

Lesson in a Backpack: State of the Bay Report Card



Grade 9 Biology: Sustainable Ecosystems

Specific Expectations:

Identify various factors related to human activity that have an impact on ecosystems.

Evaluate the effectiveness of government/societal group/non-gov. group initiatives in Canada with respect to an environmental issue that affects the sustainability of terrestrial or aquatic ecosystems.

Explain the importance of biodiversity for all sustainable ecosystems.

Lesson Outline

- 1) As an introduction to the lesson, have students brainstorm some things that might *indicate* how healthy Georgian Bay is. (If you were to give Georgian Bay a report card for being healthy, what would the subjects be? ex. Fish population, wetland health, etc.) Let students know that the State of the Bay Report Card uses *indicators* to determine the health of Georgian Bay, and gives each indicator a grade.
- 2) Divide the class into 6 groups. Give each group a copy of the State of the Bay Report Card, and assign an indicator to each group. Give each group the appropriate question sheet (provided). Give the groups 20 minutes to answer their questions, using the State of the Bay Report Card. (If possible, allow them internet access to research their indicator even further).
- 3) Give the groups 3 minutes each to present their indicator to the rest of the class. They can act as scientists, specializing in their assigned indicator. In their presentation, they must answer the questions: *What is your indicator? What negatively impacts your indicator? What are solutions to any issues? What should be done with the \$200,000 given by the government? Have students make a proposal of how the money should be distributed to help their cause. Remember, all groups will be hoping to get the \$200,000, so make your arguments convincing!*
- 4) As each group of "scientists" presents, the rest of the class should act as the Provincial or Federal Government. The government has \$200,000 to spend on sustaining the health of Georgian Bay, and must decide how they will spend the money.
- 5) Once each group has presented, have the class come up with a priority list for Georgian Bay. As the government, they must decide where the money is needed most and why.
- 6) As a homework assignment, have students create their own "State of _____ Report Card" for their own region. (Nobel, Humphrey, MacTier, McKellar, Pointe au Baril, Seguin, Parry Sound, etc.) Their report card can be in a brochure format or on a poster. Have them come up with three indicators that could suggest the environmental health of their area. In order to decide on their indicators, they must interview 3 people in their neighbourhood to determine what residents view as local environmental concerns. They must give each indicator a grade, with a reasonable explanation for their choice (backed up by some research).

Below is an **example** of a way to structure the discussion after the presentations (write a similar chart on the board). Have each group come up with a proposal of how they think the money should be spent. Then, after all presentations are made, have students vote individually on which they think is the best use of government money. Students should try to be convincing in order to win the most votes!

Group	Proposal: How to distribute the \$200,000?	Votes by the class
Total Phosphorous	\$50,000: paid to local environmental organizations to monitor nutrient levels along their coastline. \$50,000: Prevention and mitigation of invasive species (boat checks when entering Georgian Bay) \$50,000: Regular inspection of septic systems and wastewater treatment plant, hired position for the region. \$20,000: Public education to prevent detergents, fertilizer entering the water (T.V. commercials, water festivals, etc.) \$30,000: Restoration of "hot spot" areas, like Sturgeon Bay	6
Fish Communities	\$100,000: Money to the MNR for more fish monitoring and research. \$50,000: Control of invasive species	5
Coastal Wetland Cover	\$100,000: continue to monitor wetlands on the coast of Georgian Bay \$50,000: Educate the public about the importance of wetlands \$50,000: restore degraded wetlands and create new ones by planting Restrict development of wetlands	5
Coastal Wetland Plants	\$50,000: develop a regional organization to help protect and restore wetlands \$150,000: subsidize phosphate free cleaning products and unbleached paper products. Prohibit home owners from expanding development into wetlands.	3
Natural Cover	\$200,000: Land assessment and development of conservation areas in places with rare ecology, or in areas of ecological importance.	4
Large Natural Areas	\$50,000: Fences along highways and tunnels underneath to prevent death of deer, reptiles, etc. \$150,000: Subsidize local forestry companies to allow for more selective logging rather than cut blocks.	5

