

A survey of impacts that invasive species have on people, their well-being and livelihoods in the St. Lawrence and Eastern Lake Ontario Region of New York State

Abstract

Much is known about the ecological and economic impacts of non-native, invasive species. Much less is known about the impacts invasive species have on the well-being and livelihoods of people living in the survey region. The purpose of this survey was to determine how invasive species affected the well-being (*general happiness*) and livelihood (*food on the table, money in your pocket or financial means*) of individuals in the St. Lawrence Eastern Lake Ontario (SLELO) Region of New York State.

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1.0 Introduction and Purpose

The purpose of this survey was to determine how invasive species affect the well-being and livelihood of individuals in the St. Lawrence Eastern Lake Ontario (SLELO) Region. Referred herein as the WBL Survey. This region incorporates Jefferson, St. Lawrence, Oswego, Oneida and Lewis counties. For this survey, well-being was defined as *general happiness*. Livelihood was defined as *food on the table, money in your pocket or financial means*.¹

The goal of this effort was to answer the question “Do invasive species affect people, their well-being and livelihoods – if at all and if so, to what extent. A standard operating procedure owned by The Nature Conservancy (host organization of the SLELO PRISM) known as the Human Subjects SOP, prevented us from collecting any personal, identifying information or specific information regarding incomes.

The WBL survey platform was Qualtrics® and commenced with a standard introduction that included a definition of invasive species, examples of invasive species and correlating impacts with each example (Appendix A). This standard introduction was necessary to provide a basic understanding of the subject matter. The survey consisted of 13 question blocks containing 4 questions each and questions were purposefully worded to provoke respondents to consider the impacts of invasive species. The first question of the set was a demographics question to determine in what capacity they are answering in.

Target demographics included;

- Hunter
- Charter Captain
- Angler
- Fishing Guide
- Trail Guide
- Nature Guide
- Restaurateur
- Logger, Forster/Wood Products Benefactor
- Marina Owner/Operator
- Livery/Bait Shop Owner
- Recreationist
- Waterfront property owner/proprietor
- Other (please explain)

Most popular (other) respondents included:

- Agricultural producer/farmer
- Outdoor enthusiast
- Gardner

The main questions were created with the intent to cover most areas of invasive species and areas of life that people would be affected. Whether it was a business being affected or a home property, the questions were intended to be able to be answered with meaning from everyone. The last question in the set was a Why or Why Not (open-ended) question, intended to gather opinions and comments on how invasives are affecting these individuals’ lives and gain further insight into how people feel their lives are affected.

Prior to developing this survey, a previous survey conducted by the Human Dimensions Research Unit, Department of Natural Resources, Cornell University² was reviewed to reduce duplication of efforts. Their survey focused on public perspectives

¹ G.P. Kofinas and F.S. Chapin et al. Sustaining Livelihoods and Human Well-Being during Social–Ecological Change. Institute of Arctic Biology, School of Natural Resources and Agricultural Sciences, University of Alaska Fairbanks, Fairbanks, AK 99775

² T. Bruce Lauber, Nancy A. Connelly, and Richard C. Stedman. 2015. HDRU Series No. 15-6

whereas our survey focused more on impacts to livelihoods and well-being.

The WBL survey was implemented over a period of four months. During this time, the survey was placed on Cornell Cooperative Extension websites and social media accounts. The post on Facebook was also boosted to reach more individuals in the region. Also, several organizations were contacted to ask for their assistance in distributing the survey. The survey was also administered in person to several businesses and individuals as well as being presented at several events (Salmon River Fish Hatchery Open House and Woodsmen Days) throughout the region. Phone calls were made to several businesses to gather responses as well.

2.0 Survey Results

The WBL survey produced 107 charts, tables and graphs along with 8 pages of additional comments. Overall, there were 485 complete responses, with 408 responses being from within the SLELO region. Many of the responses from outside the region were from just outside, coming from the

Syracuse area in Onondaga County. The majority of responses came from within Jefferson County, with the least coming from Lewis County, but there were responses from every county within the SLELO region.

