

Student Pages: Group Activity

Polar Bear Science Team 4



For this activity, your group is the "Polar Bear Science Team 4". Your team is responsible for reading the scientific paper called "Trophic Matches and Mismatches; Can Polar Bears Reduce the Abundance of Nesting Snow Geese in Western Hudson Bay?".

Step 1: Download this scientific paper from the Bear Trust International website:
<http://beartrust.org/polar-bears-of-summer-2>

Step 2: Read this entire paper, but don't get bogged down in any statistics, methods, or statistical results. Focus on the following sections of this paper:

- The Introduction on pages 696-697
- Projections of future overlap between polar bears and the snow goose incubation periods on page 701
- Projections of the snow goose population in the face of overlap and potential predation on pages 701-702
- Figure 2 and Figure 3
- The second paragraph on the right hand side on page 705
- The Discussion

Step 3: As a Team, create a power point presentation about this paper that you will be giving to the rest of your class.

In this presentation, make sure to include AT LEAST the following:

1. Who were the authors of this paper, in which journal was this paper published, and in what year was this paper published?
2. What have polar bears historically eaten?
3. What is the current ecological "mismatch" between polar bears and seals?
4. Concurrent with this new mismatch, what is a new potential ecological "match" for polar bears?
5. Why did the authors of the paper you read decide to focus on polar bear predation of nests instead of polar bear predation of flightless snow goslings and adult birds?
6. There was another paper published by Madsen et al. in 1998 that showed polar bears have been predated nesting snow goose eggs on Svalbard. What is happening to this nesting snow goose population?
7. Given the results from the Madsen et al. paper, what did the authors of this paper want to evaluate for snow geese in Hudson Bay?
8. The snow goose population in Hudson Bay has been growing, what have been the effects of this snow goose population on habitat in Hudson Bay?
9. Look at Figure 2 in this paper. This figure should look similar to the figure you created for Activity 2 in your "Student Pages: Individual Activities". Include the figure you created for Activity and 2 as part of your power point presentation and describe what it means.
10. Is the number of "match" days between polar bear onshore arrival and snow goose incubation period predicted to increase over the next 25 years?
11. Look at Figure 3 in this paper. This is the same figure that was included in the story you read called "The Polar Bears of Summer: What Do You Eat While the Ice is Gone?". Cut and paste this figure into your power point presentation and describe what it means.
12. Summarize the "Conclusions", but don't worry about reporting or understanding the "Stochastic ARMA" models specifically. Summarize the broad findings from this study. Include information about bottom-up regulation in ecosystems and top-down regulation in ecosystems.

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