



# Policy Discussion #2

General Population

versus

Targeted Subpopulation

# Outline

- Introduction—general population versus targeted subpopulation (e.g., high consumers)
- Who are “high consumers”?
- What do we already know about higher consumers of fish in Idaho?
- What else do we need to know?
- How has EPA handled high consumers?
- Recommendations

# Introduction

- Question is whether to develop our fish consumption rate based on data from the general population of Idaho or a subset of high consumers only
- Why conduct a general population survey?
  - Data can be trimmed later
- Why conduct a targeted subpopulation (e.g., angler) survey?

# A comparison...

## General Population

- Similar to a census—broad, all-encompassing
- Every Idahoan would have an equal probability of being included in the survey
- If designed and implemented properly, could be used to trim the data at a later time

## Targeted Subpopulation

- Specifically targets a predefined subset of the population
- Would be targeted toward *suspected* high consumers
- Would lack data regarding the majority of Idahoans; likely will miss the bigger picture

Targeted = High Consumers

# Who Are High Consumers?

- How do we know who the high fish consumers are in Idaho?
- Pacific Northwest studies exist but lack Idaho-specific data.
- Assumptions have been made based on studies conducted elsewhere.
- Is it appropriate to only look at the high consumers to establish water quality criteria applicable to all?
- How high is high enough?

# What Do We Already Know About Higher Consumers of Fish in Idaho?

- Not much—data is limited and incomplete for the purpose of establishing a fish consumption rate.
- IDFG angler survey (2011)
- BRFSS data (2012)
- ATSDR survey (1989)
- Regional information could be used, but coastal states have different fish resources than inland states.

# What Else Do We Need to Know?

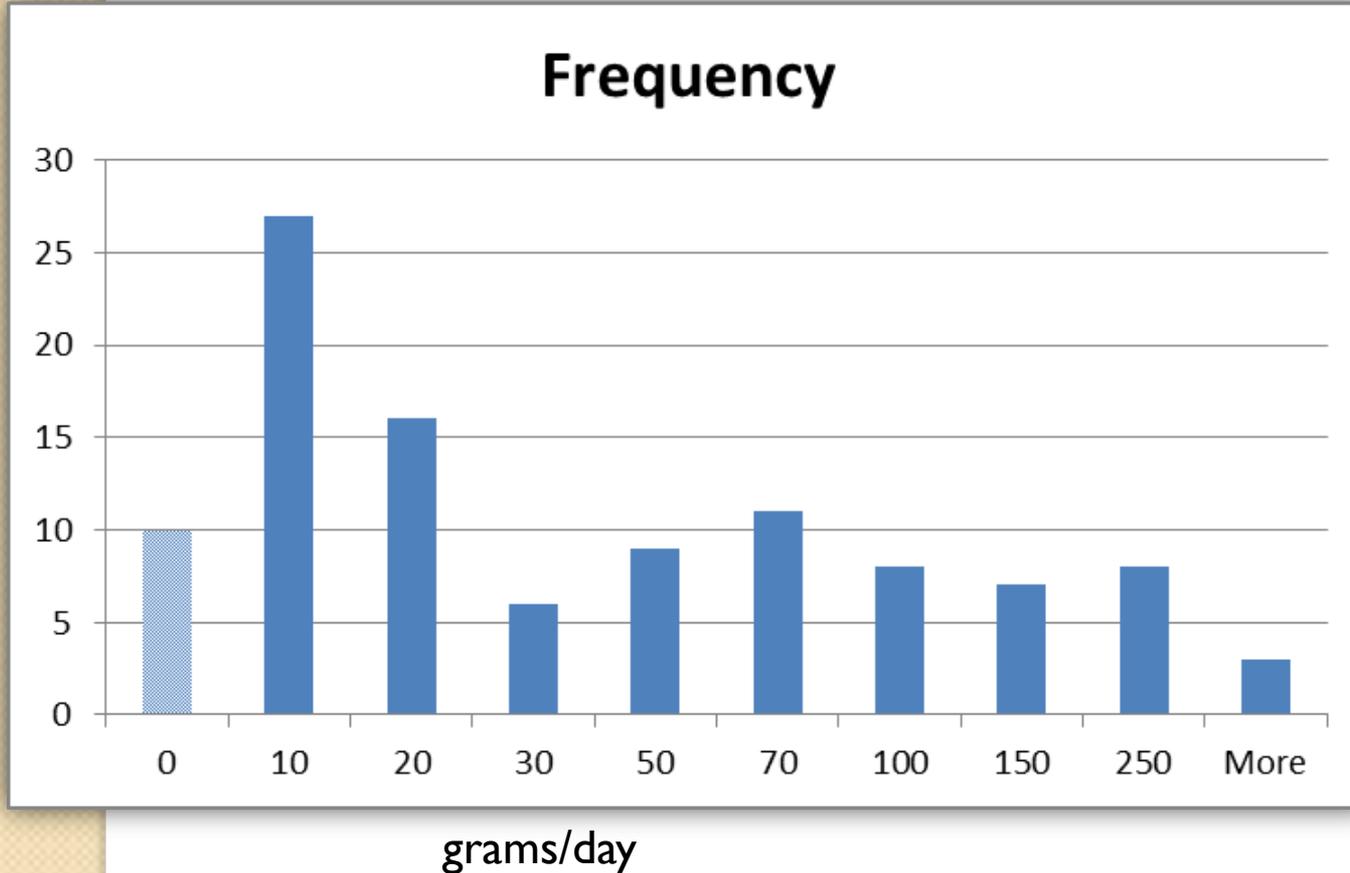
- Identifying the desired population statistic and analyzing the data
  - General population distribution—statistics would represent the entire population of the state
  - Targeted subpopulation distribution—statistics would represent a subpopulation of the state that the agency predetermined would likely have a higher rate of fish consumption
    - Advantages and disadvantages
- Other data analysis considerations

