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Freshwaters in the Public Eye: Understanding the Role of Images and Media in Aquatic Conservation

Our ability to perceive quality in nature begins, as in art, with the pretty. It expands through successive stages of the beautiful to values as yet uncaptured by language.

—Aldo Leopold, *A Sand County Almanac*

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INTRODUCTION

Freshwater ecosystems represent one of the Earth's richest pools of biological diversity, and are also hotspots of human use and alteration. Consequently, freshwater fishes and numerous other aquatic species are declining and disappearing at rates exceeding most other ecosystems (Cambray and Bianco 1998; Dudgeon et al. 2006). Unfortunately, freshwater biodiversity is not only critically imperiled, it is also highly obscure (Harrison and Stiassny 1999). As threats to freshwater ecosystems continue to grow, the vast majority of their inhabitants remain "out of sight, and largely out of mind" (Rolston 1991). This lack of public awareness of freshwater life may ultimately limit freshwater conservation as a popular cause, or movement.

By its nature, aquatic life is inherently less visible to human eyes, and so images, such as photographs and video, play a critical role in visually connecting freshwater ecosystems to their would-be stewards. Images are capable of conveying information and evoking emotion at a glance, and are generally more intuitive, more quickly assimilated, and often more memorable than verbal description (Dondis 1973; Messaris 1996). In fact, images and visual media have long played a strategic role in effective conservation campaigns, from the creation of the national parks to modern marine conservation causes (see Figure 1). And while images by no means replicate human experiences in the natural world, they are a remarkably effective surrogate to enlighten audiences about natural ecosystems and their values (Cahn and Ketchum 1981; Bouse 2000).

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Figure 1. Images can convey the beauty and values that can form a conservation ethic, just as the landscape photographs and paintings of William Henry Jackson, Thomas Moran, and Ansel Adams (left to right) helped create and grow the U.S. National Park System, the paintings of John James Audubon created a popular appreciation for bird diversity and beauty, and the books and films of Jacques Cousteau broadened our modern perspective of marine life.



The challenge of making freshwater conservation a more popular cause merits a deeper examination of the images that represent freshwater life, especially those seen in popular media. Somewhat introspectively, we consider below our concern that a limited set of images depicting freshwater life may confine our ability to communicate broader values of freshwater ecosystems, and may ultimately limit our capacity to inspire a more inclusive movement to conserve them. We emphasize how freshwater life is portrayed in popular media and everyday images, and suggest a more strategic selection of images to reshape how society perceives and values freshwater ecosystems. We focus on fishes because they are among the most obvious and widely recognized of freshwater biota.

THE FRESHWATER IMAGE: A FISH OUT OF WATER

The Earth's rivers, lakes, and wetlands provide vital resources to virtually every one of its human inhabitants (MEA 2005). Yet, the responsibility of conserving freshwater ecosystems has been shouldered mainly by the recreational users of these ecosystems. Stewards from the angling, hunting, and boating communities have long been the most active advocates for aquatic conservation (Fedler 2001), and their work has done much to protect and restore freshwater ecosystems. However, the challenges posed by the freshwater conservation crisis are far too great for these stewards alone. Given the vital importance of freshwater ecosystems to

humankind, we ask, why isn't the conservation of freshwater ecosystems a more popular cause?

A key to understanding why the conservation of freshwater ecosystems has such a limited following may lie in how freshwater life is portrayed in media and perceived by the public. A passing glance at a magazine rack, television programming, and popular internet websites reveals a narrow view of freshwater life. In these popular sources of public information and entertainment, the vast majority of freshwater species are simply unseen, and therefore unknown to most people. Meanwhile, a handful of celebrated sportfishes are commonly seen in popular media aimed at anglers, and are no less visible in family albums and on office walls.

A closer examination of the common images of freshwater life reveals an issue that is perhaps more problematic than mere obscurity. Almost invariably, popular images portray sportfishes and most other freshwater species after they have been "landed" or otherwise extracted from their aquatic habitat (Figure 2). In these images, aquatic organisms are far removed from their natural environment and behavior, which precludes an aquatic, and perhaps empathetic, perspective of their lives and their world. Moreover, these struggling or dead organisms are commonly seen "at the hands" of both anglers, and biologists, portraying a conquering image (sensu Leopold 1949). Collectively, these commonly seen images appear more human-centered, and represent a set of values and aesthetics that are somewhat exclusive to the angling community.

Figure 2. The "popular image" of freshwater life emphasizes the values and aesthetics surrounding game fish and angling culture through various depictions of conquering anglers and captured quarry, and which may be lost on or misinterpreted by the non-angling public.



While there is little public opinion research to draw from, a casual look at popular culture suggests that aquatic life is far more appreciated for its utilitarian value than for its ecological and intrinsic value. This imbalanced value is exemplified in the common perception of certain species as “trash fish” and the common synonymy of “minnows” and “bait,” yet is perhaps best illustrated in the U.S. state fishes. Of the roughly 800 freshwater fish species in the United States, only 18 species are represented in the 43 freshwater state fishes (i.e., numerous fishes are shared by several states), and all of these are considered game species. When compared to the state birds—of which over 90% are non-game species—it seems that the public value for fish is more resource-based and utilitarian, and suggests that the U.S. public may draw a meaningful distinction between fish and wildlife.

Given how freshwater organisms are seen—and unseen—in the public eye, a fundamental constraint to inspiring broader public support for freshwater conservation is the narrow and exclusive set of values that are being emphasized in everyday images and in popular media.

