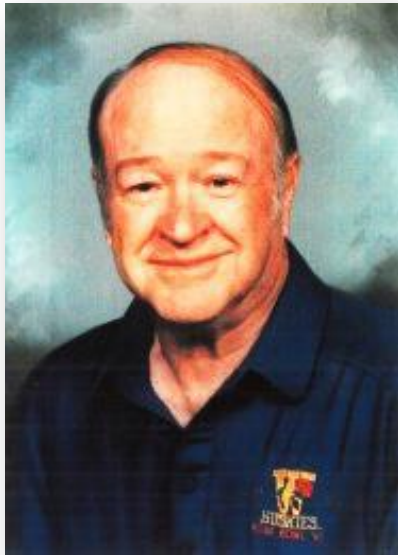


Some Impressions from the Wakefield Bycatch Symposium

Steve Murawski



Lee Alverson
would be proud!



What I have been looking for....

- Incentivising Industry Creativity
- Innovation in Approaches
- A Population Context
- Recreational Fisheries
- Priorities Moving Forward

Found them all!

Overview

- Definitions (are we there yet?)
- Performance metrics for bycatch
- Are we getting better?
- Does bycatch have a “choke hold”?
- The “Valley of Death” in implementing technical means
- How selective should we be?
- Observing: How much is enough?
- Institutionalizing Innovation
- finis

Defining Bycatch....(Really?)

Legislative/Regulatory Definitions Create Confusion, e.g.,

- MSRA's exclusion of recreational discards
- ESA & MMPA's definition of "takes" to include non-lethal interactions

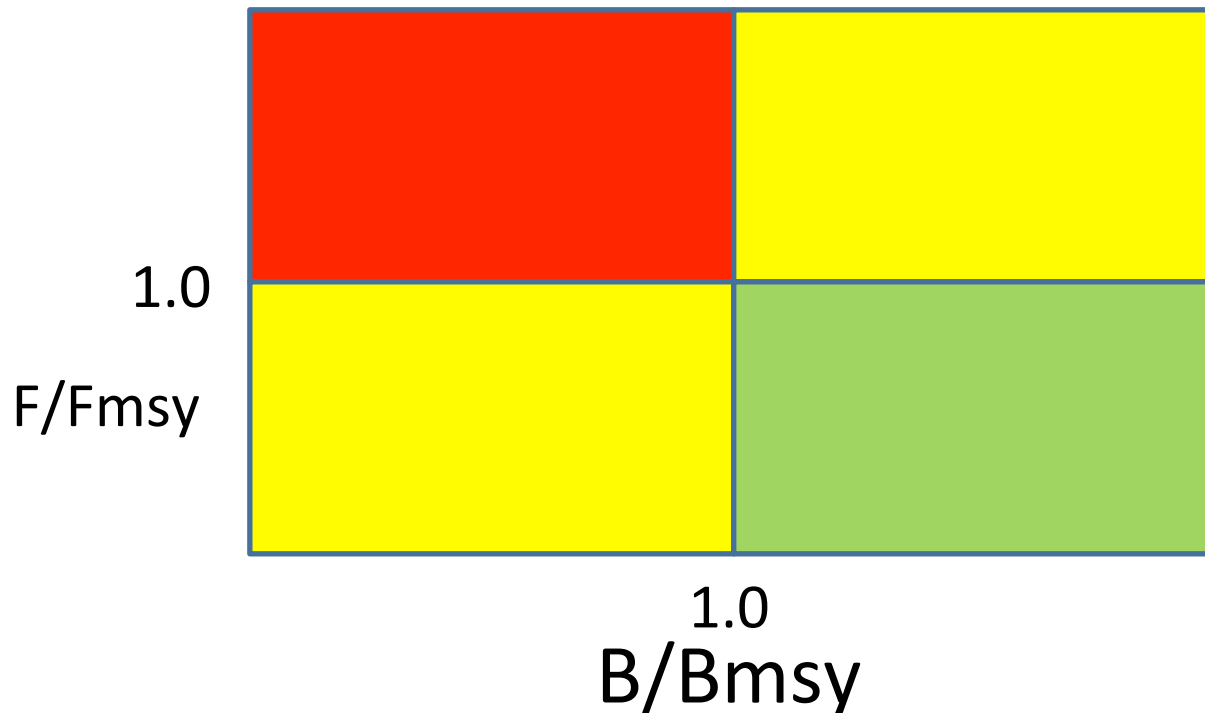
Suggest not using the term "bycatch" but using operational definitions, e.g.,

