**TROPHIC CASCADES MODELING: TASK PLANNING (individual): Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

You need to do some independent research to really help you with this modeling task. Here are some sites that might be useful to you, but feel free to use your own. Take notes on your findings.

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| Find multiple sources of data/graphs that you feel might be important to your task. Paste the link in the box to the right. *(minimum of three)* |  |
| Discuss the food chains/webs of the ecosystem.  |  |
| What happened to the life in this area?* Yellowstone: focus on what happened to the wolves and the ecological impacts of their absence
* Isle Royale: focus on the wolf, moose, and fir populations (especially surges and crashes) and how they impact each other
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| Discuss the reintroduction of the wolves to Yellowstone. How did the reintroduction change the ecosystem?**-or-**Discuss how climate change is impacting areas like Isle Royale. Explain how this will likely impact the ecosystem, and therefore the wolf/moose/fir dynamics in the future. |  |
| What is top-down vs. bottom-up control in an ecosystem? (just compare the two in general) | Top down:Bottom up: |
| Based on your answer to the previous question…Is the ecosystem you’ve studied controlled in a top-down or bottom-up manner? Explain. |  |
| Other important notes/things you want to include in your model (optional, but recommended) |  |
| 1. **Turn in this document when done (for credit).**
2. Discuss your research with your group members (if working in a group) to combine ideas.
3. Use your combined information to create the model as a group (if applicable).  **Remember that a model does NOT have to be a 3D structure.** Double check the items in purple on page 1 to make sure you hit all aspects of the modeling task.
4. Practice. Make sure everyone has equal understanding of all parts before conferencing. You don’t get to choose who talks about each part when it comes to the conference - everyone needs to know everything.
5. When fully ready, conference with your teacher and explain your model to him/her.
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| **Yellowstone** * <https://www.youtube.com/watch?v=ysa5OBhXz-Q>
* <https://www.pbs.org/newshour/science/wolves-greenthumbs-yellowstone>
* <https://en.wikipedia.org/wiki/History_of_wolves_in_Yellowstone>
* <https://www.nps.gov/yell/learn/nature/wolves.htm>
* <https://www.yellowstonepark.com/things-to-do/wolf-reintroduction-changes-ecosystem>
* <http://www.nytimes.com/2011/11/05/science/earth/conflict-over-wolves-yields-new-dynamic-between-ranchers-and-conservationists.html>
* <https://docs.google.com/presentation/d/1kD1dJMCHDHqq-aSEzw5zWfN4bgWiaWgdoscxpQdgw5A/edit?usp=sharing>
* <https://www.popsci.com/article/science/have-wolves-really-saved-yellowstone>
 | **Isle Royale*** <http://isleroyalewolf.org/overview/overview/at_a_glance.html>
* <http://www.sciencemag.org/news/2017/04/two-wolves-survive-world-s-longest-running-predator-prey-study>
* <https://www.theguardian.com/sustainable-business/2015/apr/29/isle-royale-wolves-nearly-extinct-ecosystem-research-role-humans-population-breeding>
* [http://www.isleroyalewolf.org/http%3A//www.cpc.ncep.noaa.gov/products/precip/CWlink/pna/nao.shtml](http://www.isleroyalewolf.org/http%3A/www.cpc.ncep.noaa.gov/products/precip/CWlink/pna/nao.shtml)
* <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1691575/pdf/15058396.pdf>
* <http://bookbuilder.cast.org/view_print.php?book=41699>
* <http://www.isleroyalestatus.com/>
* <https://en.wikipedia.org/wiki/Wolves_and_moose_on_Isle_Royale#Climate_effects>
* <https://docs.google.com/presentation/d/1kD1dJMCHDHqq-aSEzw5zWfN4bgWiaWgdoscxpQdgw5A/edit?usp=sharing>
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