

Science, Service, Stewardship



Fish Handling and Data Acquisition on the NOAA FSV *Henry B. Bigelow*

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**NOAA
FISHERIES
SERVICE**



Introduction

The NOAA FSV *Henry B. Bigelow* (*Bigelow*) was completed and launched to replace the NOAA FRV *Albatross IV* (*Albatross*). The NEFSC was given the opportunity to design a new fish handling system. Since its first cruise in June 2007, the Ecosystems Survey Branch has been utilizing this system to process catches.





Planning Stage



NOAA FSV *Henry B. Bigelow* Launched

ICES, Copenhagen

Carnitech

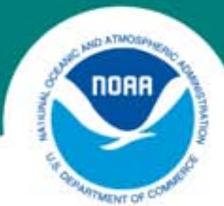


NOAA Fish Handling
Workshop, Seattle

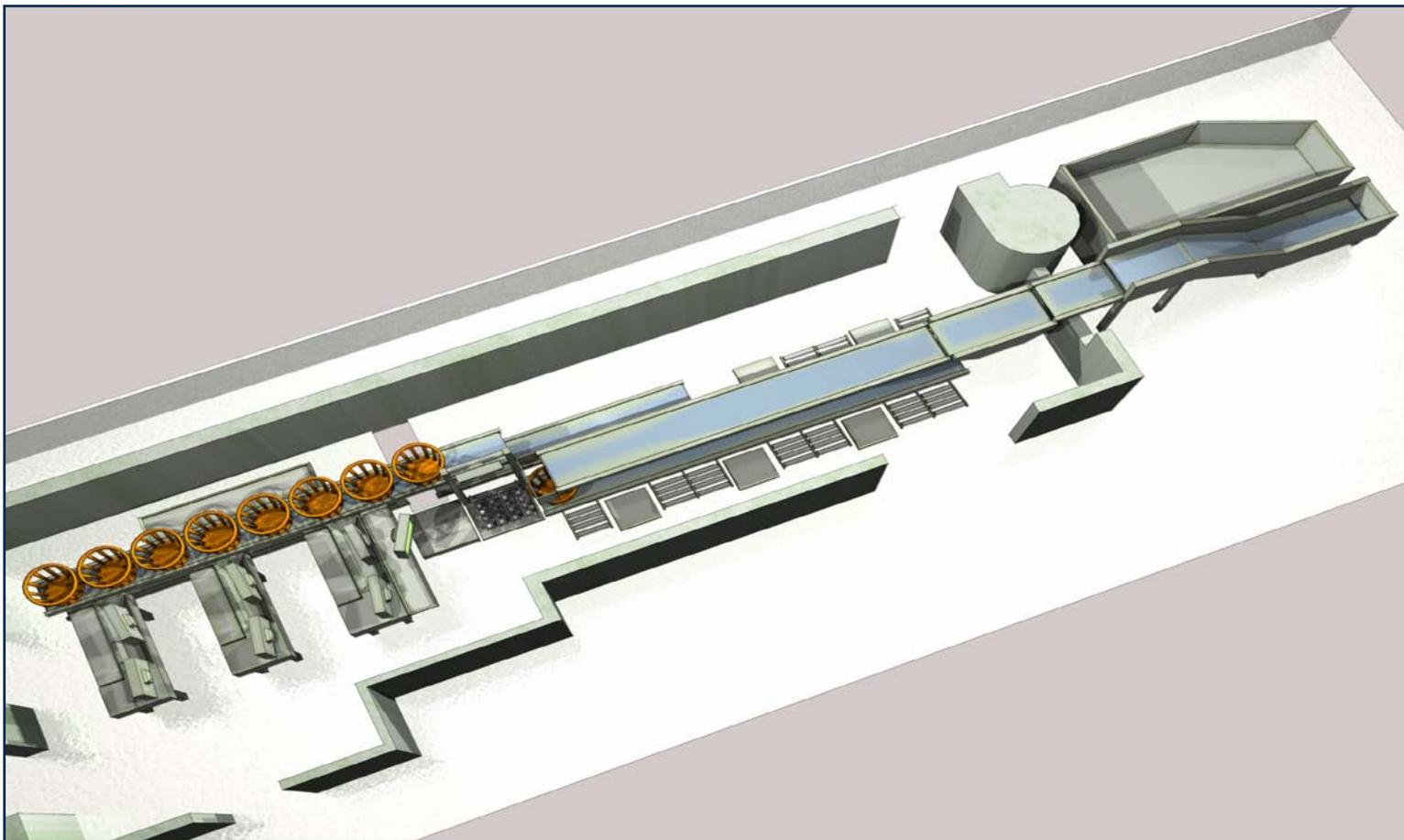
Mock-up, Tech. Park, Falmouth

First Bottom Trawl Survey





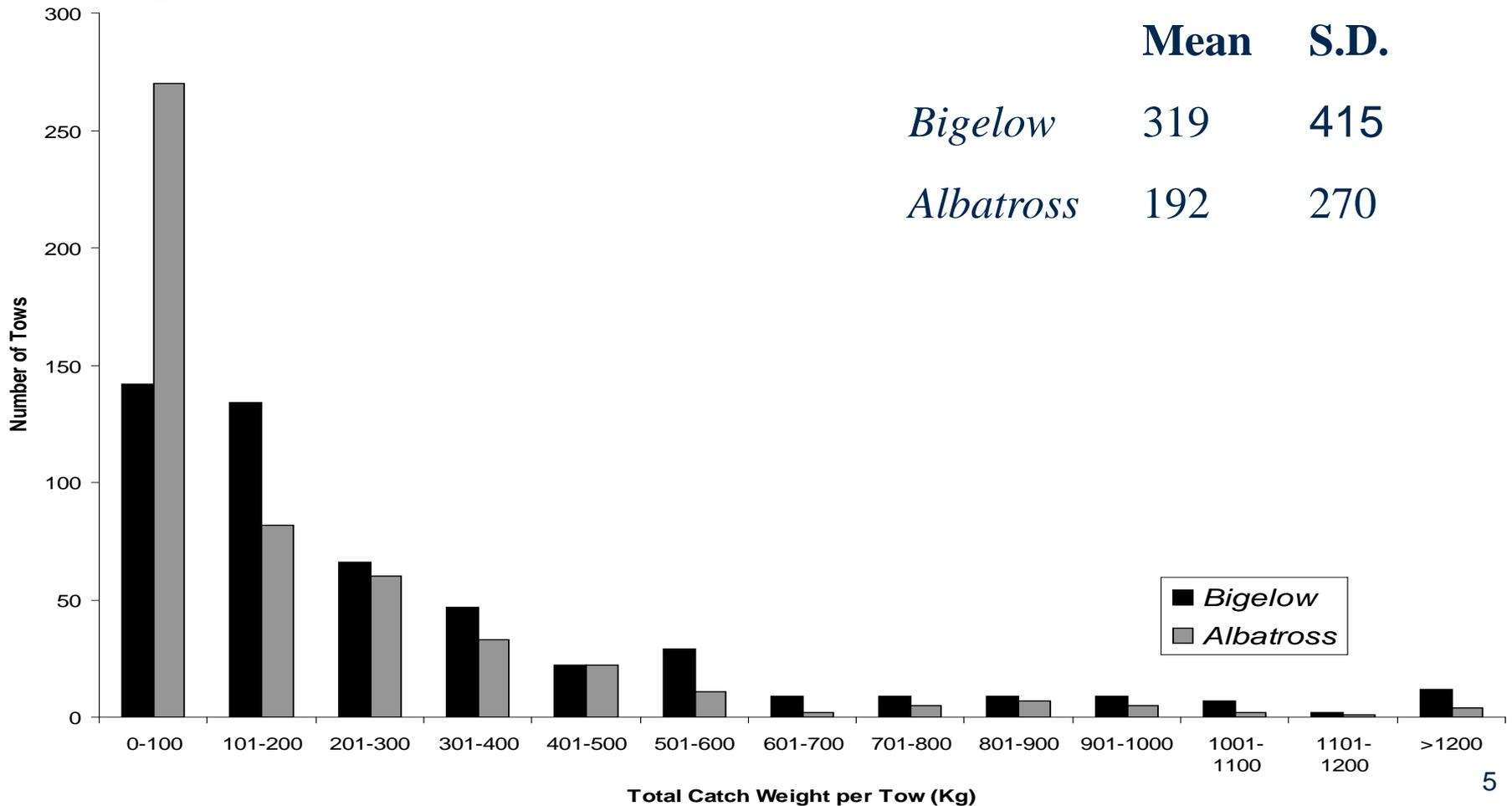