- Dead discards
- Live discards
- Economic vs. regulatory discards
- Unobserved gear interactions (dead or alive)

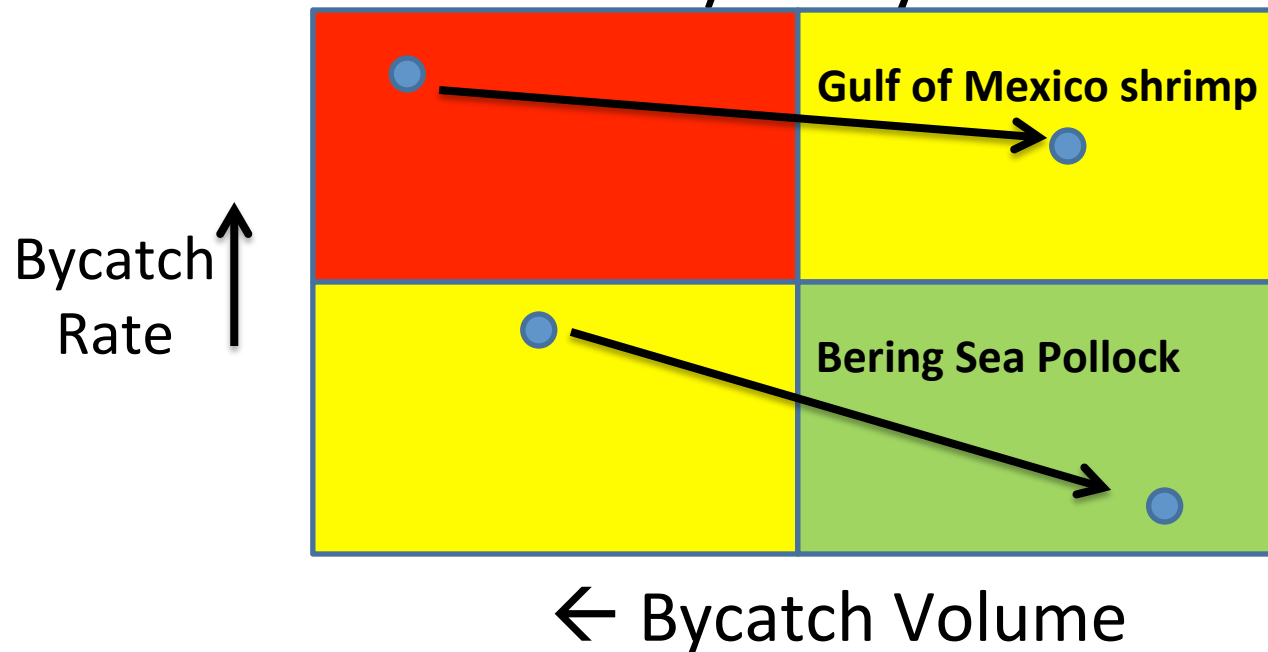
Some Candidate Performance Metrics

Are we “over-throwing?”

- Bycatch rate (discard/discard+kept)
- Bycatch Volume
- Value of foregone catch (2 papers)
- Impact (F) on bycaught species
- Impact on co-dependent fisheries
- Status of bycaught species (PETs?)



Kobe Plot
Stock Status



Analog
Joint
Bycatch Plot
Rate & Volume

We have apparently made considerable progress in reducing bycatch volume and population impacts in some fisheries

Why?

