

Module 1F: Imaging, Fluid-preserved

Module 1F: Phototank Immersion Imaging: Specimen Preparation*

Task ID	Task Name	Explanations and Comments	Resources
T1	Select specimen to image.	<p>The primary strategy for photographing fishes for identification purposes is to maximize the content and accuracy of information in the image. This aim determines which among multiple specimens is photographed, how the specimen is illuminated and arranged for display, and which color background is used.</p> <p>Selection criteria include:</p> <ul style="list-style-type: none"> • peak coloration, • fins and scales intact, • informative morphology for identification, • impressiveness of specimen. <p>Selections may include live or alcohol-preserved specimens.</p>	
T2	Inspect and clean specimen.	Carefully inspect specimen and clean it of foreign debris, mucous, grit, suspended particles, residual	

		cheesecloth fibers that might adhere to preserved specimens.	
T3	Anesthetize (and euthanize) live specimen.	<p>An anesthetized fish (e.g., with a few drops of clove oil or MS-222 is quickly euthanized in a container of strong (30–50%) formalin, which often causes the body to straighten and fins to become completely erect. Otherwise, an anesthetized specimen may be removed to a tray of shallow formalin and small forceps carefully used to hold the fins erect without damaging them.</p> <p>Formalin can also be dripped onto the fins of an unfixed specimen using a syringe and needle while pinning the fin in erect position onto a polystyrene board. This has the benefit of not affecting the coloration of the rest of the specimen adversely before recording the image. Shown in the last image here: http://kermadec.aucklandmuseum.com/2011/how-to-process-a-fish-size-tag-sample-and-record/.</p> <p>The most important consideration when photographing live specimens is time; bright colors and</p>	

		iridescences are soon lost in formalin. Fatty skin, as in pseudopimelodid catfishes, also becomes opaque in formalin, obscuring any underlying color.	
T4	With specimen flat and fins erect, carefully wedge specimen between the front plate of the phototank and free glass plate.		<ul style="list-style-type: none"> • Free glass plate. • Phototank.
T5	Set free glass plate at an angle, braced against a metal binder clip attached to the sides of the tank or between the free glass plate and the back of the tank.	<p>Positioning laterally compressed fishes in this manner is easy. Dorsoventrally depressed specimens, particularly those with pectoral spines, require more attention to achieve a vertical lateral view. Maintaining pectoral spines folded against</p> <p>the body as the specimen is wedged between the two glass plates requires practice and patience. Long forceps, a metal ruler and stiff wire are useful tools</p> <p>for fine-tuning a specimen's posture, arranging long delicate features such as barbels, and dislodging air bubbles that form on the fish.</p>	<ul style="list-style-type: none"> • Free glass plate. • Metal binder clips. • Long forceps. • Metal ruler.

		<p>Preserved specimens offer fewer options for achieving an ideal posture. Laterally contorted specimens can often be made to appear more linear by tightly wedging them between the two plates of glass. Partial or complete folding of fins are more difficult to resolve. In some cases insect pins (carefully inserted in the body opposite the side to be imaged) may be used to prop up the anterior most portions of fins. This technique, however, may cause small tears in the fin membranes.</p> <p>Information content of a fish image is diminished when the specimen is tilted or otherwise poorly positioned.</p>	
T6	Select appropriate background.	<p>Dark specimens with opaque fins often render best and with more dramatic effect against flat black backgrounds.</p> <p>Specimens with black pigment in fin membranes or along distal fin margins usually render better with a light blue background, which</p>	4-ply mat board backgrounds in several background colors, including flat black and dull light blue.

		<p>provides better contrast for and highlights the dark pigmentation.</p> <p>Transparent fins lacking pigmentation and with clear margins (especially live specimens), are often lost against light backgrounds and sometimes require adjusting the tank relative to the light source to provide side or back lighting.</p> <p>Choice of background color often involves trade-offs, and is ultimately a reflection of personal taste usually determined by trial and error.</p>	
T7	Place scale bar.	Use a water or alcohol proof measuring device or cut out a 10+ mm portion of a plastic scale, dip it in water and adhere it to the outside front of the phototank, beneath the specimen but within the photographic field.	Minimum 10 mm plastic scale and a cutting instrument.

*Adapted from [Sabaj Pérez, M. H.](#) 2009. Photographic atlas of fishes of the Guiana Shield. p. 53–93 *In*: Vari, R. P., C. J. Ferraris, Jr., A. Radosavljevic, and V. A. Funk, eds. Checklist of the freshwater fishes of the Guiana Shield. Bulletin of the Biological Society of Washington, no. 17.