

“Fish and People”: An innovative fisheries science learning tool for the Pacific

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One of cartoonist Gary Larson’s most famous cartoons is titled, “Anthropologists! Anthropologists!” It was created in 1984 and depicts, through the window of a village hut, two colonial-era anthropologists, with cameras and notebooks, arriving in a canoe, ready for fieldwork. In the foreground, inside their hut, the natives are running about in a panic, trying to hide their TV, telephone, and VCR player. The cartoon is lampooning the noble savage fantasy, and copies of it have adorned the office doors of practicing anthropologists around the world since it was published. But for years now I have been fighting the temptation to replace the caption with “Conservationists! Conservationists!”, because for me, the cartoon also embodies the earnest, contemporary charade in which an expatriate conservationist (usually working for a BINGO — Big International Non-Governmental Organization) steps out of a banana boat, into a Melanesian village, and begins attempting to persuade the locals that they have a burgeoning problem with overfishing, that it’s a threat to “globally important” biodiversity, and food security, and that the best way to address it is by reducing fishing effort in some way, and as soon as possible.

The locals almost always nod and smile in enthusiastic and polite agreement. I call it a charade because it is an encounter in which someone who is very obviously wealthy (e.g. an expatriate BINGO employee who generally draws a comparatively large salary, and flies in and out of the country several times a year), is attempting to persuade someone who is very obviously poor that they need to “tighten their belt” and undergo a little austerity now, for their own (and for the planet’s) long-term best interests. The logic of the food security aspect of “the message” (reduce fishing effort now so you can continue to have fish in the future) is in fact unassailable. The problem is that in so many cases the locals are far too pre-occupied with negotiating a beneficial *relationship* with the wealthy and powerful visitor (with the possible outcome of a job on the proposed conservation project, or some financial assistance with a business venture, or at the very least a free lunch at a workshop), to actually engage with or take seriously “the message”.

The immense economic inequality represented in the person of the messenger can only make the prospect of a marginal increase in the villagers’ fish harvest in five or ten years seem almost trivial. The *politics* of the encounter gets in the way of the science. If someone much wealthier than me, and indeed with a much larger ecological footprint than mine, started advising me about how I could live more parsimoniously, for my own long-term benefit, I would not be particularly well disposed to engaging with the message either, even if the truth of the message, in the context of my own life, is indisputable.

This problem has of course long been recognized and written about, ironically enough, mostly by anthropologists (Ellis 1997; Van Helden 1998; Foale 2001; West 2006; Li 2007; Filer 2004). There is also now a rapidly expanding literature on the myriad ways in which economic inequality is socially and politically toxic, at multiple scales, and in all societies (Marmot 2004; Wilkinson 2005; Wilkinson and Pickett 2010). But while this work has helped us understand the political complexities of “village entry” and the importance of the north–south inequalities embodied by transnational non-governmental organizations (NGOs), the environmental problem — burgeoning market and demographic pressures driving the decline and collapse of fisheries — has not gone away. In addition to the governance challenges associated with rapid social change and the breakdown of traditional leadership, a key challenge for coastal fishery management in the Pacific is a widespread lack of understanding of the vulnerability of populations of many coastal fish and invertebrate species to contemporary harvesting pressures (Sabetian and Foale 2006; Foale et al. 2011; Cohen and Foale 2013).

What to do? BINGOs these days have replaced many of the highly paid expatriates in their field projects with nationals, but “client” communities are nevertheless aware that the BINGO’s national team members are still part of a transnational bureaucratic apparatus that receives funds from a donor in a wealthy, industrialized country. I should say

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that despite all of this, some BINGOs have learned many of the lessons that have now been so widely published, and do strive to develop lasting and trusting relationships with partner communities, with some amelioration of the distracting politics of engagement, and some consequent achievements. In a more lateral move, some governments and regional agencies are assisting with measures to increase access to other sources of fishery production, including pelagic species (particularly through deployment of nearshore fish aggregating devices) and aquaculture.

Another approach altogether (and the point of this article) entails a socially and politically informed strategy for delivering the scientific rationale for managing fisheries, in a way that completely removes the inequality distraction and, in fact, allows recipients of the message to more readily identify with the messenger(s). Chris Mooney (Mooney 2011) has argued that if we want to convince American conservatives of the facts of climate change, the best way to do it is to have a business or religious leader deliver the message. This logic has been invoked (among other strategies) with the creation of a new fisheries science education DVD, called "Fish and People". Its main target audience is high school students in Solomon Islands and Papua New Guinea, although it is already proving popular with a much broader range of audiences in those countries, and as far away as Kenya.



Figure 1. Opening frame of the Fish and People DVD.

The Fish and People DVD explains, in five, 12-minute modules, the basics of fishery biology, with particular emphasis on life cycles and scales of larval dispersal of common and economically important Indo-Pacific species. It also explains other aspects of their biology, such as growth rate and longevity, which, along with larval connectivity, are central to understanding how populations of each species respond to fishing, and protection from fishing, and at what scales in space and time.



Figure 2. A graphic from Fish and People of various types of larvae floating in the plankton.

The DVD includes a series of compelling interviews with Solomon Islanders (fishers, scientists, NGO workers, government officials and teachers), who each deliver a key part of the message, in language and context, which clearly has salience and immediacy for the target audience.