Bycatch volume = Effort * BPUE

- Large reductions in effort in some fisheries (east and west coast groundfish) as a result of 2007 MSA reauthorization- synergy between National Standards 1 and 9
- Large effort reductions due to “externalities” (Gulf of Mexico shrimp, South African seabirds)
- Steady (in a few cases, spectacular) reductions in

Is the Industry “Choking” on Bycatch?

- It appears that after MSRA-2006 both NE and West Coast groundfish fisheries are **not** exceeding species-by-species ACLs despite dire warnings of impending “choke” stock effects
- Resulting in substantial potential catch left in the water (e.g., NE catches only about 1/3 of its sum of ACLs)
- Are they being too risk averse?
- Understanding policy choices r.e. risk pools
- How can they emulate Alaska?

yet in many locations/industries the tool box is full but the pace of adoption of new technologies remains slow,

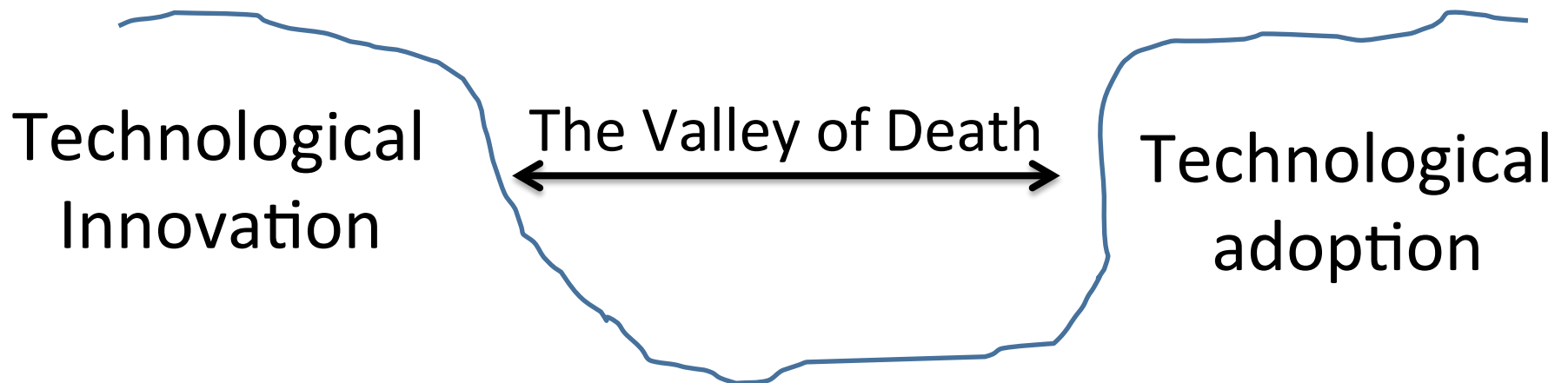
Why?

- “NIH” – not invented here
- Regulatory “fatigue”
- Fear of the unknown
- Culture conflicts