Group #1: Total Phosphorous



You are a group of scientists researching 'total phosphorous' along the eastern shore of Georgian Bay. When directed, you will be asked to present to the "Ontario Government" (aka. the rest of the class) your findings of environmental health in the area, using phosphorous as an indicator. When presenting, answer the questions: *What is your indicator? What negatively impacts your indicator? What are solutions to any issues? What should be done with the \$200,000 given by the government? Make a proposal of how the money should be distributed to help your cause. Remember, all groups will be hoping to get the \$200,000, so make your arguments convincing!* Use the questions below as a guide for modeling your 3-5 minute presentation. After all presentations have been made, the class (acting as the government) will vote on which proposal to spend the money on, to sustain the health of Georgian Bay.

A. GENERAL QUESTIONS

- 1) What is the purpose of the State of the Bay Report Card?
- 2) What is an invasive species and why are they detrimental to our environment?
- 3) What is a species at risk and how many are found along the eastern coast of Georgian Bay? Name some species that depend almost exclusively on this area for survival.

B. GROUP SPECIFIC QUESTIONS

- 1) What is the overall trend related to phosphorous concentrations in eastern Georgian Bay?
- 2) Why are zebra mussels and quagga mussels considered a factor in this trend?
- 3) What happens when nutrient levels are too low?
- 4) What happens when nutrient levels are too high?
- 6) What is the impact on the economy?
- 7) Could your indicator have an impact on any of the species at risk?
- 8) What can be done about the issue (where should money be spent?)
- 9) Look at the "results" section of the report card. Name any significant results related to total phosphorous.

Group #1: Total Phosphorous



A. GENERAL QUESTIONS

1) What is the purpose of the State of the Bay Report Card?

The State of the Bay Report Card presents information about key ecosystem health indicators along Georgian Bay. It provides readers with a science-based snapshot of the current conditions of Georgian Bay health from Honey Harbour to Killarney. By summarizing existing scientific reports, the State of the Bay report Card aims to raise awareness among readers of the trends in their own backyards. The hope is to issue a second State of the Bay Report Card in the future, so we can monitor ecosystem health over time.

2) What is an invasive species and why are they detrimental to our environment?

A plant, animal, or microorganism that has been introduced to a place outside its natural range, and the spread has negative impacts. Over time, invasive species can alter food webs and water quality, change natural habitats, bring foreign diseases and displace native species.

3) What is a species at risk and how many are found along the eastern coast of Georgian Bay? Name some species that depend almost exclusively on this area for survival.

Any native plant or animal that is at risk of extinction or of disappearing from our province. 43 are found along the eastern GB coast. Branched Bartonian, the Eastern Foxsnake, Massasauga Rattlesnake.

B. GROUP SPECIFIC QUESTIONS

1) What is the overall trend related to phosphorous concentrations in eastern Georgian Bay?

The overall trend shows phosphorous levels declining due to nutrient management in southern parts of the Bay, and due to invasive species (zebra and quagga mussels) that absorb large amounts of nutrients. However, there are hot spots where nutrient levels are high.

2) Why are zebra mussels and quagga mussels considered a factor in this trend?

These invasive mussels absorb nutrients such as total phosphorous. Because nutrients are the foundation of the food chain (nutrients feed plankton which feeds small and large fish) the overall loss of nutrients to invasive species is having a destabilizing effect on the aquatic ecosystem.

3) What happens when nutrient levels are too low?

There are less nutrients available for the food chain which can lead to a decline in the amount of larger species.

4) What happens when nutrient levels are too high?

Algae blooms can form, which will lower the oxygen levels upon decomposition. Reduced oxygen kills fish, invertebrates, and other aquatic animals.

5) What is the impact on the economy?

Water becomes less attractive for boating, swimming, and fishing, and tourism declines. Because algae blooms can create dangerous toxins, there could be a need to look for alternative sources of intake water for household use.

6) Could your indicator have an impact on any of the species at risk?

Yes, blue-green algae can create toxins that are dangerous to wildlife. Loss of oxygen in the water can disrupt the habitat of aquatic species.