Overview of the Fish Handling System





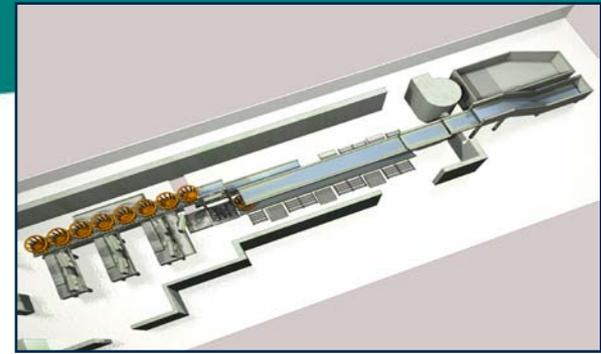
Total Catch Weights per Tow

For all usable paired calibration tows between *Bigelow* & *Albatross*





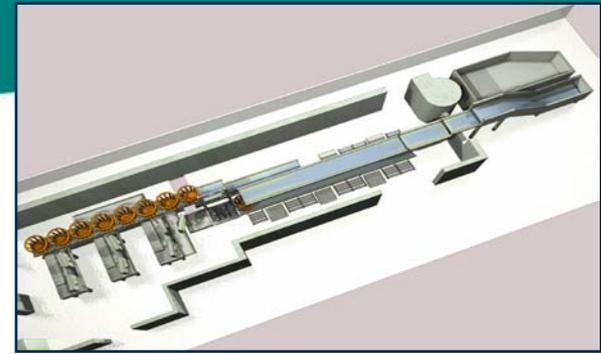
The Checker



- 2.8 m³ capacity vs 0.9 m³ on the Albatross
- Largest catch 3080kg
- Key feature: catch can be fed onto the conveyor to the sorters at a controlled rate