The top responding categories were Hunters, Anglers, Recreationists, Loggers/Wood and Forest Benefactors, and Waterfront Property Owners. There were also 155 responses to the (additional comments) section, providing valuable insight to how people feel invasive species in the region are affecting them. The survey has shown that people in the SLELO region do feel they are being affected by invasive

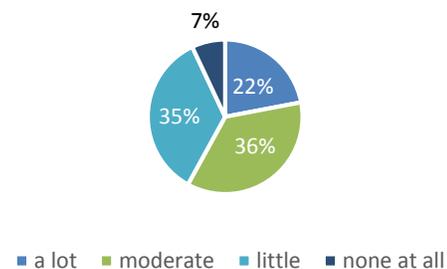
species to varying extents, depending on the actual number of participants from a specific demographic that responded to the survey.

For example, to the survey question “Overall, how much have invasive species affected your well-being” of the 204 respondents (equaling 100%) who identified themselves as *recreationists*, the following percentages can be applied:

- 22% stated a lot.
- 36% stated a moderate amount.
- 35% stated a little.
- 7% stated none at all.

These results are shown in (Figure 1).

Figure 1. Overall, how much have invasive species affected your **well-being**? Responses from 204 individuals that identified themselves as **recreationists**

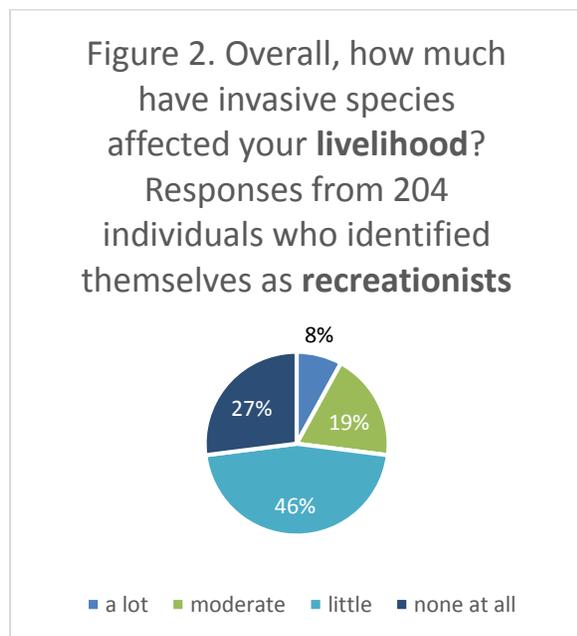


Another example, to the survey question “Overall, how much have invasive species affected your livelihood” of the 204 respondents (equaling 100%) who identified themselves as *recreationists and responded to this question*, the following percentages can be applied:

- 8% stated a lot.
- 19% stated a moderate amount.
- 46% stated a little.
- 27% stated none at all.

These results are shown in (Figure 2).

It should be noted that respondents could check multiple demographics when taking the survey. This may account for an overlap in the number of participants responding to the survey questions.



These results may not directly represent all the answers to the questions throughout the survey however, this could be due to participants feeling their livelihood and well-being were being affected in a manner that was not directly addressed by the survey itself. Some of the data may suggest people were either not understanding the question or perhaps not understanding the examples and thus, are not responding with how other sections of data would suggest and are responding that invasive species were not affecting them at all. This likely shows that while not everyone may be educated on the invasive species mentioned in the survey

and what their impacts are, people still felt they are affected by the invasives they know about. Additional survey results to the *overall* question and separated by demographics are presented in Appendix B and C.

Another important statistic gathered from this survey is that roughly 94% of survey participants are worried that new invasive species will be introduced that could affect their well-being and happiness. Roughly 77% felt that their livelihood could be directly affected by the introduction of new invasive species. This shows that people are genuinely concerned about new invasive species introductions and their potential to affect them in the future and that something needs to be done to make sure they are not introduced.

3.0 Demographic Breakdown, well-being.

Of the thirteen demographic groups targeted in this survey, including the (other) category³, there were individuals within 11 of the 13 groups who indicated that invasive species affect their well-being a lot. Individuals within 12 of the 13 groups indicated that invasive species affected their well-being a moderate amount. There were also individuals within all 13 groups who indicated that invasive species affect them a little. Only 8% of those surveyed stated that invasive species have no affect on their well-being.