JUST ADD WATER: REVEALING THE HIDDEN VALUE OF FRESHWATER ECOSYSTEMS

While the imperilment of freshwater life has become a global crisis deserving general understanding and sympathy, the public remains scarcely aware of freshwater ecosystems, their remarkable biodiversity, and their importance to

society. Freshwater organisms and communities are seldom-covered subjects of television, magazines, and websites, and their nature is rarely explored from an aquatic perspective. Yet with such unique and diverse forms of life, freshwater ecosystems hold great potential to captivate public interest and motivate conservation.

Though rarely seen in popular media, underwater images of fish and other freshwater life in their aquatic habitat can more naturally convey the intrinsic and ecological value of these organisms, as well as their evolutionary, and even spiritual aesthetics. These images celebrate the aquatic world by depicting the natural beauty and behavior of freshwater life, the splendor and uniqueness of freshwater environments, and the intricate relationships among species and their habitats (Figure 3). In their natural medium, free of human hands or devices, organisms appear independent of humankind, and their intrinsic value is therefore made more obvious. Indeed, the vision of an organism behaving naturally and relating to its natural environment is precisely what can allow us to sympathize or even empathize with other species (Wilson 1986), and appreciate their significance in our own world or worldview. It is these ecological, evolutionary, and spiritual aesthetics that will presumably resonate more deeply with the broader public, and are most likely to drive conservation movements (Jepson and Canney 2003).

Figure 3. The seldom seen “aquatic image” of freshwater life emphasize the values and aesthetics surrounding freshwater biodiversity through images that depict remarkable environments, behaviors, and interactions, and that can inspire sympathy and stewardship in a broader public.



*When one man, for
whatever reason, has the
opportunity to lead an
extraordinary life, he has no
right to keep it to himself*

—Jacques Yves Cousteau

Freshwaters have had neither a Jacques Cousteau nor an inspired renaissance of visual artists, writers, or media specialists to celebrate the aesthetics and intrinsic values of aquatic ecosystems and biodiversity (see inset). In our view, the opportunity to restore a balanced public image of freshwater ecosystems lies in the hands of those who know these ecosystems and their diverse inhabitants. Aquatic scientists, conservationists, educators, anglers, and enthusiasts (hereafter the “freshwater community”) have a unique perspective that can help revive the image of freshwater life amongst a broader public. If we ourselves do not assume a greater responsibility for the public awareness of freshwater ecosystems and biodiversity, their value will continue to be underrepresented in popular media and images, as well as in our own public education and outreach efforts. In advocating a deeper appreciation of freshwater ecosystems, we should be more conscious of public perceptions of freshwater life, become more familiar with the psychology of stewardship, and conduct more research in these arenas.

To guide the public toward a more appreciative perspective of freshwater ecosystems, the freshwater community must take a more image-conscious approach to education, outreach, and communication. As we hope to have illustrated, images send powerful messages, and it is dangerous to ignore the values represented by the images we choose to present publicly. When sharing ideas or conveying messages about freshwater biodiversity, we suggest a more deliberate use of images to express not only the knowledge we intend to convey, but also the value and appreciation we have for these organisms. Such effort will doubtless require greater use of underwater and natural history images to revive the intrinsic values and ecological aesthetics that have been long ignored. Arguably, we may now need to over-represent these values in our communications.

The most immediate need in this effort is for the freshwater community to create and share a more balanced collection of images for outreach and education. This demands that we increase our efforts in compiling and sharing our natural history images, encourage and celebrate our aquatic photographers and artists, and become more proficient with the tools of image creation. We

The marine image: an envious look

Marine ecosystems once had an image problem similar to that in fresh waters, before the visual explorers of marine ecosystems broke a stubborn surface tension to create what is now a more balanced public perception of marine life. The innovative explorations of Jacques Cousteau and other filmmakers and photographers created a frontier of images for popular audiences to explore, and the generations they inspired continue to create images that capture marine life from tide pools to the deep ocean trenches. In both mass media and outreach, it is as common to see an image of a shark underwater as it is to see one hanging at the end of a pier, and nongame fishes such as those that inhabit coral reefs are perhaps as well known as game species. Given this more balanced exposure, it is somewhat less surprising that millions of people have been inspired to “dive into” these environments through recreational snorkeling and SCUBA diving, or that marine biology is such an aspired-to field among students. Although the public image of ocean life may still need some work (see Auster et al. 2009), we wonder how much more daunting marine conservation challenges would be without the intrinsic values and aesthetics that have been promoted through images and media.



might further consider underwater and natural history photography and illustration as fundamental skills in fishery and aquatic biology. In our public communications, we suggest collaborating with artists, media specialists, and visual communicators. In all of these efforts, we should capitalize on the increased accessibility of digital underwater camera systems and editing software.

A more balanced and extensive collection of freshwater-related images would almost certainly facilitate an increased outreach effort among the freshwater community. Freshwater outreach is in many ways image limited, and would-be lectures, slide shows, websites, and articles may lack critical visual content. In fact, mass media outlets commonly judge potential stories as much on their visual content as on their verbal content. Finally, given that technical language often impedes the outreach of scientists and conservationists (Jacobson 1999), an increased means of visual expression may be empowering toward these efforts.

Ultimately, if the freshwater community is to place increased emphasis on effective public education and outreach (see Angermeier 2007), images and visual communication have a crucial role to play. There is a wonderful surprise awaiting society in freshwater ecosystems, and a great awakening yet to come for freshwater conservation. The freshwater community possesses both the knowledge and passion to rouse the future stewards of these vital ecosystems. In crafting our educational and conservation messages, we should choose images as carefully as we choose words.

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