# General Population Distribution

Hypothetical example:

ALL data	
Median	20.0
Mean	52.7
90th %ile	144.6
95th %ile	186.6
99th %ile	343.1

# of respondents



# General Population Distribution

## Advantages

- Ability to select a rate that is representative of the population as a whole
- Ability to determine the level of protection that the state wants to achieve

## Disadvantages

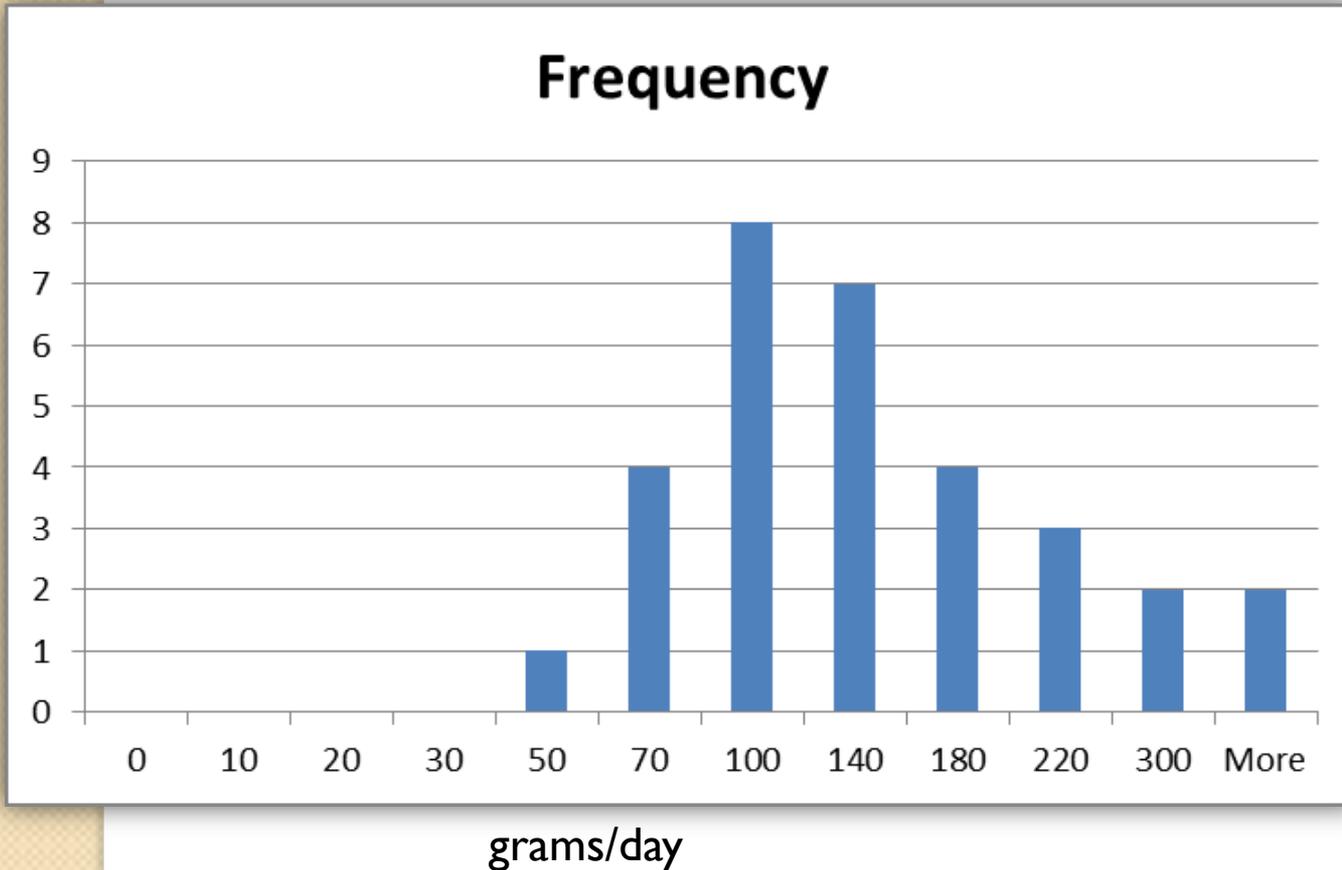
- Possible that high or extremely high consumers may not be protected at an acceptable rate (i.e.,  $10^{-4}$ )
- Requires that the survey be designed in a manner that does not systematically miss those who are high consumers

