

Tag Reporting Rates

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Tag Reporting Rates

- Attributes of interest: fishing mortality (F), natural mortality (M), and migration can be biased if reporting rates are assumed or not considered
- There are a few different approaches to the tag reporting rate problem
 - 1) Assume reporting rate is 100% (= ignore the problem).
 - 2) Use reward tags with some proportion of the releases
 - 3) Plant a known number of tags in commercial catches.
 - 4) Observer component of commercial fleet.
 - 5) Use reward tags with various values

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2) Use reward tags with some proportion of the releases.

- Several reasons reward tags might not be returned

- Not aware that they are worth money

- Not valuable enough to worry about

- Too much catch to search for tags

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- 3) Plant a known number of tags in a component of commercial catches (Hearn et al. 2003).
 - The number of tags returned relative to the number planted would give you a good estimate of the reporting rate.
 - Difficult planting tags without it affecting the reporting behavior of those fishermen.
 - Must ensure that the component where tags are planted is representative of rest of fishing effort.

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4) Observer component of commercial fleet
(Pollock et al. 2002).

100% reporting assumed for vessels with an
observer

-Observers may not observe all of the catch.

-Observer component must be representative of
the rest of the fishing fleet.

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Nichols et al. 1991

- 5) Use reward tags with various values
- Must assume a functional form for the relationship.
 - What reward values do we use?
 - Difficult to know how much money the experiment will cost.

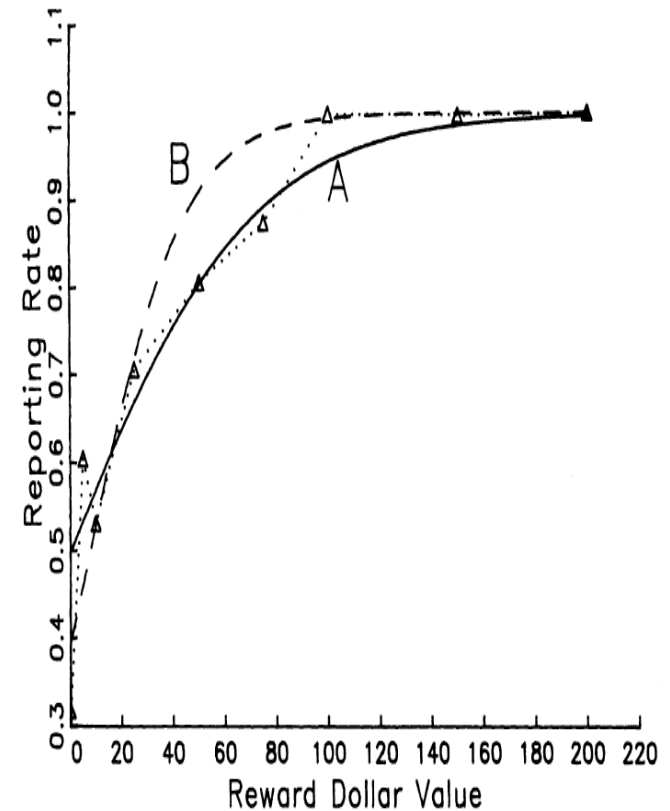


Fig. 1. Estimated band reporting rates under general model M_{200} (Δ) and linear-logistic functions estimated under models M_A (solid line = A) and M_B (dashed line = B).