7) What can be done about the issue (where should money be spent?)

Further monitoring of nutrient levels can prevent future algae growth. Prevention of more invasive species could help to regulate nutrient levels entering the food chain. Regular inspections of septic systems and wastewater treatment plants could minimize nutrients entering the water. Education could lead to less fertilizer and detergents entering the water.

8) Look at the "results" section of the report card. Name any significant results related to total phosphorous.

Sans Souci/Massasauga has the highest level of phosphorous, Killarney is data deficient.

Group #2: Fish Communities



You are a group of scientists researching 'fish communities' along the eastern shore of Georgian Bay. When directed, you will be asked to present to the "Ontario Government" (aka. the rest of the class) your findings of environmental health in the area, using fish communities as an indicator. When presenting, answer the questions: *What is your indicator? What negatively impacts your indicator? What are solutions to any issues? What should be done with the \$200,000 given by the government? Make a proposal of how the money should be distributed to help your cause. Remember, all groups will be hoping to get the \$200,000, so make your arguments convincing!* Use the questions below as a guide for modeling your 3-5 minute presentation. After all presentations have been made, the class (acting as the government) will vote on which proposal to spend the money on, to sustain the health of Georgian Bay.

A. GENERAL QUESTIONS

- 1) What is the purpose of the State of the Bay Report Card?
- 2) What is an invasive species and why are they detrimental to our environment?
- 3) What is a species at risk and how many are found along the eastern coast of Georgian Bay? Name some species that depend almost exclusively on this area for survival.

B. GROUP SPECIFIC QUESTIONS

- 1) Why was the "fish communities" indicator not given a grade?
- 2) What are some factors that have affected Walleye populations over the years? Lake Trout?
- 3) What efforts have been made to rehabilitate the Walleye population? Lake Trout?
- 4) What is the impact on the economy?
- 5) Could fish communities have an impact on any species at risk?
- 6) Where could money be spent to help resolve the issues?

Group #2: Fish Communities



A. GENERAL QUESTIONS

What is the purpose of the State of the Bay Report Card? **The State of the Bay Report Card presents information about key ecosystem health indicators along Georgian Bay. It provides readers with a science-based snapshot of the current conditions of Georgian Bay health from Honey Harbour to Killarney. By summarizing existing scientific reports, the State of the Bay report Card aims to raise awareness among readers of the trends in their own backyards. The hope is to issue a second State of the Bay Report Card in the future, so we can monitor ecosystem health over time.**

What is an invasive species and why are they detrimental to our environment? **A plant, animal, or microorganism that has been introduced to a place outside its natural range, and the spread has negative impacts. Over time, invasive species can alter food webs and water quality, change natural habitats, bring foreign diseases and displace native species.**

What is a species at risk and how many are found along the eastern coast of Georgian Bay? Name some species that depend almost exclusively on this area for survival. **Any native plant or animal that is at risk of extinction or of disappearing from our province. 43 are found along the eastern GB coast. Branched Bartonella, the Eastern Foxsnake, Massasauga Rattlesnake.**

B. GROUP SPECIFIC QUESTIONS

1) Why was the "fish communities" indicator not given a grade?

There is not a scientifically sound way to give fish communities a grade, because the system is changing so quickly and we are lacking long-term, consistent, and comparable data.

2) What are some factors that have affected Walleye populations over the years? Lake Trout?

Over fishing in the 1940's led to a population decline in many fish species. Damage to spawning habitat and declines in water quality have hindered the Walleye population, and Sea Lamprey led to a decrease in Lake Trout. Invasive species are using up nutrients that are needed to sustain the fish population.

3) What efforts have been made to rehabilitate the Walleye population? Lake Trout?

Walleye: Stocking, habitat restoration (like improvement of spawning habitat), and harvest rate regulations.

Lake Trout: Efforts have been ongoing since 1969! Strict harvest regulations were put in place, and "non-fishing zones" were in place until 1997.

4) What is the impact on the economy?

Less fish could lead to a decline in the sport or commercial fishing industry.

5) Could fish communities have an impact on any species at risk?