³ Other includes, agricultural, outdoor enthusiasts, gardeners as most common responders.

4.0 Demographic Breakdown, livelihood.

Of the thirteen demographic groups targeted in this survey, including the (other) category, there were individuals within 10 of the 13 groups who indicated that invasive species affect their livelihood a lot. Individuals within 13 of the 13 groups indicated that invasive species affected their livelihood a moderate amount. There were also individuals within all 13 groups who indicated that invasive species affect their livelihood a little. There were individuals in 8 of the 13 groups that stated invasive species have no affect on their well-being.

5.0 Actual Survey Comments

The last question in the set was a Why or Why Not (open-ended) question, intended to gather opinions and comments about how invasive species affect the well-being and/or livelihood of those surveyed. This is an important question, as it reveals insights about specific ways invasive species have impacted real people and the severity of those impacts. Eight pages of additional comments were collected, several of which have been selected for this paper to include the following;

“We don’t have a lot of money. Last weekend my husband and I both got a rash from some poisonous hog plant that we were removing from our yard. We don’t have health insurance and we had to pay a fortune to the doctors and for medicine, now we don’t have enough to buy food until next week”.

“Because we live on the river, I will not use chemicals. Therefor I have to pull the invasives or pay someone to do it. The reduced fishing because of invasives has affected my family and guests”.

“The milfoil and curly weed are wrecking by business. I have 5 or 6 slips that no one will rent because of the weeds and this business is my livelihood”.

“As a charter captain, invasive species affect my business which is my income, no fish no income”.

One positive comment selected follows;

“As a consultant, invasive species have affected my financial means positively. I often get hired to help plan on how to characterize/control/manage them.”

6.0 Hurdles

The administration of this survey did not come without hurdles. One of the biggest issues that arose with the administration of the survey was a general lack of knowledge on what invasive species are and how they could possibly affect them. This makes it so that many individuals responding to the survey may not have responded to certain questions “correctly”. They may have been affected by invasive species but were not aware that the invasive was actually doing them harm in some way. Many people also were not sure of the intrusion of these various species. Many invasives have been around for years and some people tend to think of them as native now. The reluctance of individuals to take the survey was another issue. Many people either deemed they did not have the time to take the survey or many believed that they would be contacted by solicitors later if they did participate (this was even after they were assured no personal information was being recorded). The weather conditions throughout may also have affected survey results and responses. The above average

rainfall had many groups worrying about potential flooding impacts rather than the impacts from invasive species.

7.0 Conclusions

Prior to this survey, little was known about the impacts that invasive species have on the well-being and livelihoods of people, meaning, we didn't understand if invasive species affected the well-being and livelihoods of people in the region of New York State where this survey was initiated and if so, to what extent. Often, we think that things like invasive species may impact indigenous peoples of third world, underdeveloped countries, but how could something like invasive species affect areas within a developed nation such as the United States. We now know that, in addition to the ecological and economic impacts of invasive species, there is evidence that suggests invasive species have an affect on the well-being and livelihoods of people locally and regionally.

There is evidence that suggests invasive species have an affect on the well-being and livelihoods of people locally and regionally.

