

## In This Issue

### DAMS MAY INCREASE THE FLOW .... OF PATHOGENS

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There have been a number of reports of water-borne disease outbreaks (especially schistosomiasis) following dam building, and this has become a widely cited mechanism by which land-use change leads to disease emergence. However, as **Neil Morley** points out in this issue, there is very little synthesis of how reservoir construction alters aquatic wildlife host-parasite interactions. This review examines the literature and concludes with a timely assessment of the likely impacts of the Three Gorges Dam on the Yangtze River's parasite fauna.

### INFECTIOUS DISEASES AND GLOBAL NUTRIENT CYCLES: A FIRST SHOT ACROSS THE BOWS

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There is a growing literature on the links among infectious disease impact and a series of human-induced global environmental changes: climate, deforestation, agricultural, and others. In this issue, **Valerie McKenzie et al.** examine the likely role of anthropogenic changes to global nutrient cycles in altering the risk of disease. They conclude that widespread changes to these cycles (particularly the nitrogen cycle) can be tentatively linked to a series of infectious diseases, and that this is going to be particularly significant in the Tropics, where changes to the nitrogen cycle are large and where the diversity of pathogens is highest.

### ENERGY-CONSUMING NORTH INFLECTS DISEASE BURDEN ON THE SOUTH: ETHICAL CRISIS IN THE MAKING?

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Energy consumptive lifestyles of Americans and other industrialized nations are well-recognized as causing

accelerating global warming. When **Patz et al.** show quantitative maps of CO<sub>2</sub> emissions against climate-sensitive diseases, a stark contrast and ethical dilemma are revealed. The global average emissions for carbon approximate one metric ton per person per year, yet per capita emissions are six times that in the USA and poor countries are expected to experience the greatest burden of climate sensitive diseases. As society looks for energy substitutes for fossil fuels, the authors caution us against the trade off with biofuels and the potential for further exacerbating health and environmental damages.

### LEST WE FORGET TO ASSESS THE AGGREGATES IN MARINE DISEASES

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The ability to “clump” is a natural part of the life strategy of many waterborne and marine microbes, including some pathogenic to humans. In this issue, **Maille Lyons et al.** demonstrate that macro- and microaggregates in the northeastern U.S. seaboard vary widely in the presence of bacterial heterotrophs and potential pathogens. While most surveillance programs that monitor pathogens in seawater specifically filter out or ignore these aggregates, this article demonstrates that they contain significant human pathogens, including the causative agents of cholera and other diseases of the GI tract.

### FUNGAL IMPACT TIED TO TEMPERATURE IN ARIZONAN AMPHIBIANS

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The causative agent of the emerging amphibian fungal disease chytridiomycosis grows poorly in the lab when temperatures are allowed to rise to match those of temperate summer months. This has long been hypothesized as

a reason for the predominance of winter or high-altitude mortality in some amphibian populations. In this issue, **Martin Schlaepfer et al.** present evidence that this pattern occurs in endangered Arizonan amphibians and propose an interesting hypothesis—that frogs that bask in the spa-like warmth of thermal springs may help prevent the growth of this insidious fungus on their skin.

## APPLYING ADAPTIVE THINKING

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Drawing on a recognition that food production, vector-borne diseases, and environmental condition are interrelated and features of complex systems, **Gilioli and Baumgartner** develop a conceptual framework for improving the livelihood of sub-Saharan African communities. Their article describes the application of the framework at two sites in Ethiopia, involving an adaptive approach that set out first to establish human and animal health as the foundations for development. The approach then sought to develop in such a way that social, economic, and ecological capital could be enhanced. The authors' descriptions of the experiences of those in the developing communities show the potential for broader application of the approach.

