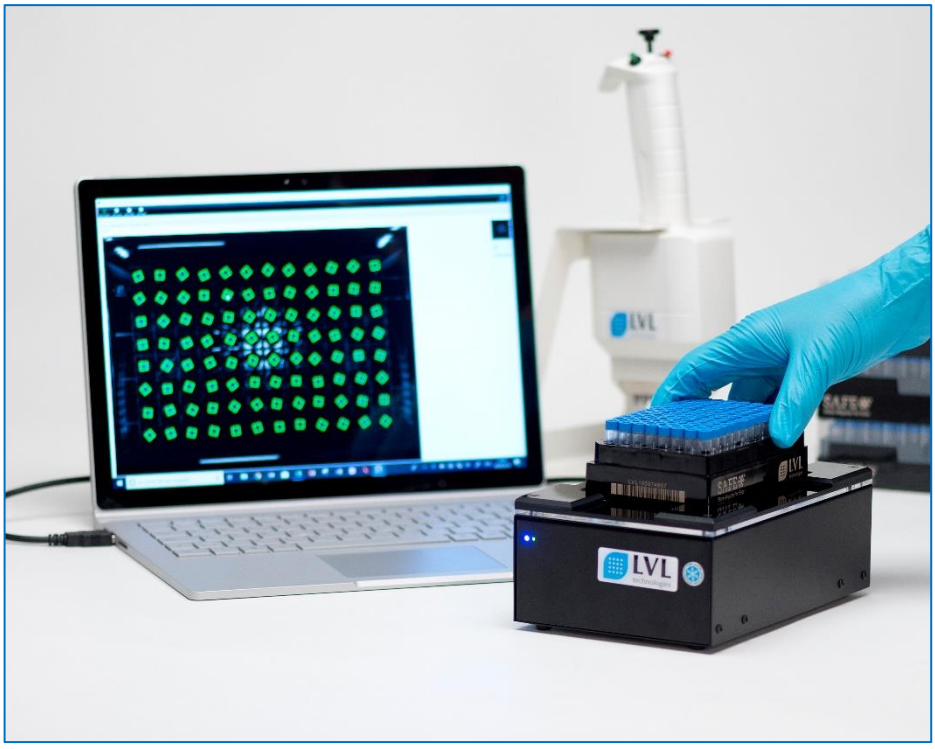
2D coded tubes – and a unique sampling tool

The LVL genetic sampling tool was designed in collaboration with European fisheries scientists and fishing industry organizations and represents a significant advance in the collection and storing of fish tissue samples for genetic analyses. The novel system is based on LVL's range of SAFE® biobanking consumables and pairs a standard SBS format 96-tube barcoded rack and internal threaded 2D barcoded tubes with a genetic sampling tool incorporated into the screwcap of the tubes.

The unique sampling tool is designed specifically for use on fish and the pointed tip and rear facing cutting edge enable collection of a c.30mg tissue sample from beneath the skin of the fish being sampled, thus avoiding surface contamination. The tools, tubes and racks come pre-assembled and sterile.

Identification and sample tracking

When used in conjunction with the LVL Manual 1-Channel Capper/Decapper/Picker, it enables the user to select a sampling tool from a specific tube, to collect a genetic sample from the fish and return the tool, with the sample in it, to the collection tube without ever touching the tube or sample directly, thus reducing the possibility of cross contamination. It also removes the need for sterilizing equipment (e.g., scissors, knives and forceps) between samples. The barcoded racks can be scanned with a SAFE® Tube Rack Reader and sample barcodes imported to existing biological databases for easy sample tracking.



Semi-automated capping

During DNA extraction the semi-automated SAFE® 8-channel capper/decapper can be used to remove eight sample tool caps, with samples, from the sample tubes and transfer them to the LVL low profile deep-well plates (product code: 225.DW.1.2.PP) for the digestion stage of DNA extraction. After a timed digestion, the sampling tools can be returned to the storage tubes for archiving of remaining tissue. This removes the need for sub-sampling of tissue samples thus representing a significant time saving and increasing sample throughput. It also removes any potential of sources contamination by eliminating direct handling of tissue samples.

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