Tag Reporting Rates

Royle and Garrettson 2005

Taylor et al. 2006

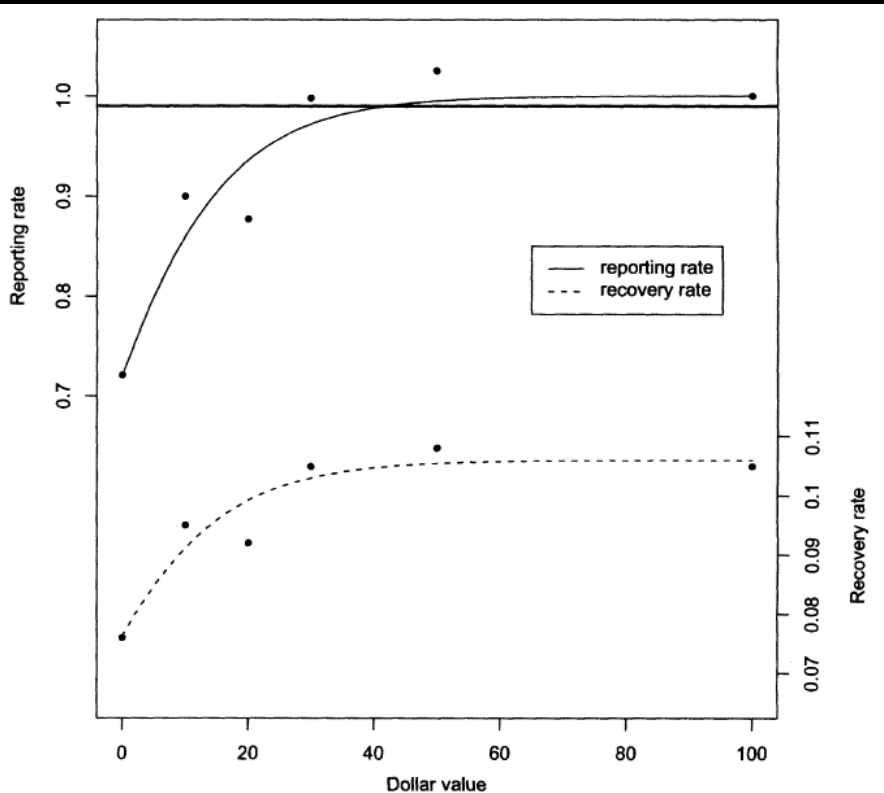


Fig. 1. Top panel: moment estimates of reporting rate for each reward-band dollar value obtained assuming that $\lambda_{100} = 1$. Curve is the fitted reporting rate function, while the horizontal line is $\lambda = 0.99$. Bottom panel: observed recovery rates for each reward band dollar value and fitted recovery rate curve obtained by fitting the binomial GLM to the observed recovery rate data.

