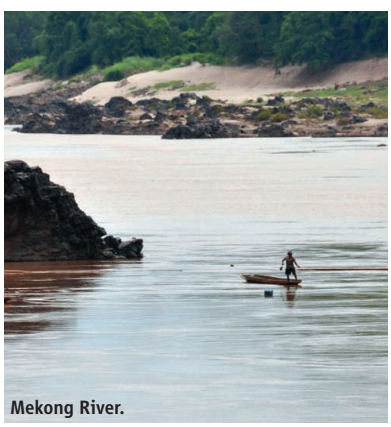
LETTERS

edited by Jennifer Sills

Dam Threatens Mekong Ecology

THE NEWS OF THE WEEK STORY "MEGADAM GETS GREEN LIGHT" (9 November, p. 726) seems to provide strong support for the cautionary Letter by B. Gong *et al*. ("Limits to religious conservation efforts," 9 November, p. 740) arguing that while Buddhism may be a powerful resource for conservation, it cannot replace strong environmental governance and policy. The Xayaburi Dam is a very bad idea and clearly represents a massive threat to the ecology of the Mekong River and its people. Yet it proceeds with the support of at least two predominantly Buddhist countries, Laos and Thailand, where protests by Buddhist citizens have gone unheeded (*1*). The environmental governance and policy offered by Laos and Thailand to support the dam is especially dangerous in that it sets a bad precedent that will most certainly affect the construction of at least 11 additional dams planned for the Mekong River (*2*). The decision to build the dam is based on a seriously flawed environmental impact assessment (*3*) and totally ignores an earlier agreement in 2011 (*4*) with Cambodia, Thailand, and Vietnam that would extend the decision-making process until major gaps in the current knowledge about the environmental and social impacts of the Xayaburi Dam are reconciled. When those knowledge gaps are filled with factual information, it will be abundantly clear that the Xayaburi dam should not be built.



Mekong River.

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Mobilizing Religion and Conservation in Asia

IN THEIR LETTER "LIMITS TO RELIGIOUS CONservation efforts" (9 November, p. 740), B. Gong *et al.* caution conservation practitioners that there are limits to the effect that Buddhist influence alone can have in reducing environmental degradation caused by economic development. They cite prayer animal release—a practice in which animals are trapped, sold, and then released into the wild as a form of prayer—as evidence of Buddhists' lack of understanding of ecology.

Religious leaders, government, and the local and international conservation community are currently addressing the unsustainable Buddhist practice of releasing animals. A recent policy paper by the Religion and Conservation Research Collaborative (RCRC), a committee of the Religion and Conservation Biology Working Group of the Society for Conservation Biology, in July 2012, stated that Buddhists are acting in good faith and should be provided with alternatives that could achieve the compassionate spirit of prayer animal release in an ecologically responsible way (*1*).

As an offshoot of RCRC policy, an e-mail forum involving more than 40 scientists and scholars from around the world (the Mercy Release Discourse, 13 to 17th August 2012) identified a few ideas: (i) Encourage Buddhist practitioners to adopt a domestic animal (e.g., a cow) destined for the slaughter and care for it until it dies naturally or to sponsor accredited farm animal sanctuaries. (ii) Encourage Buddhist practitioners to support conservation programs of endangered species. (iii) Facilitate support for Buddhist practitioners who want to rehabilitate animals that are sick or injured, reintroduce wildlife into the wild, or send wildlife to rescue centers.

Some Buddhist groups in China and elsewhere in the region have already put these alternatives into action (*2*). In Singapore, religious adherents have been attempting to address the concerns as well (*3*). Although imperfect, these developments suggest the potential for conservation inspired by religion and for science to involve religion in collaboration and dialogue, rather than simply criticism.

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Shark Sanctuaries: Substance or Spin?

AS SHARK POPULATIONS COLLAPSE AND PUBlic concern rises, some national governments have established shark sanctuaries. These countries, such as Marshall Islands, Maldives, and Venezuela, have been touted to be "safeguarding" (*1*) and "protecting" (*2*) sharks. The Marshall Islands sanctuary was hailed as the "strongest legislation to protect sharks we have seen" (*3*). Fiji bucked the trend recently by deciding not to declare their national waters a sanctuary, thereby attracting press attention and criticism (*4*). This raises the question: What are shark sanctuaries, and does their creation result in effective shark conservation and management?