The Checker

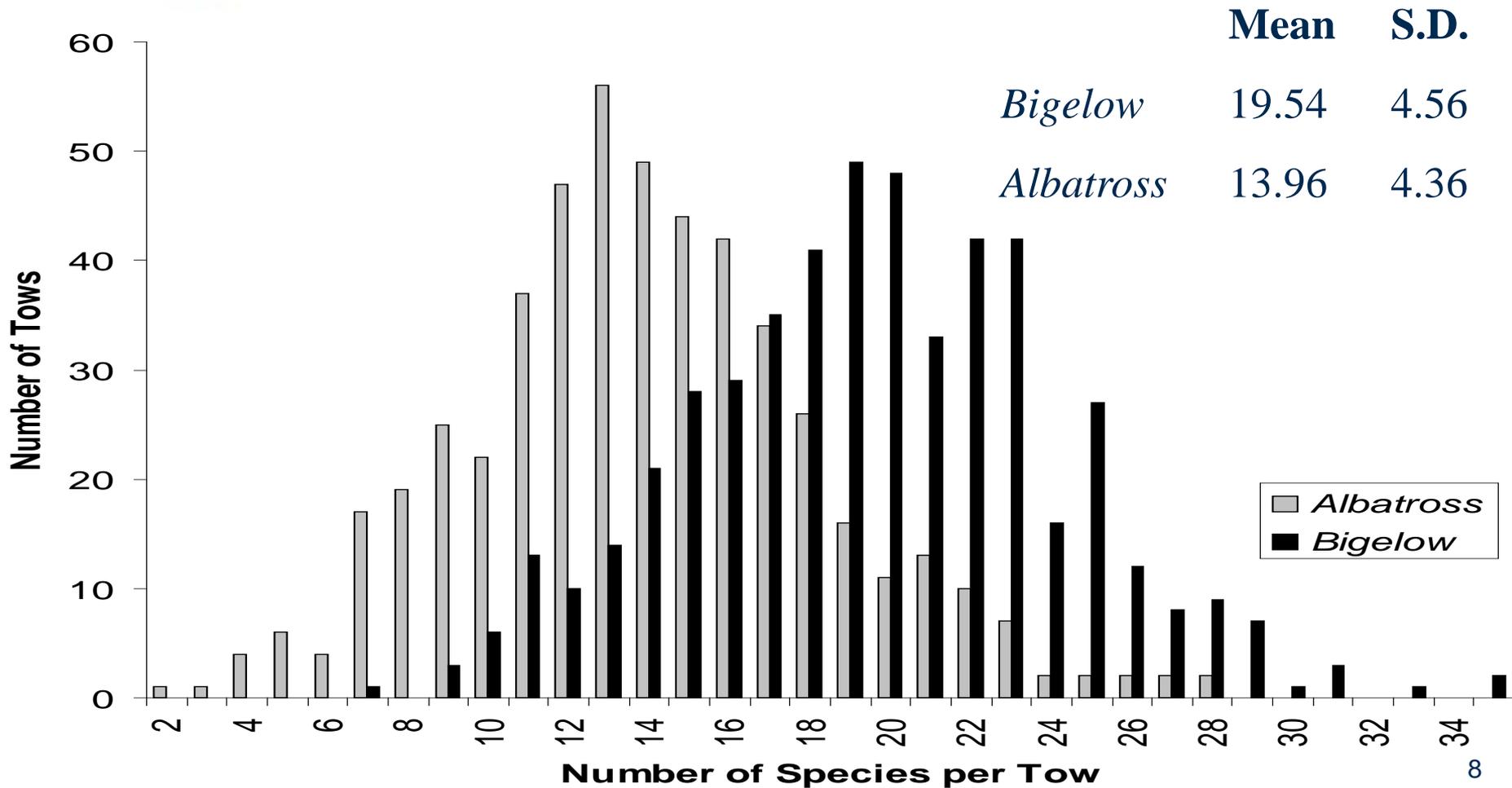


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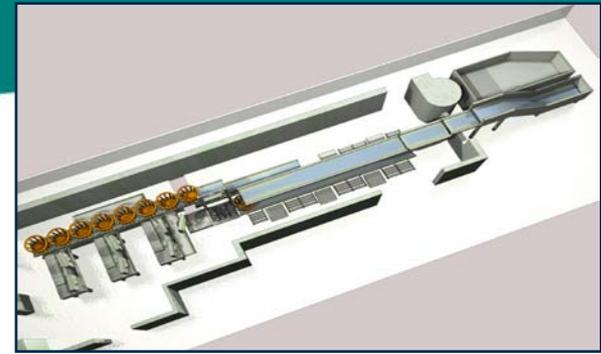
Number of Species per Tow

For all usable paired calibration tows between *Bigelow* & *Albatross*





Sorting

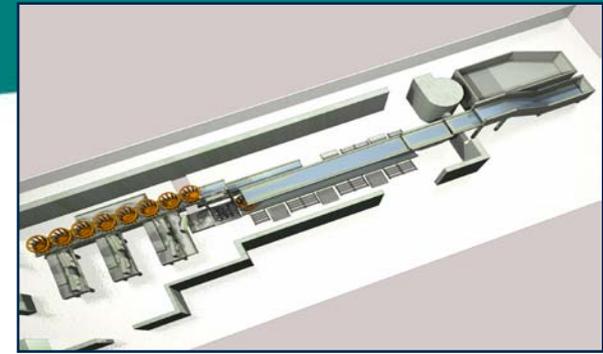


- Lighting and design enable sorters to clearly identify species
- Mixes or large quantities of a single species can be sent to baskets at the end of the conveyor
- Minimal lifting and dragging of baskets
- Sorting and Weigh-in can occur simultaneously