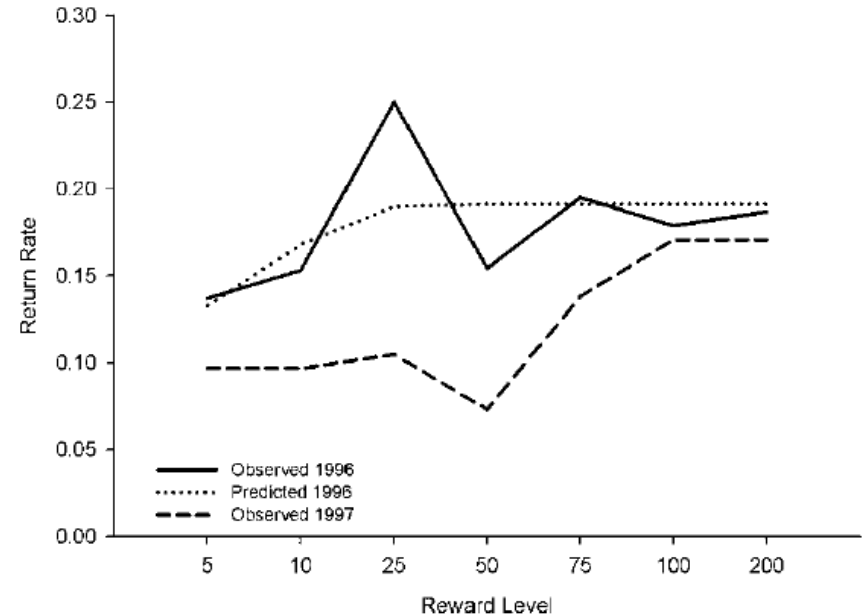
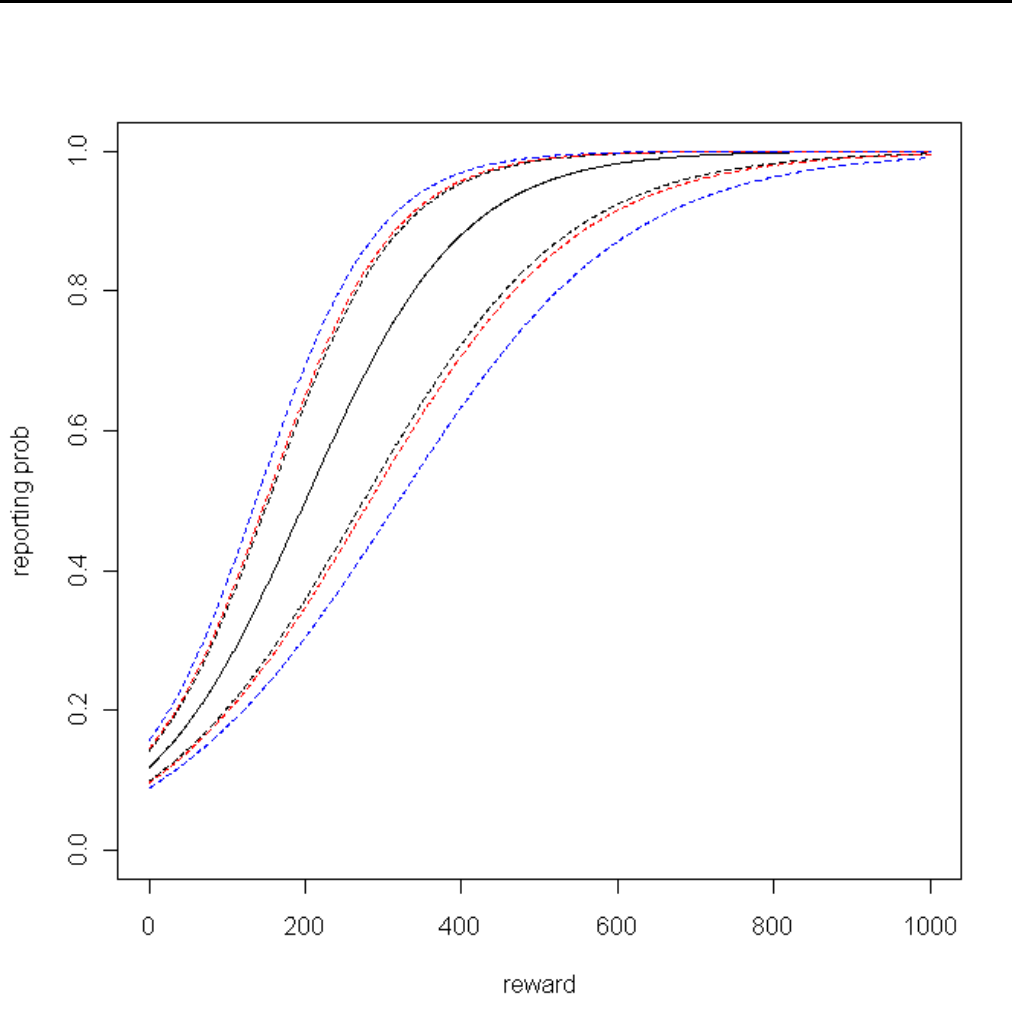


FIGURE 1.—Observed (1996 and 1997) and predicted (1996) return rates (%) of tagged common snook returned by recreational anglers in Jupiter and Lake Worth inlets, Florida, in 1996 and 1997. Predicted return rate was calculated by means of a diminishing-returns equation (see text) and is similar in shape to the relationship observed by Nichols et al. (1991) for waterfowl tag returns.

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Design Considerations:

- Number of categories
- Numbers of tags released in each category
- Number of release groups
- Length of time elapsed prior to analysis
- Fishing and natural mortality

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Other Considerations:

- The reporting rate for non-reward tags may change during period where reward tags are used (Pollock et al. 2001).
- Difficult to know the numbers of releases at each value that are sufficient.
- Relationship of reporting rate to tag value will change with time (inflation).
- Reporting rates may change with targeted species and market value of that species.

References

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