Executive Summary

Risk Assessment Tools Adopted to Scientifically Assess Risk of Invasion from Aquatic Animals in Maryland

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The adoption and use of a risk assessment tool by the department creates a repeatable, transparent process that improves subjective assessments once used to identify high-risk aquatic animal species for prohibition under COMAR (08.02.19). Five risk assessment tools were evaluated by the department. Each considered three facets of invasion: probability of introduction; probability of establishment; and probability of causing environmental, economic, or social impacts. Assessments required statements of support with cited evidence. After comparisons, a subset of tools, when used in combination, provided an efficient, objective, scientifically defensible process for which to assess species risk, inform future regulatory changes, and determine where to focus management. The tools are integrated into a four step process of risk assessment.

Step 1. AS-ISK. The Aquatic Species Invasiveness Screening Kit (AS-ISK) risk assessment tool is the initial screening tool to assess risk to Maryland waters posed by aquatic animals. This tool is one of the most widely applied, tested, and calibrated tools available. It can be used for various taxa including amphibians (AmphISK), reptiles (RISK), marine fish (MFISK), freshwater fishes (FISK), and marine (MI-ISK) and freshwater invertebrates (FI-ISK). The risk score provided by the tool will be compared against the global threshold of 15.5\(^1\) to distinguish high-risk species until calibration for Maryland can be performed.

www.cefas.co.uk/nns/tools/

Step 2. Climate Matching. While performing AS-ISK, the department assesses the habitat suitability for establishment in Maryland using CLIMATCH model.


The Risk Assessment Mapping Program (RAMP) by the U.S. Fish and Wildlife Service may also be used to determine the degree of climate match in Maryland to other regions colonized by high risk species.


Step 3. Great Lakes Assessment\(^2\). When warranted, the Great Lakes Assessment Framework is used to conduct risk assessments of species deemed high risk by the AS-ISK screening tool. This tool was modeled after the United Kingdom Scheme, adapted for use in the Great Lakes region and is applicable to Maryland and the Mid-Atlantic region. This tool includes risk screening for the species as well as risk for multiple pathways of introduction and propagule pressure. Final scores within the assessment allow managers to evaluate risk across pathways and prioritize actions that limit chances of introduction and establishment.

Step 4. Review and Adoption. Assessments are conducted similar to the process employed by the Maryland Invasive Plant Advisory Commission for invasive plant assessments in Maryland. The risk assessment is conducted by one expert and then reviewed separately by two reviewers. Peer-review by two reviewers improves transparency and quality of the assessments. All final, peer-reviewed species assessments follow a consistent template used by the U.S. Fish and Wildlife Service.


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