Tiger shark, Fiji.

Given that studies show shark populations are declining mainly as a result of overfishing (*5*, *6*), no-take marine zones might seem like a logical and effective way to curb mortality and boost populations. However, what constitutes a sanctuary varies among countries, and often is not synonymous with no-take zones. For example, the Marshall Islands bans commercial fishing yet allows small-scale fishing of sharks (*7*). The Maldives has banned commercial fishing only in waters out to 12 nautical miles (*8*), and Venezuela has banned commercial shark fishing in less than 1% of their waters (*9*).

Even with sufficiently protective bans, shark sanctuary creation is only the first step; the real challenge is ensuring effectiveness through strict monitoring and enforcement (*10*, *11*), which requires sustainable financing. Indeed, Fiji's offshore fisheries officer stressed difficulties with monitoring and enforcing a total ban on shark fishing (*12*). Alternatively, allocating capacity toward scientific data collection would allow experts to evaluate effectiveness of management measures and inform long-term regional and global population assessments.

Shark sanctuaries provide hope, but there is no scientific evidence that they are effective—yet. Even worse, the positive press attention surrounding shark sanctuaries may preclude more effective conservation management. Sanctuaries should not substitute for rigorous, science-based management.

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Letters to the Editor

Letters (~300 words) discuss material published in *Science* in the past 3 months or matters of general interest. Letters are not acknowledged upon receipt. Whether published in full or in part, Letters are subject to editing for clarity and space. Letters submitted, published, or posted elsewhere, in print or online, will be disqualified. To submit a Letter, go to www.submit2science.org.

CORRECTIONS AND CLARIFICATIONS

AAAS News & Notes: "AAAS members elected as fellows" (30 November, p. 1168). The following lines contained errors. The correct information follows: Keivan Guadalupe Stassun, Vanderbilt Univ.; S. Lawrence Zipursky, Univ. of California, Los Angeles; Alcino J. Silva, Univ. of California, Los Angeles; Gene D. Sprouse, Stony Brook Univ. The HTML and PDF versions online have been corrected.

Research Articles: "A reconciled estimate of ice-sheet mass balance," by A. Shepherd *et al.* (30 November, p. 1183). The estimated individual rates of ice loss for Greenland and Antarctica did not always sum to the estimated rates of loss for the ice sheets combined because the authors calculated the combined trends after adding the time series. The revised rate of ice-sheet mass balance is −142 ± 49 for the Greenland Ice Sheet from 1992–2011 and −211 ± 37 from 2000–2011. The revised rates of ice-sheet loss are 1350 ± 1010 and 2700 ± 930 for Antarctic and Greenland, respectively. Additionally, ref. 48 should have appeared as follows: "48. H. J. Zwally *et al.*, *J. Glaciol.* **57**, 88 (2010)." These changes have been made to the HTML and PDF online versions of the paper.

TECHNICAL COMMENT ABSTRACTS

Comment on "The Local Structure of Amorphous Silicon"

Sjoerd Roorda and Laurent J. Lewis

Treacy and Borisenko (Reports, 24 February 2012, p. 950) argue from reverse Monte Carlo modeling of electron diffraction and fluctuation electron microscopy data that amorphous silicon is paracrystalline and not described by a continuous random network. However, their models disagree with high-resolution x-ray measurements and other evidence, whereas the agreement with fluctuation electron microscopy is at best qualitative.

Full text at http://dx.doi.org/10.1126/science.1221738

Response to Comment on "The Local Structure of Amorphous Silicon"

M. M. J. Treacy and K. B. Borisenko

The averaged diffraction data alone cannot distinguish between models with different heterogeneous structures at length scales of about 2 nanometers, even when using high-resolution data. Although our approach to calculating diffraction intensities from the model differs from that of Roorda and Lewis, paracrystallinity in amorphous silicon is undeniably evident in the raw experimental fluctuation electron microscopy data.

Full text at http://dx.doi.org/10.1126/science.1222571

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