8.0 Acknowledgements

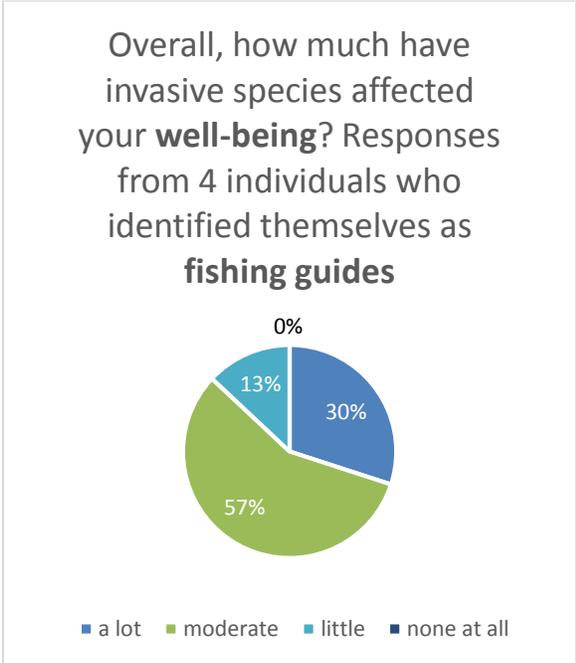
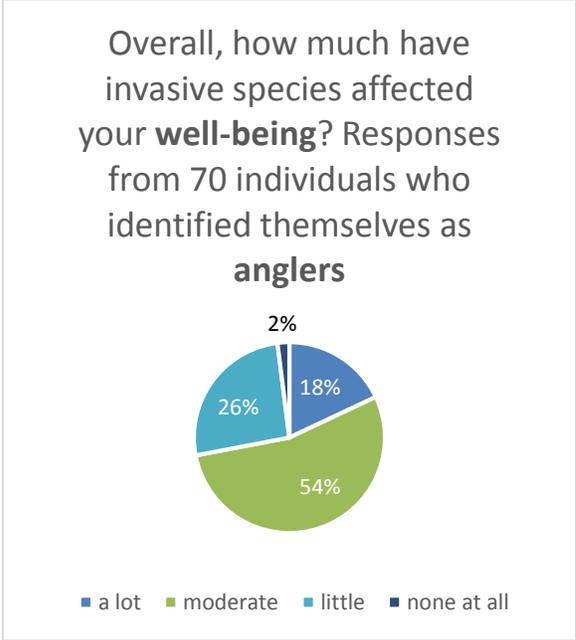
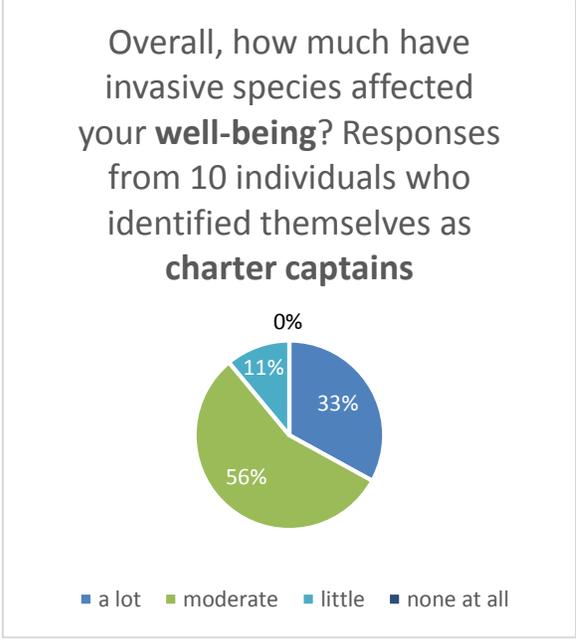
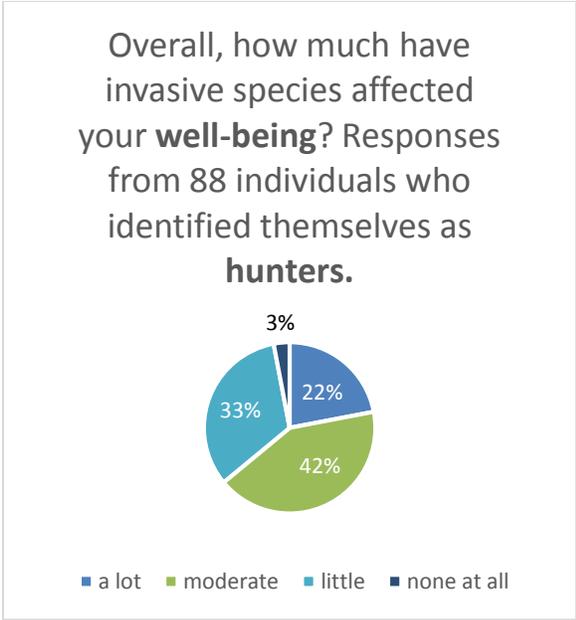
We wish to thank the many individuals who took the time to participate in this survey. Your responses have provided insight to a subject previously not well understood. We also wish to thank those organizations and individuals who helped conceptualize and implement this survey: The SLELO PRISM partners, the Central and Western New York Chapter of The Nature Conservancy, Timothy Ives, Cathy Moore and Kevin Jordan from Cooperative Extension of Jefferson County and the New York State Department of Environmental Conservation – Invasive Species Coordination Unit.