# Targeted Subpopulation Distribution

Hypothetical example:

Top 30	
Median	112.0
Mean	140.4
90th %ile	248.0
95th %ile	321.5
99th %ile	377.9

# of respondents



# Targeted Subpopulation Distribution

## Advantages

- Ability to show that high consumers are being protected at a set level
- It would be clear that the state is placing a greater importance on protecting high consumers

## Disadvantages

- Inability to relate the rate and associated level of protection to the overall general population
- Requires that the survey be designed in a manner to accurately identify those high consumers prior to sampling

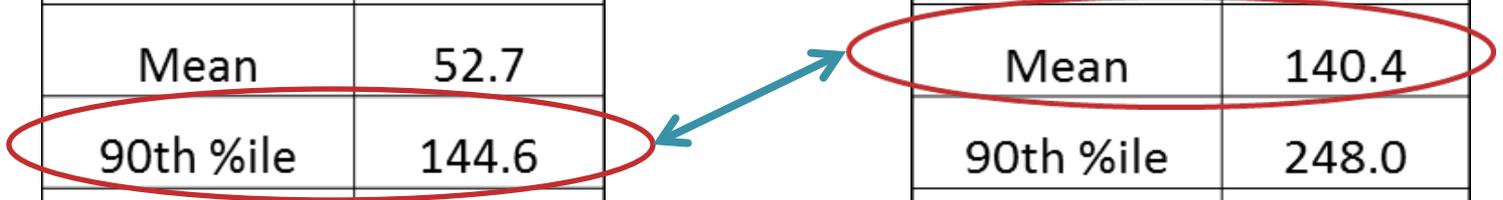
# A comparison...