The Innovator's Dilemma

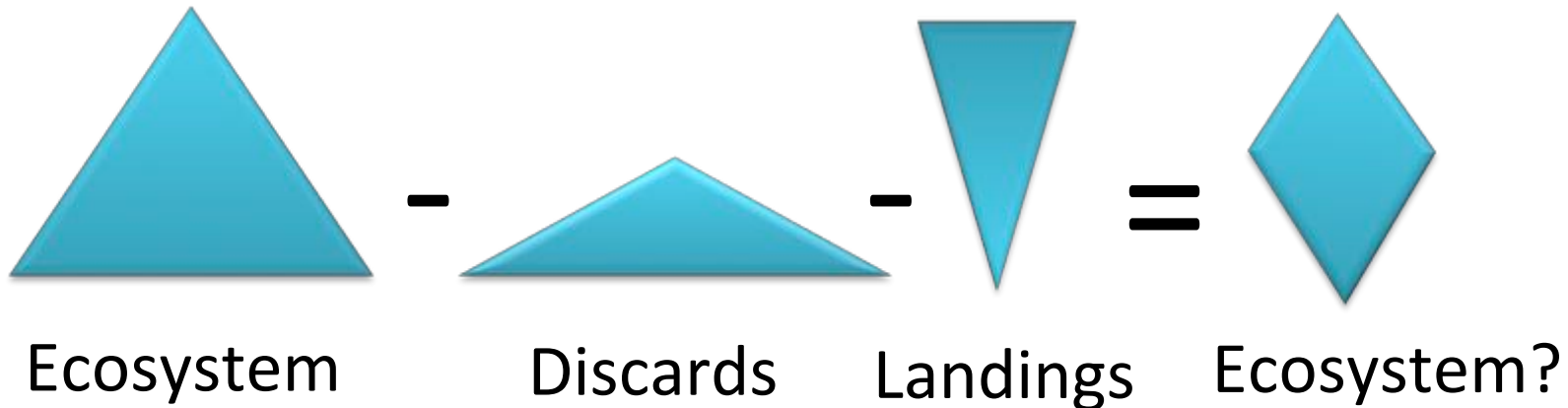
Clayton Christensen

- Sustaining vs. “disruptive” technologies
- Concentrating on incremental progress
- Failure to adapt/adopt
- Industries & companies fail because they are well managed