Appendix A (standard introduction to survey).

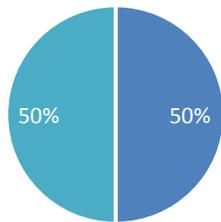
survey. Thank you for taking the time to give us your responses.

Hello, if we could have a moment of your time, we are currently conducting a voluntary survey on the effect of invasive species on people. There will be no need for you to disclose any personal information when taking this survey. Invasive species are defined as plants, animals, organisms, and pathogens that are not native to this region and upon introduction can cause harm to our environment, economy, and general health. Invasive species can cause decreases in the population of native fish, wildlife, and plants by negatively affecting their habitat and health. They can also cause severe disruptions in the ecosystem of many native species. These invasive can also hurt many businesses through damage to crops, clogging of boat slips and waterways, and even potentially causing injury to children, employees, or clients leading to a decrease in their livelihood and health. Many home and business owners spend money on invasive weed control on an annual basis. The impact is also felt by recreationists when their favorite areas are overrun and compromised due to the spread of these invasive species. Some examples of invasive species are: Round Goby, Zebra Mussels, Water Chestnut plants, Emerald Ash Borer, European Starling, Swallow-wort, and the poisonous Giant Hogweed. The overall purpose of the following survey is to determine the impact that invasive species may or may not have on your livelihood and well-being. Well-being is defined as overall “happiness”. Livelihood is defined as overall “income” or “food on the table”. Once again, you DO NOT have to disclose any personal information when taking this

Appendix B (Additional survey results to the *overall - wellbeing* question and separated by demographics.

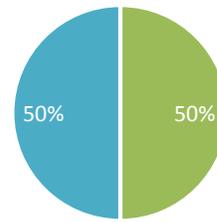


Overall, how much have invasive species affected your **well-being**? Responses from 2 individuals who identified themselves as **trail guides**



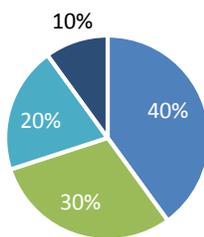
■ a lot ■ moderate ■ little ■ none at all

Overall, how much have invasive species affected your **well-being**? Responses from 6 individuals who identified themselves as **restaurateurs**



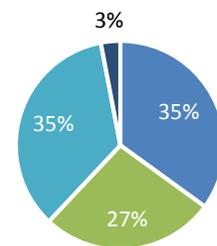
■ a lot ■ moderate ■ little ■ none at all

Overall, how much have invasive species affected your **well-being**? Responses from 4 individuals who identified themselves as **nature guides**



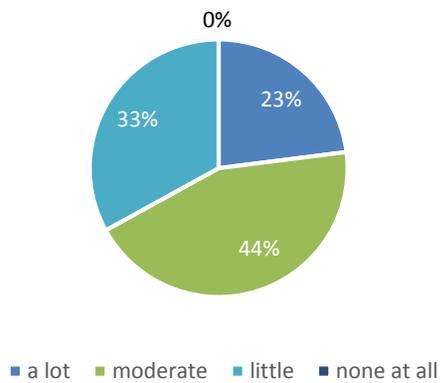
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Overall, how much have invasive species affected your **well-being**? Responses from 23 individuals who identified themselves as **foresters**