Fish eating birds (like the Bald Eagle) could be impacted by a decreasing fish population.

6) Where could money be spent to help resolve the issues?

More fish monitoring and research would help us to better understand what is happening with fish populations. In Severn Sound, panfish are declining and could use special attention. Control of invasive species would help stabilize fish populations.

Group #3: Coastal Wetland Cover



You are a group of scientists researching 'coastal wetland cover' along the eastern shore of Georgian Bay. When directed, you will be asked to present to the "Ontario Government" (aka. the rest of the class) your findings of environmental health in the area, using coastal wetland cover as an indicator. When presenting, answer the questions: *What is your indicator? What negatively impacts your indicator? What are solutions to any issues? What should be done with the \$200,000 given by the government? Make a proposal of how the money should be distributed to help your cause. Remember, all groups will be hoping to get the \$200,000, so make your arguments convincing!* Use the questions below as a guide for modeling your 3-5 minute presentation. After all presentations have been made, the class (acting as the government) will vote on which proposal to spend the money on, to sustain the health of Georgian Bay.

A. GENERAL QUESTIONS

- 1) What is the purpose of the State of the Bay Report Card?
- 2) What is an invasive species and why are they detrimental to our environment?
- 3) What is a species at risk and how many are found along the eastern coast of Georgian Bay? Name some species that depend almost exclusively on this area for survival.

B. GROUP SPECIFIC QUESTIONS

- 1) What is coastal wetland cover and why is it measured?
- 2) Why can't a grade be given for coastal wetland cover?
- 3) What research has been done locally on coastal wetlands?
- 4) Why is the State of the Bay Report Card valuable for the coastal wetland cover indicator?
- 5) Name some reasons why coastal wetlands are a very important component of our ecosystem.
- 6) Why are wetlands important for our economy?
- 7) Does coastal wetland cover have an impact on any species at risk, or on invasive species (explained on page 13)?
- 8) What should be done in the future to protect our coastal wetlands?
- 9) What region has the highest percentage of coastal wetland cover? Which has the least?

Group #3: Coastal Wetland Cover



A. GENERAL QUESTIONS

- 1) What is the purpose of the State of the Bay Report Card? **The State of the Bay Report Card presents information about key ecosystem health indicators along Georgian Bay. It provides readers with a science-based snapshot of the current conditions of Georgian Bay health from Honey Harbour to Killarney. By summarizing existing scientific reports, the State of the Bay report Card aims to raise awareness among readers of the trends in their own backyards. The hope is to issue a second State of the Bay Report Card in the future, so we can monitor ecosystem health over time.**
- 2) What is an invasive species and why are they detrimental to our environment? **A plant, animal, or microorganism that has been introduced to a place outside its natural range, and the spread has negative impacts. Over time, invasive species can alter food webs and water quality, change natural habitats, bring foreign diseases and displace native species.**
- 3) What is a species at risk and how many are found along the eastern coast of Georgian Bay? Name some species that depend almost exclusively on this area for survival. **Any native plant or animal that is at risk of extinction or of disappearing from our province. 43 are found along the eastern GB coast. Branched Bartonina, the Eastern Foxsnake, Massasauga Rattlesnake.**

B. GROUP SPECIFIC QUESTIONS

- 1) What is coastal wetland cover and why is it measured?

Coastal wetland cover is the percentage of each region covered by coastal wetlands. It provides a good understanding of the overall health of the coastal aquatic environment.

- 2) Why can't a grade be given for coastal wetland cover?

Scientists do not have long term records on coastal wetland cover.

- 3) What research has been done locally on coastal wetlands?

McMaster University's Coastal Wetland Research Group has developed an inventory of coastal wetlands and identified at least 12,629 wetland areas, adding up to 17,350 hectares!

- 4) Why is the State of the Bay Report Card valuable for the coastal wetland cover indicator?

The results of the State of the Bay Report Card create a baseline for monitoring changes to wetland cover in future reports.

- 5) Name some reasons why coastal wetlands are a very important component of our ecosystem.