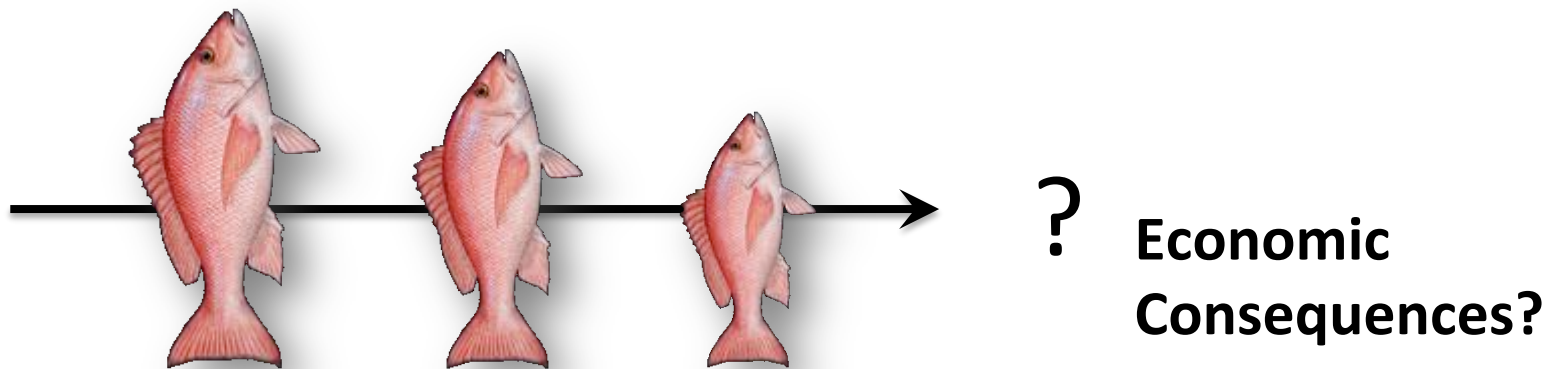


Ecological Consequences of Highly-Selective Fishing

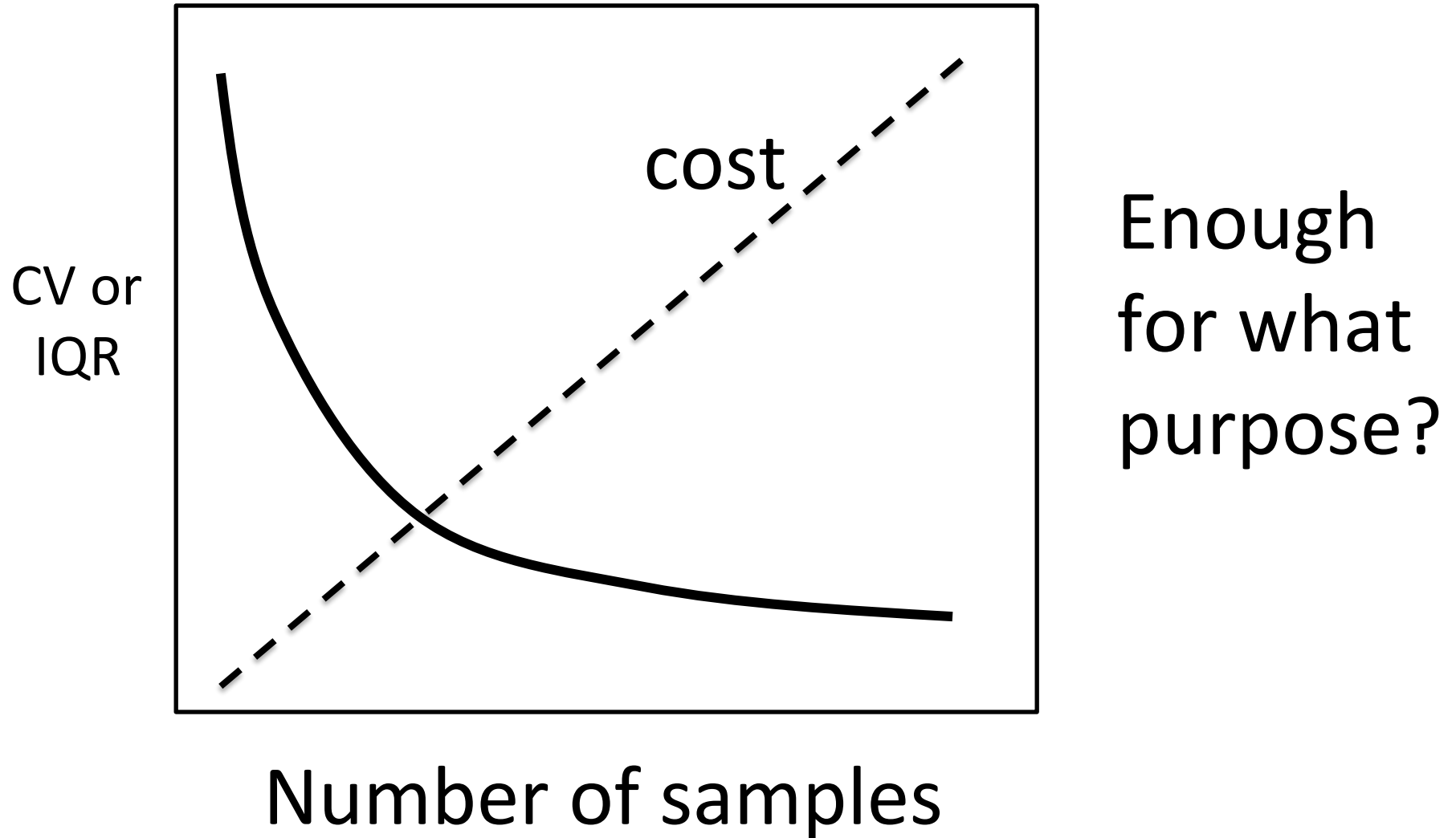
Trophic Pyramids and Feedback Loops



Phenotypic to Genotypic Selection



How Much Observing is Enough?



Enabling Innovation – some priorities?

- Partnerships at the project level (industry, government scientists, academics NGOs) are critical – [Alaska is the model for this](#)
- Iterative design – test – re-design model can be extremely successful and result in adoption
- Minimize a single regulated design
- How to incentivize this process? (“Smart-Gear” type programs, performance-based fishing privileges, peer pressure....

Thanks to Many!

- Alaska Sea Grant Staff
- Organizing Committee
- Invited Speakers
- Sponsors
- Gordon Kruse
- Especially the speakers and poster contributors & the Audience

Good Job Everyone!

My Submission for the Next Smart-Gear Competition....



Noise-cancelling headphones
for sperm whales