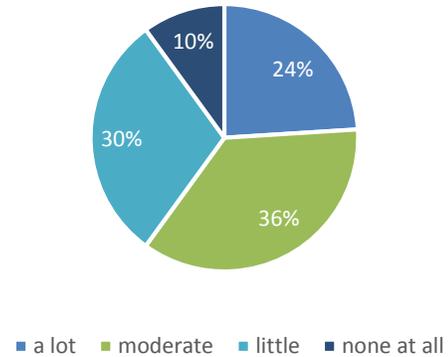


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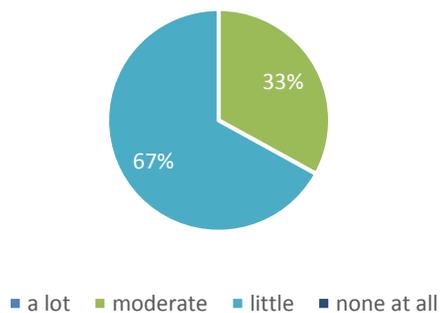
Overall, how much have invasive species affected your **well-being**? Responses from 9 individuals who identified themselves as **marina owners**



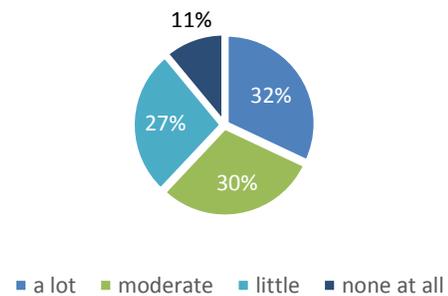
Overall, how much have invasive species affected your **well-being**? Responses from 102 individuals who identified themselves as **waterfront property owners**



Overall, how much have invasive species affected your **well-being**? Responses from 3 individuals who identified themselves as **bait shop owners**

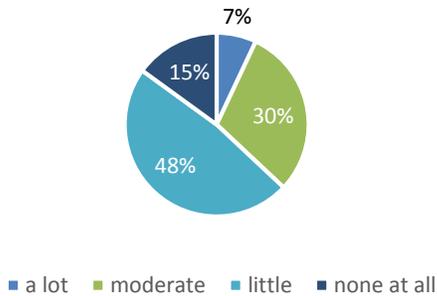


Overall, how much have invasive species affected your **well-being**? Responses from 165 individuals who identified themselves in the "other" category (**agricultural producers,...**)

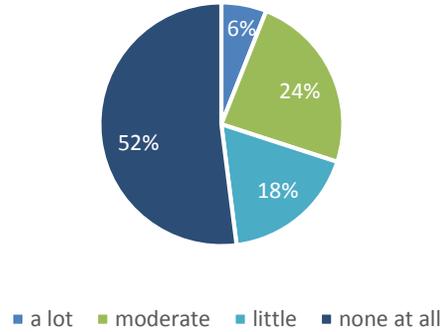


Appendix C (Additional survey results to the *overall - livelihood* question and separated by demographics

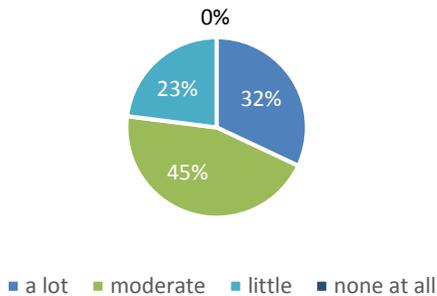
Overall, how much have invasive species affected your **livelihood**?
 Responses from 90 individuals who identified themselves as **hunters**



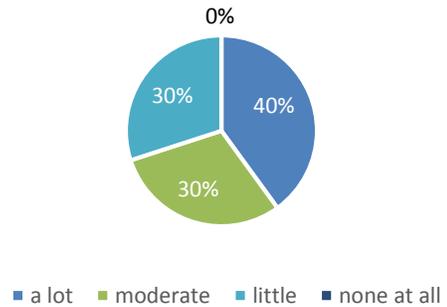
Overall, how much have invasive species affected your **livelihood**?
 Responses from 70 individuals who identified themselves as **anglers**



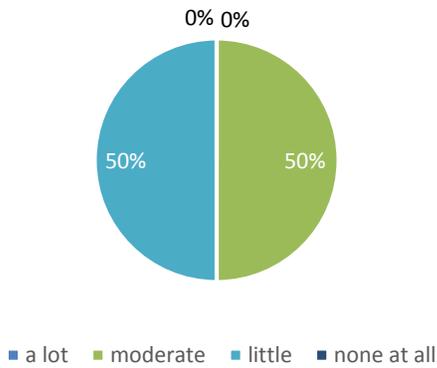
Overall, how much have invasive species affected your **livelihood**?
 Responses from 10 individuals who identified themselves as **charter captains**