Wetlands support birds, fish, reptiles, amphibians, insects, and land based animals. They support ducks and other waterfowl during migration. It is estimated that over 80% of the fish species in the Great Lakes rely on coastal wetlands for spawning, nurseries, and food. Wetlands act as water treatment plants, filtering sediment and excess nutrients, and absorbing chemical contaminants.

- 6) Why are wetlands important for our economy?

They support local tourism through activities like fishing, hunting, bird watching, and nature photography.

- 7) Does coastal wetland cover have an impact on any species at risk, or on invasive species (explained on page 13)?

Yes, many species at risk are effected by changes to wetlands; many of them depend on wetlands for survival.

- 8) What should be done in the future to protect our coastal wetlands?

Restrict development of wetlands, continue to monitor wetlands on eastern Georgian Bay

- 9) Which region has the highest percent of coastal wetland cover? Which has the least?

Honey Harbour has the highest percent of coastal wetland cover, Massasauga and Sans Souci have the least.

Group #4: Coastal Wetland Plants



You are a group of scientists researching 'coastal wetland plants' along the eastern shore of Georgian Bay. When directed, you will be asked to present to the "Ontario Government" (aka. the rest of the class) your findings of environmental health in the area, using coastal wetland plants as an indicator. When presenting, answer the questions: *What is your indicator? What negatively impacts your indicator? What are solutions to any issues? What should be done with the \$200,000 given by the government? Make a proposal of how the money should be distributed to help your cause. Remember, all groups will be hoping to get the \$200,000, so make your arguments convincing!* Use the questions below as a guide for modeling your 3-5 minute presentation. After all presentations have been made, the class (acting as the government) will vote on which proposal to spend the money on, to sustain the health of Georgian Bay.

A. GENERAL QUESTIONS

- 1) What is the purpose of the State of the Bay Report Card?
- 2) What is an invasive species and why are they detrimental to our environment?
- 3) What is a species at risk and how many are found along the eastern coast of Georgian Bay? Name some species that depend almost exclusively on this area for survival.

B. GROUP SPECIFIC QUESTIONS

- 1) How are coastal wetland plants graded in the State of the Bay Report Card?
- 2) Why are coastal wetland plants important? What can they tell us about water quality trends?
- 3) What should be done to protect or restore coastal wetland plant health? Name at least 4 things.
- 4) What do the VMI scores for eastern Georgian Bay tell us about the health of our wetlands?

Group #4: Coastal Wetland Plants



A. GENERAL QUESTIONS

What is the purpose of the State of the Bay Report Card? ***The State of the Bay Report Card presents information about key ecosystem health indicators along Georgian Bay. It provides readers with a science-based snapshot of the current conditions of Georgian Bay health from Honey Harbour to Killarney. By summarizing existing scientific reports, the State of the Bay report Card aims to raise awareness among readers of the trends in their own backyards. The hope is to issue a second State of the Bay Report Card in the future, so we can monitor ecosystem health over time.***

What is an invasive species and why are they detrimental to our environment? ***A plant, animal, or microorganism that has been introduced to a place outside its natural range, and the spread has negative impacts. Over time, invasive species can alter food webs and water quality, change natural habitats, bring foreign diseases and displace native species.***

What is a species at risk and how many are found along the eastern coast of Georgian Bay? Name some species that depend almost exclusively on this area for survival. ***Any native plant or animal that is at risk of extinction or of disappearing from our province. 43 are found along the eastern GB coast. Branched Bartonina, the Eastern Foxsnake, Massasauga Rattlesnake.***

B. GROUP SPECIFIC QUESTIONS

1) How are coastal wetland plants graded in the State of the Bay Report Card?

The Wetland Macrophyte Index (WMI) assesses wetland health based on the plants growing there. A score is calculated from 1 to 5, with a score of less than 2.5 representing a degraded wetland. The number indicates an average between the plants that can tolerate poor water quality and those that are found in pristine areas.

2) Why are coastal wetland plants important? What can they tell us about water quality trends?

