Title: Early Detection Network Design and Search Strategy Issues

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We conducted a series of field and related modeling studies (2005-2012) to evaluate search strategies for Great Lakes coastal ecosystems that are at risk of invasion by non-native aquatic species. In developing a network, we should design to achieve an acceptable limit of detection (non-detection is a significant issue), as well as maximize search efficiency to detect invasive species while they are still uncommon. We have used our empirical studies to assess some factors which may improve the efficiency of a search for detection of "new," rare, but potentially invasive species. We also have sampled extensively across the entire nearshore of the Great Lakes, and thus have examined sampling efforts spread at different spatial scales—from the intensive case study efforts in individual embayments, to a set of embayments within a somewhat localized region, to the coastal waters along an entire Great Lake's coastline. Our case studies at extensive and intensive scales are used to identify issues (technical as well as program objectives) to consider in developing a Great Lakes-wide network.