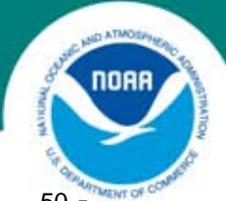


Sorting



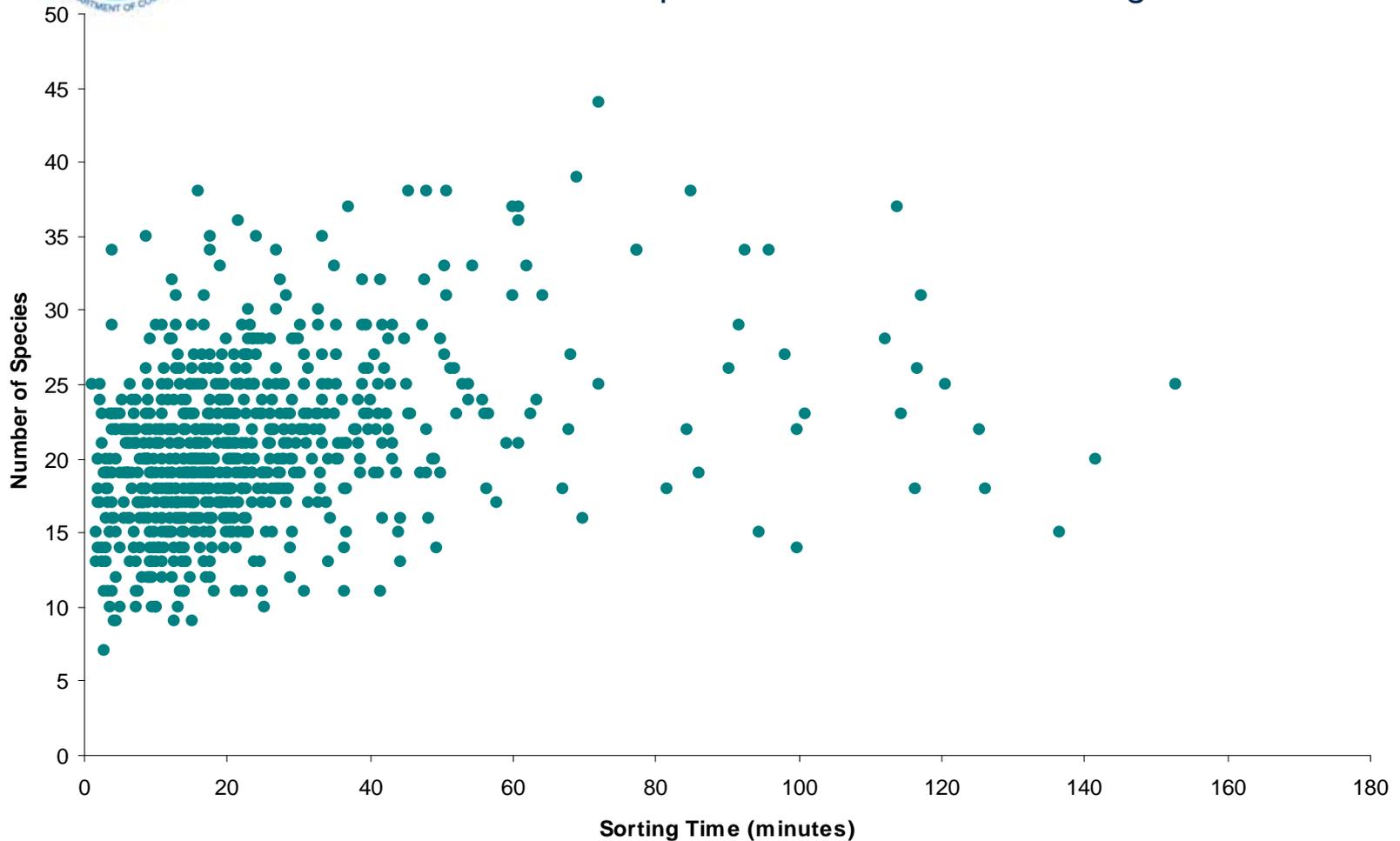
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Sorting Time vs. Number of Species