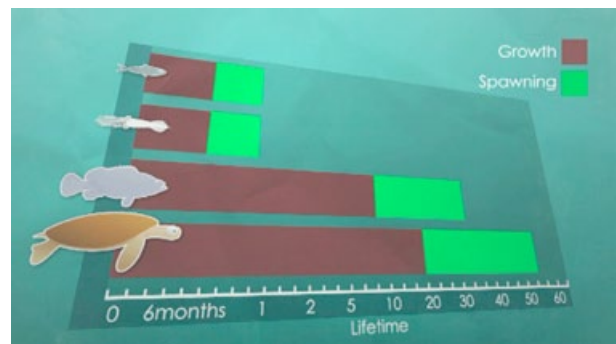


Figure 3. A graphic in Module 3 of Fish and People, demonstrating why knowledge of lifespan and age-at-maturity matters in fishery management.

The rationale for approaching the impending fisheries management crisis in the Pacific with a high-school-level learning tool such as Fish and People is straightforward. The assumption is that if a critical mass of young adults acquire a detailed understanding of how overfishing destroys fisheries and food security, they will not only innovate their own, "bottom-up" fisheries management strategies as they assume positions of influence within the community, but they will also be more likely to understand the need for, and therefore comply with, "top-down" management approaches such as size limits, gear restrictions, trade agreements, quotas and moratoria. While many Pacific Islanders can readily describe noticeable declines in the size and abundance of fish and marine invertebrates during their own lifetime, the aim of Fish and People is to help people to incorporate their own, often richly detailed empirical observations into a model of fishery dynamics that will engender a stronger sense of agency in managing fisheries for future food security and livelihoods.



Figure 4. A graphic used throughout the show to illustrate larval dispersal and connectivity processes at the ecosystem scale.

The key feature of this particular learning tool is its rich use of imagery to communicate the science. In addition to a series of powerful interviews with Solomon Islanders, *Fish and People* also features superlative underwater cinematography, and many high quality animations, which clearly explain the scientific concepts. The narration is in English, and where interviewees speak Solomon Pijin, an English translation is presented on screen. All key scientific terms, such as *gamete*, *zygote*, *larva*, and *plankton*, are printed in large font on screen as they occur in the narration. The DVD disk also includes a detailed Lesson Plan and Teachers Guide, along with various supporting materials, including still photographs of marine organisms spawning, and microscope photos of larvae, plus animated computer models demonstrating dispersal of larvae in reef and coastal environments. *Fish and People* was scripted by myself and Russell Kelley, and assembled and edited by multi-award-winning media professionals at Digital Dimensions and Eco Media Production Group (<http://www.ecomedia.com.au/>). Production was funded by the Australian Research Council, James Cook University, and Solomon Telekom Television Ltd.



Figure 5. Spawning sea cucumber. One of a variety of images supplied in the supplementary material on the *Fish and People* DVD.

My collaborators and I currently plan to redesign and re-edit *Fish and People* for different audiences, including Solomon Islands villages, along with school and rural village audiences in the Philippines, Indonesia, and other Pacific Island countries. This process will entail keeping most of the animations, shooting new interviews, and creating new, locally voiced, voice-overs. We are also currently testing the impact of the show on the scientific knowledge of Solomon Islands high school students.

Fish and People DVD modules can be streamed from:

www.coralcoe.org.au/videos/videos

and streamed or downloaded from:

www.ecomedia.com.au/fishandpeople.html

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RECENT PUBLICATIONS

Ellen R. (ed). 2011. (paper back edition) Modern crises and traditional strategies: Local ecological knowledge in island Southeast Asia. Vol. 6. Studies in environmental anthropology and ethnobiology. New York and Oxford: Berghahn Books. ISBN 9780857451453. USD 34.95. Paperbound, 272 p., maps, figures, b/w photographs, index.

The focal issues addressed in this volume are the creation, erosion and transmission of ecological knowledge and the hybridizing of traditional and science-based knowledge, particularly in populations confronting environmental stress, political instability and conflict, and various kinds of economic of hazard. The ways in which traditional knowledge has contributed to enabling local populations to cope with the various kinds of insecurity that arise from such problems is also examined. The volume consists of 10 articles.

Harris M. (ed). 2007. Ways of knowing: New approaches in the anthropology of experience and learning. Vol. 18 Methodology and history of anthropology. New York and Oxford: Berghahn Books. ISBN 9781845453640. USD 90.00. Hardbound, 340 p. b/w photographs, index.

The essays in this volume examine how “humans come to know themselves and their world. By going beyond the notion that a way of knowing is a perspective on the world, this book explores paths to understanding, as people travel along them, craft their knowledge and shape experience.” The book is divided into four parts, and consists of an introduction, “Ways of knowing” by the editor plus 14 articles.

Marchand T.HJ. (ed). 2010. Making knowledge: Explorations of the indissoluble relation between mind, body and environment. Chichester, U.K.: Wiley-Blackwell-Royal Anthropological Institute. ISBN 9781444338928. USD 34.95. Paperbound, 201 p.; colour photographs, index.

Lowenhaupt Tsing A. 2005. FRICTION: An ethnography of global connection. Princeton and Oxford: Princeton University Press. ISBN 0-691-12065-X. USD 32.50. Paperbound, 321 p.; notes, references, index.

This is an exposition of ethnographic reporting on the destruction of Kalimantan rain forests and local attempts at resistance that in addition, advances an original perspective on the role of global capital. This book is an engrossing “read” because in addition to revealing an engrossing and moving “story”, it is an important and original work that defines a new field in ethnography. The volume is divided into three parts and seven chapters.

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