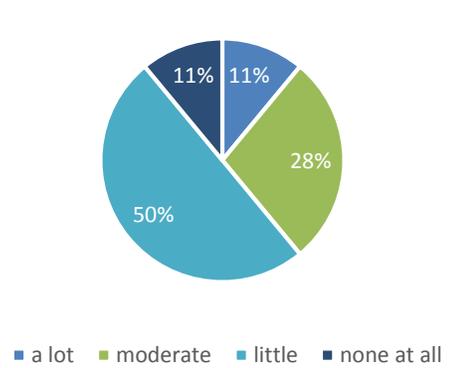
Overall, how much have invasive species affected your **livelihood**?
 Responses from 4 individuals who identified themselves as **fishing guides**



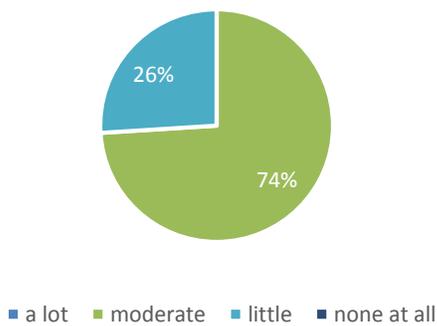
Overall, how much have invasive species affected your **livelihood**? Responses from 2 individuals who identified themselves as **trail guides**



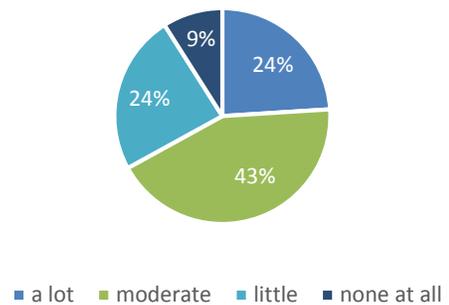
Overall, how much have invasive species affected your **livelihood**? Responses from 23 individuals who identified themselves as **foresters**



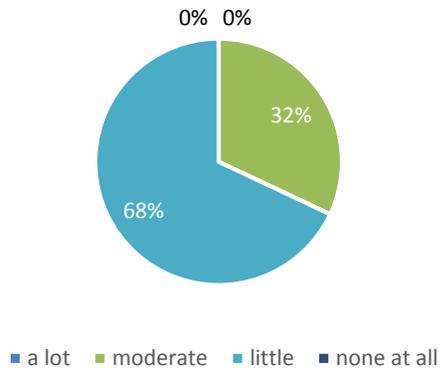
Overall, how much have invasive species affected your **livelihood**? Responses from 6 individuals who identified themselves as **restaurateurs**



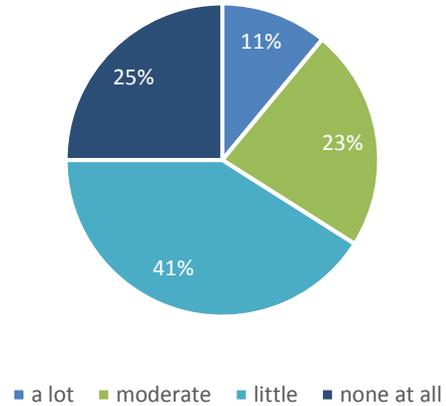
Overall, how much have invasive species affected your **livelihood**? Responses from 9 individuals who identified themselves as **marina owner/operators**



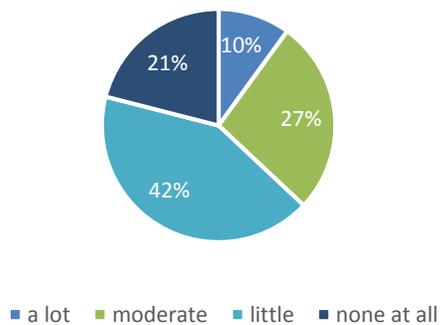
Overall, how much have invasive species affected your **livelihood**? Responses from 3 individuals who identified themselves as **bait shop owners**



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