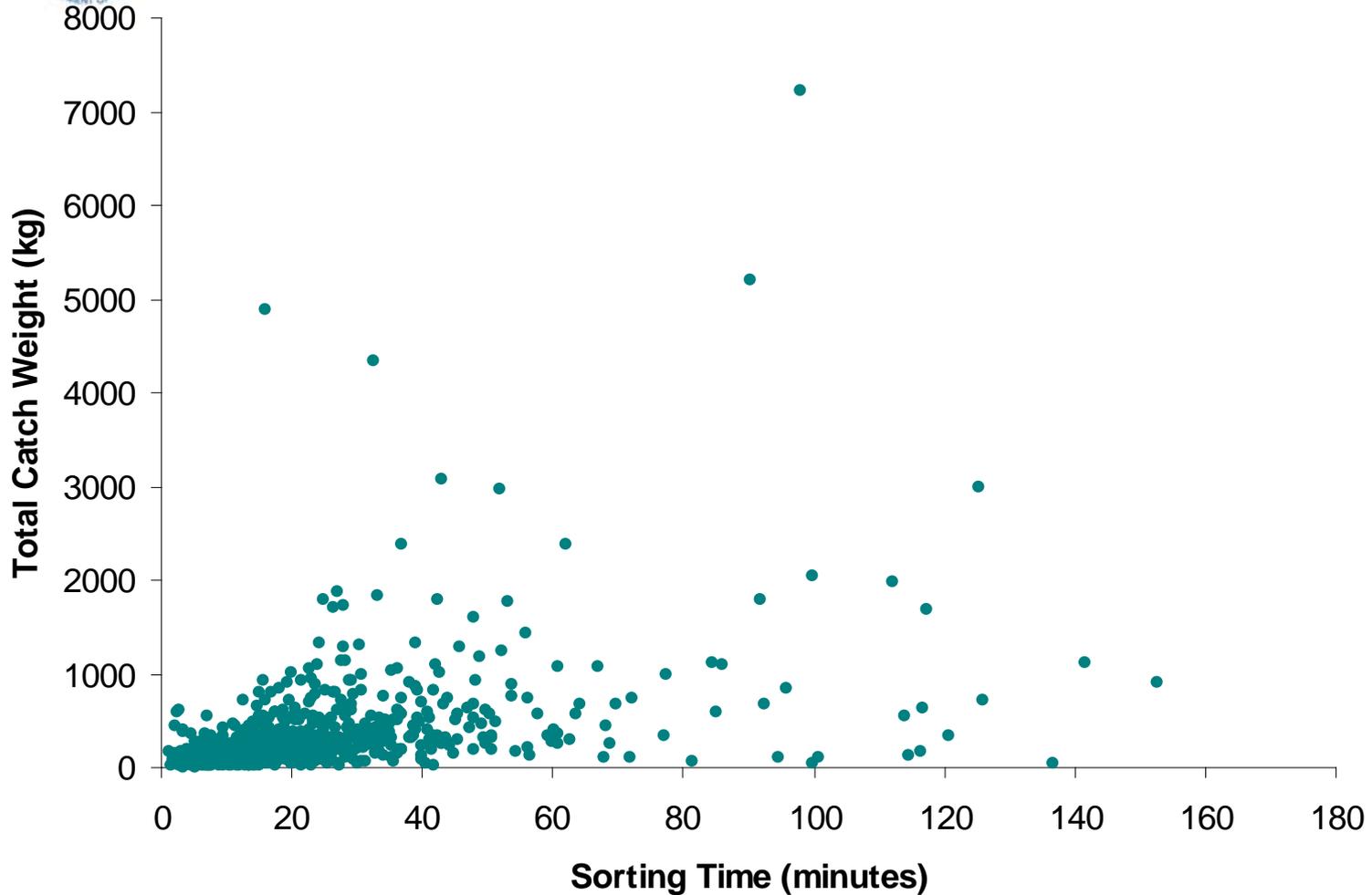
For all usable paired calibration tows on *Bigelow*





