**Appendix 1. Albatross interaction rates for seabird avoidance methods tested in North Pacific Ocean pelagic longline swordfish and tuna fisheries.** (Interaction rates are expressed normalized for seabird abundance (expressed as contacts or captures per 1000 hooks per bird) and without normalizing for bird abundance (expressed in parentheses as contacts or captures per 1000 hooks). Percent reductions are based on the normalized rates unless noted otherwise.)

| Study[a] and variable | Treatment | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Control[b] | Underwater setting chute 9 m | Blue-dyed bait | Towed Buoy | Strategic Discards | Streamer line | Night setting | Additional 60g weight at bait | Night setting & blue-dyed bait | Side-setting | Underwater setting chute 6.5 m |
| **McNamara et al. (1999) Hawaii longline swordfish gear** | | | | | | | | | | | |
| Contact rate | 32.8[c] (265.7) | | 7.6 (61.6) | 16.1 (130.4) | 15.7 (124.7) | 15.7 (127.2) | | | | | |
| Contact reduction | | | 77% | 51% | 53% | 52% | | | | | |
| Capture rate | 2.23 (18.0) | | 0.12 (17.5) | 0.26 (6.8) | 0.32 (2.3) | 0.47 (6.6) | (0.60)[e] | | | | |
| Capture reduction | | | 95% | 88% | 86% | 79% | 73%[e] | | | | |
| **Boggs (2001) Hawaii longline swordfish gear** | | | | | | | | | | | |
| Contact rate[d] | 7.60[c] (313.5) | | 0.43 (20.5) | | | 1.82 (93.4) | | 0.61 (25.0) | | | |
| Contact reduction | | | 94% | | | 76% | | 92% | | | |
| **Gilman et al. (2002) Hawaii longline tuna gear** | | | | | | | | | | | |
| Contact rate | 0.61 (75.93) | 0.03 (1.85) | | | | | | | | | |
| Contact reduction | | 95% | | | | | | | | | |
| Capture rate | 0.06 (4.24) | 0.00 (0.00) | | | | | | | | | |
| Capture reduction | | 100% | | | | | | | | | |
| **Boggs (2003) Hawaii longline swordfish gear** | | | | | | | | | | | |
| Contact rate | 0.78 (27.1) | | | | | | 0.053 (4,8) | | 0.01 (0.98) | | |
| Contact reduction | | | | | | | 93% | | 99% | | |
| Capture rate | 0.058 (2.0) | | | | | | 0.0013 (0.11) | | 0.00 (0.00) | | |
| Capture reduction | | | | | | | 98% | | 100% | | |
| **Gilman et al. (2003) Hawaii longline swordfish gear** | | | | | | | | | | | |
| Contact rate | | 0.30 (5.0) | 2.37 (64.9) | | | | | | | 0.08 (1.9) | |
| Capture rate | | 0.03 (0.6) | 0.08 (1.8) | | | | | | | 0.01 (0.2) | |

**Appendix 1. Albatross interaction rates for seabird avoidance methods tested in North Pacific Ocean pelagic longline swordfish and tuna fisheries.** (Interaction rates are expressed normalized for seabird abundance (expressed as contacts or captures per 1000 hooks per bird) and without normalizing for bird abundance (expressed in parentheses as contacts or captures per 1000 hooks). Percent reductions are based on the normalized rates unless noted otherwise.)

| Study[a] and variable | Treatment | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Control[b]** | **Underwater setting chute 9 m** | **Blue-dyed bait** | **Towed Buoy** | **Strategic Discards** | **Streamer line** | **Night setting** | **Additional 60g weight at bait** | **Night setting & blue-dyed bait** | **Side-setting** | **Underwater setting chute 6.5 m** |
| **Gilman et al. (2003) Hawaii longline tuna gear** | | | | | | | | | | | |
| Contact rate | | 0.28 (10.3) | 0.61 (23.8) | | | | | | | 0.01 (0.1) | 0.20 (5.6) |
| Contact reduction[f] | | 82% | 60% | | | | | | | 99% | 87% |
| Capture rate | | 0.05 (1.7) | 0.03 (1.2) | | | | | | | 0.00 (0.0) | 0.01 (0.5) |
| Capture reduction[f] | | 38% | 63% | | | | | | | 100% | 88% |

[a] Research has also been conducted by the Japan Fisheries Research Agency on the effectiveness of blue-dyed bait on reducing seabird interactions in Japan's longline tuna fishery in the western North Pacific Ocean (Minami & Kiyota 2002). Results were not published in a format that provides seabird interaction rates expressed as contact or capture per number of hooks or normalized rates for seabird abundance.

[b] Control treatments in McNamara et al.(1999) and Boggs (2001) entailed conventional swordfish fishing operations. Control treatment in Gilman et al. (2003) entailed conventional tuna fishing operations.

[c] The different contact rates observed by Boggs (2001) and McNamara et al. (1999) may be explained by the use of different definitions of what constituted a seabird contact. McNamara et al.(1999) counted the total number of times a seabird came into contact with gear near the hook, even if the same bird contacted the gear multiple times, while Boggs defined a contact where only one contact per bait was recorded as a contact regardless of whether a single bird contacted a bait multiple times.

[d] Contact rates are averages of rates reported by Boggs (2001) for Laysan and black-footed albatrosses.

[e] This rate is not normalized for albatross abundance. McNamara et al. (1999) could not estimate seabird abundance during night setting. McNamara et al.'s (1999) control capture rate when not normalized for albatross abundance was 18.0 captures per 1000 hooks. Night setting reduced this control capture rate by 97%.

[f] Percent reductions use the control treatment contact and capture rates of Gilman et al. (2003)