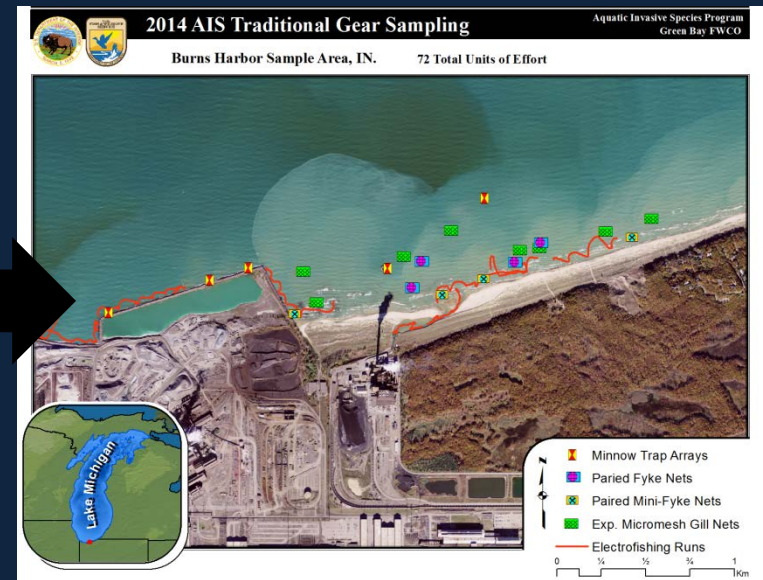
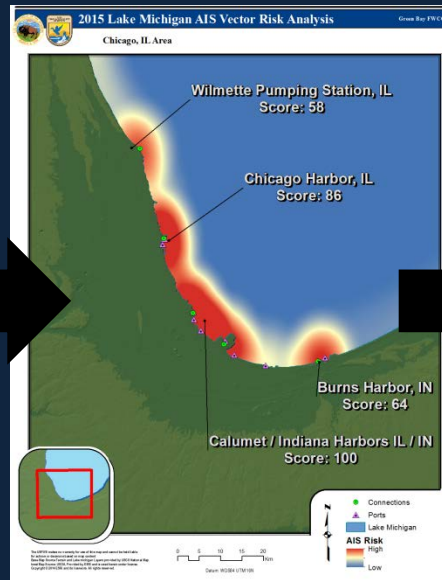


Conceptual Framework for AIS Surveillance & Monitoring in Great Lakes



Timothy Strakosh

AIS Early Detection and Monitoring

➤ USFWS AIS Early Detection - Great Lakes Basin

- Based on EPA – MED/USFWS
- Assemblage based approach, can be applied for single species
- Adaptive and iterative process
- Focus sampling effort from large to fine scale
- Ecological/biological “screens”
- Maximize sampling efficiency / detection probability