They provide essential food and shelter for a range of wildlife, from ducks and other birds, to fish and amphibians. The type of coastal wetland plants present in a wetland can indicate the quality of water in that area. This is because some wetland plants are tolerant of poor water quality while others are intolerant.

3) What should be done to protect or restore coastal wetland plant health?

Facilitate programs to help protect and restore wetlands (picking up litter, keep surface areas that wash into storm drains clean from pet waste, toxic chemicals, fertilizers and oil). Encourage planting native species and discourage planting non-native species. Have shoreline property owners use plants roots to stabilize their coastal soil. Prohibit home owners from expanding development toward a coastal wetland (practice thorough environmental assessments). Encourage use of phosphate free laundry and dishwasher detergents (phosphates=algae growth=suffocation of aquatic plants). Use paper and recycled products made from unbleached paper (bleached paper contains toxic chemicals). Enforce use of non-toxic products for household cleaning and lawn and garden care. Educate the public!

4) What do the WMI scores for eastern Georgian Bay tell us about the health of our wetlands?

Most of the wetlands are relatively healthy as they have scores above 3.5. McGregor Bay/Killarney, and Honey Harbour have the lowest scores (under 3.5).

Group #5: Natural Cover



You are a group of scientists researching 'natural cover' along the eastern shore of Georgian Bay. When directed, you will be asked to present to the "Ontario Government" (aka. the rest of the class) your findings of environmental health in the area, using natural cover as an indicator. When presenting, answer the questions: *What is your indicator? What negatively impacts your indicator? What are solutions to any issues? What should be done with the \$200,000 given by the government? Make a proposal of how the money should be distributed to help your cause. Remember, all groups will be hoping to get the \$200,000, so make your arguments convincing!* Use the questions below as a guide for modeling your 3-5 minute presentation. After all presentations have been made, the class (acting as the government) will vote on which proposal to spend the money on, to sustain the health of Georgian Bay.

A. GENERAL QUESTIONS

- 1) What is the purpose of the State of the Bay Report Card?
- 2) What is an invasive species and why are they detrimental to our environment?
- 3) What is a species at risk and how many are found along the eastern coast of Georgian Bay? Name some species that depend almost exclusively on this area for survival.

B. GROUP SPECIFIC QUESTIONS

- 1) Define "natural cover", according to the State of the Bay Report Card.
- 2) Name some helpful services that are provided by areas of natural cover in our biosphere.
- 3) What human developments are stressing local areas of natural cover?
- 4) Why is the variety of natural cover in our area important?
- 5) Which eastern Georgian Bay region has the highest percentage of natural cover? Which has the lowest?
- 6) What can be done to protect areas of natural cover?

Group #5: Natural Cover



A. GENERAL QUESTIONS

What is the purpose of the State of the Bay Report Card? **The State of the Bay Report Card presents information about key ecosystem health indicators along Georgian Bay. It provides readers with a science-based snapshot of the current conditions of Georgian Bay health from Honey Harbour to Killarney. By summarizing existing scientific reports, the State of the Bay report Card aims to raise awareness among readers of the trends in their own backyards. The hope is to issue a second State of the Bay Report Card in the future, so we can monitor ecosystem health over time.**

What is an invasive species and why are they detrimental to our environment? **A plant, animal, or microorganism that has been introduced to a place outside its natural range, and the spread has negative impacts. Over time, invasive species can alter food webs and water quality, change natural habitats, bring foreign diseases and displace native species.**

What is a species at risk and how many are found along the eastern coast of Georgian Bay? Name some species that depend almost exclusively on this area for survival. **Any native plant or animal that is at risk of extinction or of disappearing from our province. 43 are found along the eastern GB coast. Branched Bartonian, the Eastern Foxsnake, Massasauga Rattlesnake.**

B. GROUP SPECIFIC QUESTIONS

1) Define "natural cover", according to the State of the Bay Report Card.

Natural cover is defined as forests, wetlands, rock barrens, and other natural features that are not divided by roadways, railways, or development.

2) Name some helpful services that are provided by areas of natural cover in our biosphere.

