United States Department of Agriculture
Animal and Plant Health Inspection Service

USDA

Sinking or swimming in the OIE guidelines for demonstrating disease freedom

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Probability & non-probability sampling

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Classical sampling approach
(by the book)

- determine sample size to attain desired confidence at the design prevalence level
- adjust for sensitivity and specificity of diagnostic test protocol
- sample every group of fish that may be affected by disease differentially

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Classical sampling approach
(an example)

For 95% confidence that disease prevalence is less than 2%, assuming perfect sensitivity & specificity

- sample 150 fish…
- from every unit…
- for each age group…

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Classical sampling approach
(potential pitfalls…)

Are your animals free from disease today if you sampled last November?

Is your sample representative or did the net miss the sick ones in the corner?

Moving away from classical sampling

- Focus on objective of disease freedom
  - Not estimating prevalence
  - Do not need an estimate of sampling error

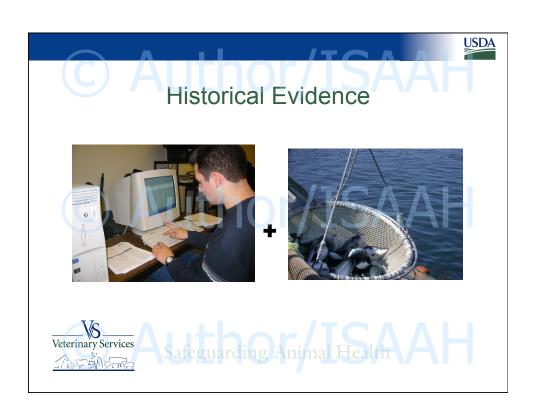## Moving away from classical sampling

- Sampling scheme must be supported by sound science
    - targeted sampling
        justify choice of target group
    - judgment sampling:
        support basis of judgment

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Historical Evidence

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Historical Evidence (an example)

Usual approach

- 12 months ago
  - 60 sites sampled in a region
  - 95% confident in prevalence of less than 5%

- Current
  - 60 sites sampled in the region
  - 95% confident in prevalence of less than 5%

Emerald shiner

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Historical Evidence (an example)

Combining evidence

- 12 months ago
  - 60 sites sampled in a region
  - 95% confident in prevalence of less than 5%

- Current
  - Expert panel identifies risks and creates scores
  - Score our region for introduction risk
  - Past sampling provides 95% confidence in <10% prevalence
  - Sample 30 sites to return to 95% confidence in prevalence of less than 5%.

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Disease spread & historical evidence

Thank you!