

## UNCERTAINTY CREATED THROUGH SLIPPAGE

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### Introduction

*Slippage*, a variant on high grading, occurs in pump fisheries, both with and without observer coverage, when the contents of the net are partially or completely discharged without sampling the discarded catch. On otherwise observed trawl trips, this phenomenon forces observers to rely on either good-faith estimates from the captain regarding the size and species composition of the slipped catch, or on their own visual estimates of net contents, which are still largely underwater. Neither of these methods constitutes reliable sampling of the discarded catch. The problem of slippage is compounded by size-specific sorting grates, which function to pre-sort the fish at the fish pump before they are brought aboard, excluding larger marine life and debris. Because of this pre-sorting, the composition of the landed catch is different from the slipped catch, and cannot be used to estimate the composition of the slipped discards. Accurate catch monitoring data is critical to ensuring our nation's fisheries are well managed. Slippage seriously undermines knowledge of catch composition in certain fisheries and represents a major challenge to observers and to the integrity of monitoring programs. This presentation examines the problem of slippage in mid-water pelagic fisheries and offers some solutions and suggestions for further research.

### Methods

In this study we analyzed national and international fisheries to gain a better understanding of the prevalence of slippage events, and developed proposed conservation and management reforms to address this issue.

### Results/Discussion

*New England Atlantic Herring*: Catch data for the Atlantic herring fishery is conducted by the Northeast Fisheries Observer Program (NEFOP). In 2007, the NEFOP reported that approximately 6% of observed tows were partially discarded or slipped at sea without systematic sampling, and nearly 11% of observed tows were completely discarded without sampling.<sup>1</sup> Because individual tows may contain well over 100 metric tons of marine life and cause substantial mortality to the catch, this degree of unsampled discarding is of great concern.<sup>2</sup>

*Mid-Atlantic Mackerel*:<sup>3</sup> The amount of discards of large pelagics in the Atlantic mackerel fishery is largely unknown due to the inability of observers to view such

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<sup>1</sup> A. Van Atten, Northeast Fisheries Observer Program, Presentation to Herring Oversight Committee, New England Fisheries Management Council, May 22, 2008. See <http://www.nefmc.org/herring/index.html>.

<sup>2</sup> Davis, M.W. 2002. Key principles for understanding fish bycatch discard mortality. *Canadian Journal of Fisheries and Aquatic Sciences*. 59 (11): 1834-1843.

<sup>3</sup> Appendix to Letter from D. Furlong, Exec. Dir. MAFMC, to J. O'Shea, ASMFC (May 11, 2009) (on file with Mid-Atlantic Fishery Management Council).

discards because of the pumping mechanism. Large bodied species are prevented from entering the pump by the sorting grate, and are discarded while the cod end is submerged.

*Scotland:*<sup>4</sup> In one short study of discards in pelagic fisheries in Scotland, 11% of the total catch of maatje herring, comprising three complete hauls of 25, 15 and 5 tons, respectively, was discarded with the third haul slipped. In the mackerel fishery, approximately 4% of the total catch was slipped.

*United Kingdom:*<sup>5</sup> In the UK mackerel and pilchard trawl fisheries, the cod-end was emptied without being brought on-board, thereby compromising the ability of the observer to record all marine mammal bycatches.

*England:*<sup>6</sup> Slippage has been recorded as an issue in one study when researchers were studying discards in an English pelagic trawl fishery for mackerel. Researchers noted that whole catches were sometimes slipped without ever being brought on board, forcing them to rely on the fishermen's estimates of catch size and composition.

*Solutions:* Conservation and management reforms to alleviate the problem of slippage involve improvements to monitoring and observer programs to ensure more reliable sampling of all catch. Reforms should include:

- Monitoring of every tow, all trips with an observer on each vessel.
- Ensure a complete sampling record of both pre-sorted catch and residual catch in the cod end after pumping, as was apparently done in one study of the Dutch pelagic trawl fishery off Mauritania, in which most discarded catch came on board.<sup>7</sup>
- Use of electronic monitoring, including mesh pressure sensors on nets and video records of catch pre-sorted on deck, to augment standard observer data.

In addition, strong regulations and innovative solutions must be devised to minimize and account for slippage events that are unavoidable due to safety concerns. For instance, an overall cap on allowable slippage, combined with an assumed slippage event tonnage and a trip-termination requirement should be considered.<sup>8</sup>

*Research Needs:* More extensive studies of catch, bycatch, and discards in mid-water pelagic trawl fisheries, based on high quality sampling data, are essential to gaining more reliable information about the actual impacts to target and non-target resources, and critical to ensuring sustainable fisheries management.

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<sup>4</sup> G. J. Pierce et al. 2002. Results of a short study on by-catches and discards in pelagic fisheries in Scotland (UK). *Aquatic Living Resources*. 15: 327-334, 332.

<sup>5</sup> Y. Morizur et al. 1999. Incidental catches of marine mammals in pelagic trawl fisheries of the northeast Atlantic. *Fisheries Research* 41: 297-307, 303.

<sup>6</sup> Y. Morizur et al. 1996. By-catch and discarding in pelagic trawl fisheries. Final Study, Centre de Brest, France. 122p at 66.

<sup>7</sup> R. ter Hofstede, M. Dickey-Collas. 2006. An investigation of seasonal and annual catches and discards of the Dutch pelagic freezer-trawlers in Mauritania, Northwest Africa. 77: 184-191, 185.

<sup>8</sup> P. Baker et al. 2008. Herring Alliance Scoping Comments re: Amendment 4 to the Atlantic Herring Fishery Management Plan. p.8.