

Freshwater Photography for Overworked Scientists

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Equipment

- Point-and-shoot digital cameras*
 - Megapixels = resolution (get a camera with at least 3 megapixels)
 - Memory card = film (get a large memory card, 128 mb or greater)
 - Wider lens angles are more useful than large zoom ranges underwater
 - Close focusing distances are required for small fish and invertebrates
 - Recommendations
 - Canon Powershot series (some models have affordable, high quality Canon housings)
 - Sony Cybershot series (some models have affordable, high quality Sony housings)
 - Nikon Coolpix series
 - Resources
 - Information, reviews, and comparisons - www.dpreview.com
- Underwater housings
 - From plastic bags (www.ewa-marine.com) to engineered plexiglass housings (www.ikelite.com); see photos in poster
 - Port = lens (flat ports better for macro shooting, dome ports better for wide angle shooting)
 - External strobes = flash (provide enough light to stop swimming fish, and are required for low light shooting)
 - Recommendations
 - For ease, cost, and portability, Ewa-marine bag housings (but leak-prone and awkward)
 - For portability, performance, and cost, Canon and Sony housings (but limits camera selection)
 - For great performance and durability, Ikelite housings and strobes (but bulky and expensive)
 - Resources
 - Housing information and reviews – www.digideep.com
- Editing and referencing software
 - Photo editing (e.g., with Photoshop) for color, sharpness, brightness, etc. is as much a part of digital photography as shooting
 - Referencing systems (e.g., Endnote) and diligence are needed to manage invariably large digital photo collections
 - Resources
 - Editing information and more – www.shortcourses.com

Getting underwater

- For great angle versatility with shallow subjects, use snorkeling gear (but requires some equipment and set-up time)
- For maximum angle versatility with shallow and deep subjects, use SCUBA gear (but requires bulky equipment and dedicated trips)
- For great portability, use viewing tube (but limits angle versatility and can be awkward)
 - Camera is held underwater and LCD screen is viewed through viewing tube
 - Unhoused cameras (especially SLRs) can also take good photos through viewing tubes

Shooting

- Steady your shots (especially close-ups) using available features (e.g., stones, logs)
- Know the lens-to-subject distance range of your camera's macro mode (you will probably be using macro mode more than you think)
- Use your aperture, shutter speed, and lighting to control depth of field and motion
 - Macro photos of insects benefit from increased depth of field (i.e., small apertures)
 - Photos of moving fish benefit from stopping motion (i.e., fast shutter speeds)
 - Light is usually limiting; be conscious of sunlight and shadows and use strobes when necessary
- Resources
 - *Jim Church's essential guide to composition*

Safety

- When snorkeling or SCUBA diving, always bring a buddy
- Be conscious of drifting debris, strong currents, and entangling or entrapping dangers
- Be conscious of water-borne illnesses (e.g., *Giardia*, Hepatitis) in your area
 - See a physician about vaccination recommendations
- Use common sense and be conscious of others, especially boaters and anglers

*all photos in this poster were taken by the authors with point-and-shoot digital cameras