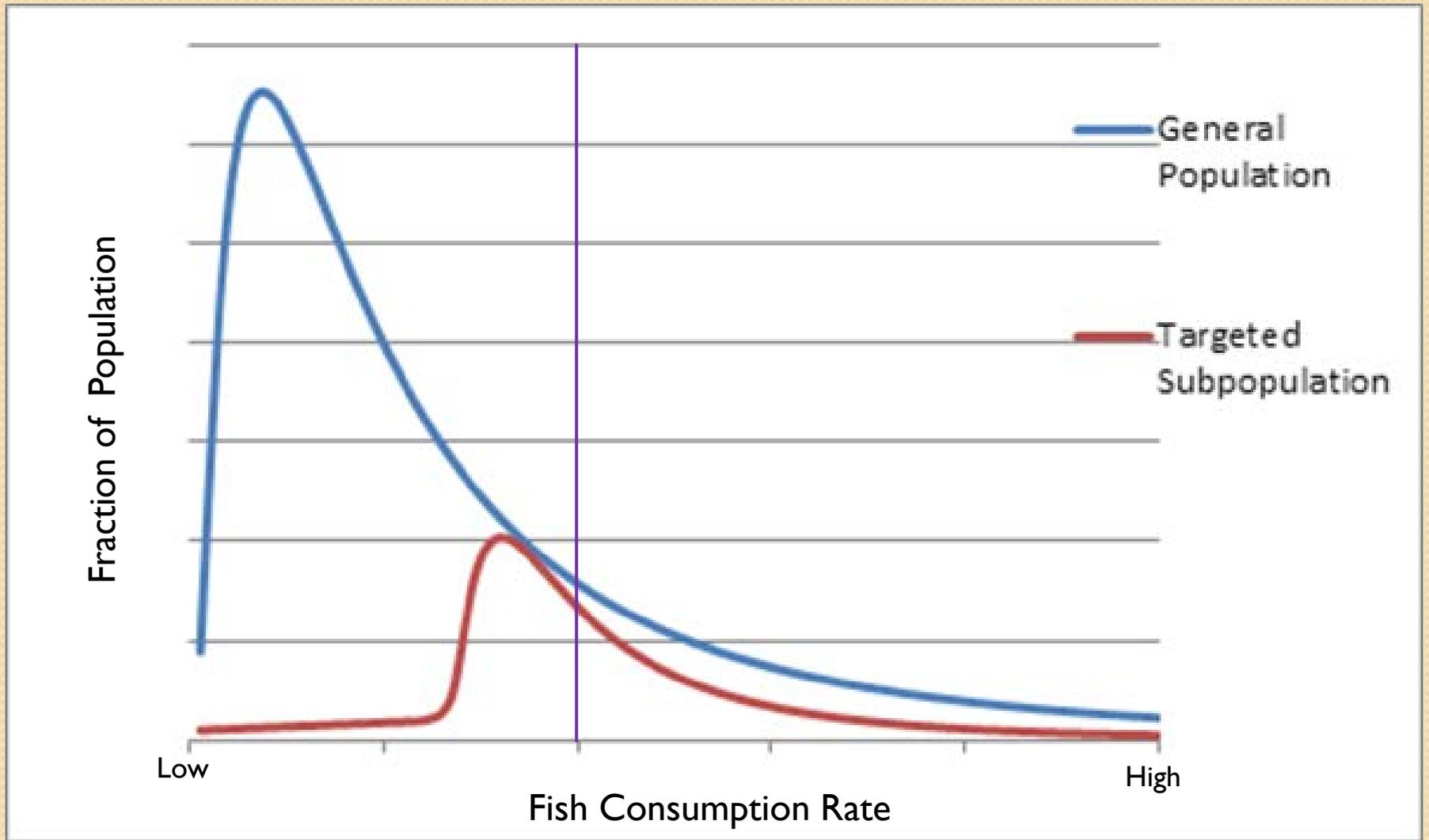
- General Population

ALL data	
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Mean	52.7
90th %ile	144.6
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- Targeted Subpopulation

Top 30	
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# Other Data Analysis Considerations

- Trimming the data after it's been collected, but before it's been analyzed
  - **Not recommended!**—may yield incorrect standard errors and confidence intervals
  - The entire dataset should be analyzed and the high consumers identified from the resulting full distribution
- Either recreational angler survey or tribal surveys may be used to represent high consumers

# What has EPA Recommended?

- EPA recommends “ensuring that the fish intake level chosen is protective of **highly exposed** individuals in the population.”
  - **Highly exposed is not defined.**
- “EPA also believes that criteria based on a  $10^{-5}$  risk level are acceptable for the general population as long as States and authorized Tribes ensure that the risk to more highly exposed subgroups (sport fishers or subsistence fishers) does not exceed the  $10^{-4}$  level.”
  - **For such a comparison to take place, data on both populations are needed.**

# EPA's National Recommendation

- In choosing a fish consumption rate to protect subsistence fishers as a subpopulation of high consumers, EPA used the 99th percentile for the *general population* data.
- “EPA believes that the assumption of 142.4 grams/day is within the range of average consumption estimates for subsistence fishers.”

# DEQ Recommendations

- To target high consumers, they must be well defined.
- Definition should be based on fish consumption rate, not *a priori* on an ethnic, economic, or geographic characterization.
- There should be a comparison of how a targeted subpopulation (presumed high consumers) relate to the broader population so that risk can be described for all.

# DEQ Recommendations

- The general population distribution should be evaluated and used to determine the statistic for setting a fish consumption rate.
- This statistic could be selected to represent high consumers **within** the general population.
- The resulting range in level of protection could be shown for **all** Idaho fish consumers.

We would like  
your comments  
on these  
matters...

- Comment deadline is  
January 24