

## A conversation with Rebecca Short, August 29, 2017

### Participants

- Rebecca Short – PhD Student: Grantham Institute, Imperial College London; Interdisciplinary Centre for Conservation Science, University of Oxford; Institute of Zoology, Zoological Society of London
- Andrew Martin – Research Analyst, GiveWell

**Note:** These notes were compiled by GiveWell and give an overview of the major points made by Rebecca Short.

### Summary

GiveWell spoke with Ms. Short of Imperial College London about the use of insecticide-treated bed nets for fishing. Conversation topics included potential negative and positive impacts of the practice, how common the practice may be, and the policy workshop Ms. Short is organizing.

### Background on the use of insecticide-treated bed nets for fishing

Mass distributions of insecticide-treated bed nets are intended to provide protection against malaria, but some recipients may use the nets for fishing instead. Some bed nets used for fishing might have initially been used for protection against malaria, and others may have never been used for malaria protection.

### Potential negative impacts of fishing with insecticide-treated bed nets

#### Declines in fish stocks

Fishing with insecticide-treated bed nets could be contributing to declines in fish stocks through a few different mechanisms:

- **Overfishing:** Other fishing methods may require expensive upfront investments, but it does not cost much to begin fishing with insecticide-treated bed nets because the nets are usually distributed for free. Additional people entering the fishing market in a particular area could lead to fish being caught at an unsustainable rate and the depletion of fish stocks over time.
- **Catching too many small fish:** A common theory in fisheries management is that catching too many small fish—which may not have yet grown large enough to breed—can be damaging to a fish population as a whole. Fishing nets are usually designed to have holes large enough for very small fish to escape through, but insecticide-treated bed nets are made with a very fine mesh which is more likely to trap small fish. This issue may be particularly important in shallow water systems which act as nursery grounds for juvenile fish. However, an alternative fisheries management theory,

"balanced harvesting," argues that catching small fish may not be very harmful as part of a balanced catch as productivity is high.

It seems fairly unlikely that insecticide from the nets causes much ecological damage in large bodies of water, but it is possible that a large number of people using insecticide-treated nets in a small body of water could release enough insecticide into the water to cause some harm. Permethrin insecticides are toxic to fish.

While declines in fish stocks have occurred in areas where insecticide-treated nets have been used for fishing, there does not appear to be any empirical research providing strong evidence that bed net fishing caused the declines. This type of research would require devoted researchers and a large amount of investment, but is necessary.

### **Violent conflict**

In some cases, the use of mosquito nets for fishing has caused conflict. In Mozambique, there has been violent conflict between groups fishing with bed nets and others who oppose the practice because they believe it is responsible for declining fish stocks.

## **Potential positive impacts of fishing with insecticide-treated nets**

### **Nutrition**

Consumption of small fish caught with bed nets could have nutritional benefits for some populations. These fish tend to be eaten whole, and may be a valuable source of micronutrients for children.

### **Autonomy and additional income for women**

In many areas, it appears that women are more likely than men to engage in fishing with bed nets. This activity may be having a positive impact for them—including increased income, stronger ability to care for children, and independence from men.

### **Scale of the issue**

Although anecdotes about the use of insecticide-treated bed nets for fishing have been common for around ten years, neither public health experts nor fishery management experts have previously conducted much empirical research on how common the practice is—in terms of geographic spread, proportion of distributed bed nets used for fishing, or proportions of net recipients who engage in fishing with bed nets.

Ms. Short and her colleagues have recently authored a paper based on their survey findings on the scale of the issue. Their key findings:

- **Geographic spread:** Ms. Short and her colleagues conducted surveys in from tropical regions at risk of malaria in the Americas, Africa, and Asia, and found

that bed net fishing was practiced to some extent in all three regions. This research contradicts the common claim that bed net fishing is only practiced in a few locations in Africa.

- **Proportion of bed net recipients that practice bed net fishing:** One study on a coastal village in Kenya found that 50% of adults engaged in bed net fishing. It appears likely that usage rates vary widely from place to place.

Ms. Short and her colleagues have not attempted to estimate the overall proportion of bed nets received through mass distributions that end up being used for fishing.

### **Policy workshop**

Ms. Short is organizing a workshop where professionals involved with bed net distribution will meet and discuss the issue of bed net fishing. She hopes that this workshop will be the beginning of conversations that later develop into policy solutions. The workshop is also an opportunity for people from diverse backgrounds to share data and get a sense of what types of further research should be conducted and what policy changes could have the most positive impact.

### **Potential next steps to be discussed at the workshop**

There may be opportunities for health professionals involved with bed net distribution to work with fishery management professionals to devise a way to ensure that bed nets are being used for antimalarial purposes (e.g., behavioral change campaigns targeted at net recipients). Discussions with the Against Malaria Foundation have been helpful in thinking about how to address the issue.

The workshop participants could also discuss government policies on bed net fishing. Some governments have already banned the activity, and may arrest or impose fines on those who do not comply. It appears unlikely that an outright ban provides the best balance of trade-offs among different policy options, since it eliminates a source of income and food for very vulnerable populations.

Alternative malaria-control practices for communities near bodies of water could also be considered at the workshop. It might also be feasible to create new designs for nets that would not be as suitable for fishing as current bed nets are.

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