## SPECIAL FEATURE: INDIGENOUS PERSPECTIVES

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Six articles in this issue contribute to a special feature on “Indigenous Perspectives on Ecosystem Sustainability and Health.” As well as their collective emphasis on Indigenous peoples, each article sheds new light on themes familiar to readers of *EcoHealth*, including the opportunities and challenges of exchange and interaction across cultural, ecological, and disciplinary boundaries. The often tightly coupled relationships between cultural diversity and biodiversity is one emergent theme from this collection of articles and is evocatively addressed by the contribution by **Mbaabu and Kariuki**, an essay informed by the cover art of young Kenyan Artist Nicholas Muema.

Many Western health science studies of the health of Indigenous peoples ignore the complex cultural and environmental conceptual understanding of well-being held by Indigenous peoples. The study by **Tipa and Panelli** looks at the complex place-based notions of well-being held by Maori in New Zealand and presents a framework from a Maori perspective on culture-environment relations. As well as highlighting sociocultural, ecological, and place-based concepts that are integral to Maori ideas of health, they identify

traditional obligations that provide opportunities and responsibilities to guide future actions. Their proposed place-sensitive approach is intended not only to inform understanding of well-being from an Indigenous perspective but also to enable more culturally appropriate research, health practices, and approaches to Maori well-being.

**Nettleton et al.** further examine the intimate relationships between place, language, culture, and health. The authors synthesize insights from collaborative activities with Indigenous communities in Cambodia, Laos, Guatemala, Namibia, and Burma—drawing not only on the input of the communities themselves, but also on the commitment and engagement of international field workers from an international nongovernment organization in conjunction with university-based researchers. As well as highlighting the potential for Indigenous peoples to be close allies in understanding the complex interrelationship between human health and ecosystem sustainability, the study exemplifies how this learning and exchange could commence.

An important motivation for the international Indigenous peoples partnership project examined by **Wahbe et al.** is the opportunity for reciprocal understanding and benefits that overcome barriers of distance and language. The article describes the scholarly context and partnership-building process of a new collaborative approach to international development—in this case a community-based health initiative led by two Indigenous communities, Musqueam (Coast Salish, Canada) and Totoras (Quichua, Ecuador). In addition to offering informative insights into principles for future partnerships, the article is a sound reminder of the power of learning that is grounded in local, place-based priorities such as land, water, food, and culture.

After 20 years of biomedical approaches, the health gains of Aboriginal people in the Northern Territory of Australia have been minimal and the tension between the demands of urbanized and traditional lifestyles has manifested in the poor health outcomes and the loss of understanding and respect for traditional culture by the younger generation. **Johnston et al.** argue for an ecohealth approach that focuses on Aboriginal participation in land management as a vehicle to (re)integrate Indigenous health with ecosystem conservation and stewardship. Their transdisciplinary perspective effectively spans cultural divides and informs political debate about innovative and appropriate responses to improve health and well-being for Indigenous peoples in Australia and beyond.

Many Indigenous peoples live on or near environmental resources that are highly prized—oil resources are a controversial example. The paper by **Wernham** reports the results of the first Health Impact Assessment (HIA) of the proposed oil and gas development in Alaska's North Slope. The study draws attention to HIA as an important tool to evaluate the impacts of proposed developments on both short- and long-term determinants of health and identifies strategies to mitigate the impact of oil extraction on affected communities. In addition to informing the use of HIA in future settings, the lessons from this study point to an important policy mechanism to give a voice to concerns of Indigenous peoples that may otherwise be overlooked.

The particular health challenges of isolated and resource-dependent communities are examined in a specific

context by **Napolitano** in an article focused on Indigenous peoples living in voluntary isolation in the Peruvian Amazon. The author draws on a range of sources to profile changes that would otherwise be invisible and uses the lens of vulnerability to examine the health impacts of ongoing social and ecological change through colonization, migration, logging, oil exploration, or well-intentioned "development." The study offers a provocative reminder of common threats to cultural and biological diversity and the rate and scale of changes with the potential to endanger the future of whole ecosystems, cultures, and species.

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