Natural cover reduce soil erosion, sedimentation, and stormwater runoff. They store water in times of drought and help recharge groundwater. In general, the higher percentage of natural cover in a region, the healthier and more resilient an ecosystem will be.

3) What human developments are stressing local areas of natural cover?

Cottage, marina, and resort development, and associated roads and utility corridors are among the most significant stressors.

4) Why is the variety of natural cover in our area important?

Species diversity is linked to the variety of natural cover in our area. Each distinct habitat supports different species.

5) Which eastern Georgian Bay region has the highest percentage of natural cover? Which has the lowest?

The French River area has the highest percent natural cover, and Parry Sound has the lowest.

6) What can be done to protect areas of natural cover?

Strict regulation on where you can and cannot build, prevent further roads from being built, or undertake rigorous environmental assessments before building. Protect areas of natural cover that are relatively rare.

Group #6: Large Natural Areas



You are a group of scientists researching 'large natural areas' along the eastern shore of Georgian Bay. When directed, you will be asked to present to the "Ontario Government" (aka. the rest of the class) your findings of environmental health in the area, using large natural areas as an indicator. When presenting, answer the questions: *What is your indicator? What negatively impacts your indicator? What are solutions to any issues? What should be done with the \$200,000 given by the government? Make a proposal of how the money should be distributed to help your cause. Remember, all groups will be hoping to get the \$200,000, so make your arguments convincing!* Use the questions below as a guide for modeling your 3-5 minute presentation. After all presentations have been made, the class (acting as the government) will vote on which proposal to spend the money on, to sustain the health of Georgian Bay.

A. GENERAL QUESTIONS

- 1) What is the purpose of the State of the Bay Report Card?
- 2) What is an invasive species and why are they detrimental to our environment?
- 3) What is a species at risk and how many are found along the eastern coast of Georgian Bay? Name some species that depend almost exclusively on this area for survival.

B. GROUP SPECIFIC QUESTIONS

- 1) What is the difference between "natural cover" and "large natural areas" indicators?
- 2) Why can't the *large natural areas* indicator be given a grade?
- 3) What do large natural areas do for the environment and for us?
- 4) What should be done to protect large natural areas? Can the money be spent anywhere specifically?

Group #6: Large Natural Areas



A. GENERAL QUESTIONS

1) What is the purpose of the State of the Bay Report Card? **The State of the Bay Report Card presents information about key ecosystem health indicators along Georgian Bay. It provides readers with a science-based snapshot of the current conditions of Georgian Bay health from Honey Harbour to Killarney. By summarizing existing scientific reports, the State of the Bay report Card aims to raise awareness among readers of the trends in their own backyards. The hope is to issue a second State of the Bay Report Card in the future, so we can monitor ecosystem health over time.**

What is an invasive species and why are they detrimental to our environment? **A plant, animal, or microorganism that has been introduced to a place outside its natural range, and the spread has negative impacts. Over time, invasive species can alter food webs and water quality, change natural habitats, bring foreign diseases and displace native species.**

What is a species at risk and how many are found along the eastern coast of Georgian Bay? Name some species that depend almost exclusively on this area for survival. **Any native plant or animal that is at risk of extinction or of disappearing from our province. 43 are found along the eastern GB coast. Branched Bartonian, the Eastern Foxsnake, Massasauga Rattlesnake.**

B. GROUP SPECIFIC QUESTIONS

1) What is the difference between the "natural cover" and the "large natural areas" indicators?

Whereas the "natural cover" indicator refers to any piece of undeveloped land, "large natural areas" refers to large expanses of land that are undeveloped.

2) Why can't the large natural areas indicator be given a grade?

There is not a scientifically sound way to give large natural areas a grade because more research is needed to determine how much is enough, for eastern Georgian Bay.

3) What do large natural areas do for the environment and for us?

Large natural areas support higher biodiversity, which allows for an adaptable environment. Large natural areas tend to have healthier and larger populations of more species than fragmented areas. They also protect water quality, and they give people a feeling of wilderness.

4) What should be done to protect large natural areas? Can the money be spent anywhere specifically?

Ensure that roads are only built and development only occurs if absolutely necessary.