The Living Environment

NYS Performance Indicators related to possible AIS lessons

6 – Plants and animals depend on each other in their physical environments.

6.1 Explain the factors that limit growth of individuals and populations/

6.1d and e  Carrying capacity (of a lake) based on ecosystem balance/ and survival of organisms based on physical conditions of light, temperature and chemistry. EX: overstocking of Grass carp

AIS dramatically change a lake’s ability to maintain and support existing habitat  by changing the physical conditions of the lake. EX; zebra mussels

6.1f  Environmental resources are finite; how do “unlimited” populations impact other organisms?

AIS outcompete the native species for resources in a lake, causing starvation, or crowding out. Ex: Native mussels crowded out by AIS

6.1g Relationships between organisms may be native, neutral or positive.

AIS often shift the producer/consumer/prey relationships in a lake as new species may not be recognized as either predator or prey by native species.

6.2 Importance of species diversity

6.2a Biodiversity increases the stability of the ecosystem.

AIS can dramatically reduce species diversity – also relates to  6.1g  EX: Round Gobi – case study.

6.3 How do living and non-living environments change over time and respond to disturbances?

6.3b and c Long term, gradual changes resulting in stability/ alteration of a stable system which, over time, can recover.

AIS disruption of a stable system – disruption to collapse or adaptation?  Enhanced discussion of naturalization of species – eradicate or adapt?

7 – Human decisions and activities have had a profound impact on the physical and living environment.

7.1 There is a range of interrelationships of humans with the living environment.

7.1c Deliberate and inadvertent human activities that alter the equilibrium in ecosystems.

AIS have been brought in deliberately (Grass Carp) with good intentions, but mostly inadvertently thought boat traffic (ballast releases). Both have profound effects in habitats. Some irreversible.

7.3 Individual choices and societal actions

7.3a and b  Decision making; Assessing actions based on risk, costs, benefits and trade-offs. Long term consequences… next generations.

Response to AIS: BMPs v Regulations