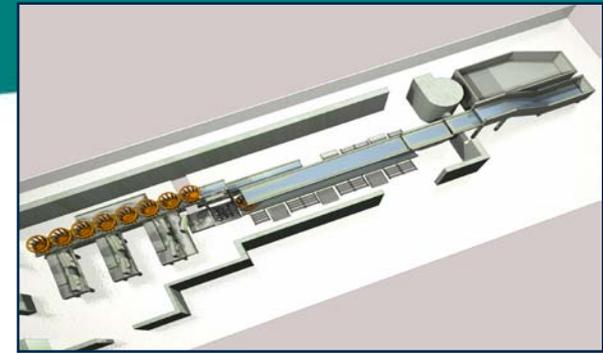
Sorting Times vs. Total Catch Weight

For all usable paired calibration tows between *Bigelow*





Weigh-in Station

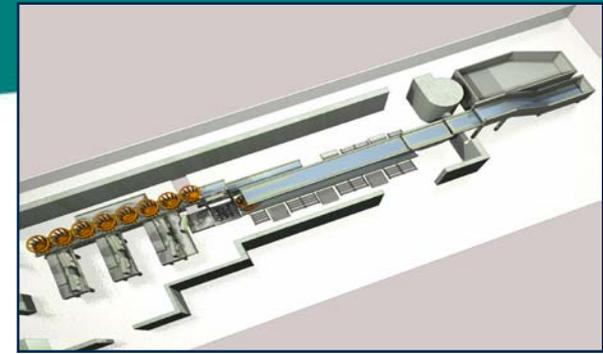


- Weigh-in is a single person operation
- Mixes and large quantities of a single species can often be weighed and discarded before sorting is finished
- Hydraulic lifts raise containers to a transfer conveyor, which moves them to the sampling locations.



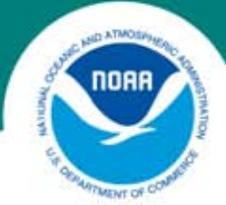


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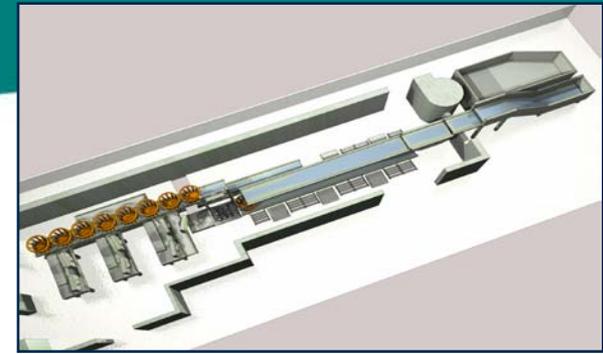
Subsampling

Numbers of subsamples taken by each vessel during paired towing for calibration site experiments in Spring and Fall 2008.

Subsample Type	<i>Bigelow</i>	<i>Albatross</i>
Discard (SS)	9	22
Mix	29	12
Straight Weight (inc. By Length)	341	131
Total	379	165



Work-up



- Baskets are transferred to three sampling locations via conveyor belt. Hinged tables provide space to park extra baskets.
- Cutters and recorders have height adjustable tables with fish bins to store fish.
- Magnetic measuring board and motion compensated scale at each station enable lengths and weights to be electronically entered into the Data Acquisition System known as FSCS (Fisheries Scientific Computer System)





Future Developments

- Improve Handling of Deck tows
 - Original idea to split the bag still needs to be tested further.
- Basket Tracking
 - will enable you to catch an error real-time and will decrease the misidentification of species at work-up stage.
- Ergonomics
 - Although the system is designed to minimize lifting, lifting still is needed at times . Ways to avoid this still need to be explored. Lifting and dragging baskets off floor when we can't discard.
- Fish handling system has been designed for FSCS 2.0, its introduction will improve operations.

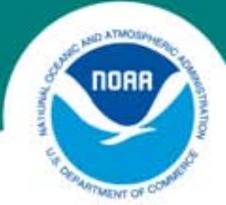




Future Developments (Cont'd)

- Space Issues
 - At present only 17 baskets can fit in the system.
 - Analysis using proxy of basket = species weight > 20kg
 - Result: 34 tows with greater than 17 baskets.
 - New containers may solve this.
 - When close to station we cannot discard because of the chance of re-catching. The macerator was meant to solve this, however, fish chunks clog the net and this may lead the net to perform incorrectly.





Acknowledgements

- Staff of the Ecosystems Survey Branch
- Crew of the *Henry B. Bigelow*, especially Survey Techs, Peter Gamache and Mike Murray.
- Pete Archibald and Mike Bancroft, Oak Management
- Robert Lauth for video footage
- All those who have sailed on the *Bigelow* during the calibration.