Filter: Species Risk Assessments

Mode of Introduction



Potential Introduction Area



**Physio-Geographic/Hydrographic
Landscape**



**Define Spatiotemporal
Sampling/Unique Habitats**



Methods/Gear Selection



Effort

High Risk Species

High Risk Pathway

**Species Habitat
Preferences
/Life Histories**

Microhabitat Use

Effective Gears

Detection

Likely Mode of Introduction



Likely Introduction Area



Macro/Meso-habitat Preferences



**Define Spatiotemporal
Sampling/Micro-habitats**

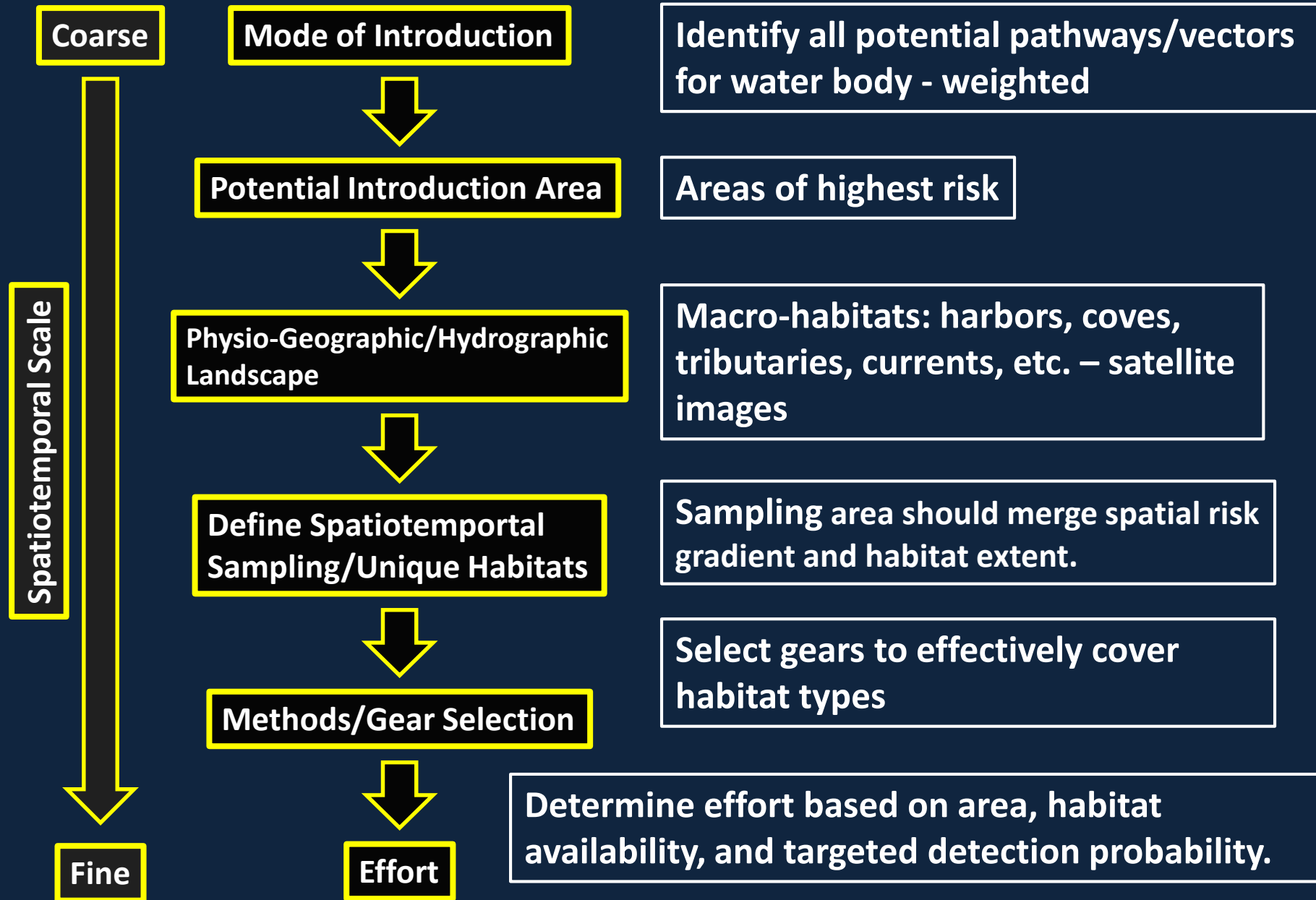


Refine Methods/Gear Selection



Effort

Generalized Assemblage Based Sampling Approach



Filter: Species Risk Assessments

Mode of Introduction



Potential Introduction Area



Physio-Geographic/Hydrographic Landscape



Define Spatiotemporal Sampling/Unique Habitats



Methods/Gear Selection



Effort

High Risk Species

Likely Mode of Introduction

Identify species with highest probability of introduction from Risk Assessments (i.e., those that are in pathways). **Ecotypes/guilds lead by specific examples**

Filter: Species Risk Assessments

Mode of Introduction



Potential Introduction Area



Physio-Geographic/Hydrographic Landscape



Define Spatiotemporal Sampling/Unique Habitats



Methods/Gear Selection



Effort

High Risk Species

High Risk Pathway

Weight vectors based on highest risk species.

Likely Mode of Introduction



Likely Introduction Area

Refine point of introduction if needed.

Filter: Species Risk Assessments

Mode of Introduction



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Likely Mode of Introduction



Likely Introduction Area



Macro/Meso-habitat Preferences



**Introduction vs Occupancy:
Lentic, lotic, offshore, etc**

Filter: Species Risk Assessments

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**Define Spatiotemporal
Sampling/Micro-habitats**



Refine Methods/Gear Selection



Effort

AIS Early Detection and Monitoring

- Assemblage Based Approach
 - Applicable Across Waterbodies
 - Adaptive and iterative process
 - Focus sampling effort from large to fine scale
 - Ecological/biological “screens”
 - Maximize sampling efficiency / detection probability