

Why do Storm-Petrels Bite?

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Leach’s Storm Petrels (*Hydrobates leucorhous*) are small (about robin-sized) long-lived seabirds that nest in underground burrows on offshore islands. Storm petrels have been studied on Kent Island for almost 90 years, and some birds come back to breed in the study site year after year. To monitor breeding efforts, researchers reach into burrows to feel for adults, eggs, and (later in the season) chicks. During this process, called “grubbing”, incubating adult petrels exhibit a variety of behaviors, including biting the researcher. The variety in behavioral response interested me, and I wanted to study why petrels act the way they do.

I came up with three hypotheses to explain why petrels respond grubbing: (1) **defense**—grubbing simulates a predation event, so petrels “fight back” to protect their nests or themselves; (2) petrels become **habituated** to grubbing; and (3) the response is pure **individual variation**, where some petrels are simply more aggressive than others. To investigate these hypotheses, I recorded the behavior of 210 different petrels during grubbing. I categorized behavior as “biting”, “running”, “hiding”, “kicking” (kicking dirt on to the investigator), “vocalizing”, “regurgitating”, and “passive” (absence of another behavior). If a bird exhibited multiple behaviors, I recorded all behaviors. I calculated a “bite-run score” – a measure of how often a bird bit relative to the number of times it ran away—for each bird. I then analyzed bite-run scores relative to experience with grubbing (*i.e.*, the number of years a bird has appeared in the historic data set). Under hypothesis 1 and hypothesis 3, I would expect **no difference** in bite-run scores relative to experience level. Under hypothesis 2, I would expect behavior to **change with experience**.

I found that more experienced birds tended to have higher bite-run scores than less experienced birds (Figure 1a). More experienced birds had higher bite-run scores because they tended to bite on every burrow check (Figure 1b) and generally did not run away (Figure 1c). These data support the habituation hypothesis (hypothesis 2).

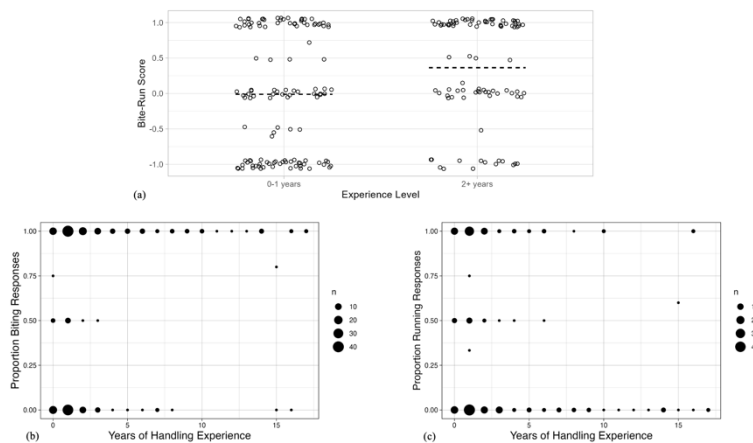


Figure 1. (a) Bite-Run Score by experience level (dashed lines = means). More experienced birds tended to bite more than run (95% non-parametric bootstrap confidence interval, N=10000). Also shown are proportion of burrow checks that birds (b) bit the grubber and (c) ran or hid from the grubber.

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