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|  <p data-bbox="220 539 448 573">Agreement on the Conservation<br/>of Albatrosses and Petrels</p> | <p data-bbox="539 239 1385 327"><b>Seventh Meeting of the Seabird Bycatch Working Group</b></p> <p data-bbox="874 344 1385 383"><i>La Serena, Chile, 2 - 4 May 2016</i></p> <p data-bbox="517 456 1358 555"><b>Risk factors for seabird bycatch in a pelagic longline tuna fishery<sup>1</sup></b></p> <p data-bbox="691 645 1187 683"><b><i>Eric Gilman, Milani Chaloupka</i></b></p> |
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### SUMMARY

The Hawaii longline deep set tuna fishery annually catches hundreds of seabirds, primarily Laysan (*Phoebastria immutabilis*) and black-footed (*P. nigripes*) albatrosses. Since regulations were introduced in 2001, the seabird catch rate has declined 74%. However, over the past decade, seabird catch levels significantly increased due to significant increasing trends in both effort and nominal seabird catch rates. We modelled observer data using a spatio-temporal generalized additive mixed model with zero-inflated Poisson likelihood to determine the significance of the effect of various risk factors on the seabird catch rate. The seabird catch rate significantly increased as annual mean multivariate ENSO index values increased, suggesting that decreasing ocean productivity observed in recent years in the central north Pacific may have contributed to the increasing trend in nominal seabird catch rate. A significant increasing trend in number of albatrosses attending vessels, possibly linked to declining regional ocean productivity, may also have contributed to the increasing nominal seabird catch rate. Largest opportunities for reductions are through augmented efficacy of seabird bycatch mitigation north of 23° N where mitigation methods are required and during setting instead of during hauling. Both side vs. stern setting, and blue-dyed vs. untreated bait significantly reduced the seabird catch rate. Of two options for meeting regulatory requirements, side setting had a significantly lower seabird catch rate than blue-dyed bait. There was significant spatio-temporal and seasonal variation in the risk of seabird capture with highest catch rates in April and May and to the northwest of the main Hawaiian Islands.

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<sup>1</sup> Analyses and conclusions presented in this ACAP paper are subject to change.