

Use of a Bayesian Network Model as a Decision-Support Tool For Assessing Risk of Nonnative Aquatic Species as Invasive and Injurious Species

About the Document

Title: Bayesian Network Model for Invasive and Injurious Species

Subject and Purpose: Models for predicting invasiveness have become quite sophisticated and eminently useful. This model is a risk analysis model for assessing potential invasiveness and injuriousness of aquatic species. The model uses Bayesian networking to assess the probability by which known or projected characteristics of individual species would contribute to their becoming potentially injurious. We intend to use the model to aid in the assessment of nonnative aquatic animals (primarily fish, mollusks, and crustaceans). The model would help inform the procedure for listing species as injurious under title 18 of the Lacey Act, which would prohibit their importation and interstate transportation.

Importance of Scientific Information: Appropriately using this model requires information on a variety of life history and habitat use characteristics of potentially invasive and injurious aquatic species. We will gather such information from recognized scientific sources and from expert knowledge. The results of the model are projections of the degree to which a given species might become injurious. Such results will then become part of the information by which agency decision-makers will decide whether to include the species as injurious under the listing criteria. Model results and agency decisions would also be available to the public for aiding responsible decisions for trading live animals.

About the Peer Review Process

Type of review: Independent peer review – Individual, in-person briefings will be conducted by an independent agent, with pre-meeting reading material on model documentation. The Service will solicit individual written comments and responses to questions posed to all invited reviewers.

Number of reviewers: The Service will use 3 to 5 independent expert reviewers. Letters to a minimum of three peer reviewers requesting their participation will be sent as soon as possible.

Reviewer Expertise: Any one or combination of the following: invasive species biology, invasive species risk assessment, decision-support modeling, aquatic species biology, aquaculture, fisheries.

Selection of Peer Reviewer: Peer reviewers will be selected based on their expertise with the subject matter and as described in the Office of Management and Budget Peer Review Guidelines, including having not been involved in development of the model.

Management of Peer Reviewer: The peer review will be managed by the U.S. Fish and Wildlife Service. Peer reviewers will be given 45 days to complete their reviews. The estimated start of review is January 2013. Peer review comments and the Service's responses to those comments will be made available to the public on a U.S. Fish and Wildlife Service website (http://www.fws.gov/injuriouswildlife/Injurious_prevention.html).

About Public Participation

The public is invited to submit comments on this peer review plan by sending emails to prevent_invasives@fws.gov (please state "BayesNet peer review" in subject line) or by mail to U.S. Fish and Wildlife Service, Branch of Aquatic Invasive Species, 4401 N. Fairfax Drive, Room 740D (Mailstop 770), Arlington, VA 22203. The deadline for filing comments is January 22, 2013.

Contact: Susan Jewell, U.S. Fish and Wildlife Service, Branch of Aquatic Invasive Species; 703-358-2416 or susan_jewell@fws.gov.