



Automated valves for measuring discards in Demersal fisheries

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Dutch demersal fisheries

High catch volumes in the Dutch demersal fisheries often result in high discard rates. For the biggest beam trawl vessels discard rates can reach up to 75%. These rates are exceptionally high and in the 'danger zone' where small uncertainties in the total catch estimation have a disproportionately large effect on raised discard quantities.

- Mixed demersal fishery
- Vessel length 23-40m
- Engine power 223kw-1491kw
- Beam and otter trawls
- Main target species: Flatfish
- Small mesh size 80-120mm
- 2-6 hours tow duration
- Catch 500-4000kg per haul
- 15-75% discards
- Automated catch processing
- ~20 minutes catch processing



Current methods for measuring discards

Due to high discard quantities and automated catch processing, quantifying discard quantities is complex and labour intensive. Therefore total catch is estimated and weighed landings are subtracted to estimate discards. Some examples for quantifying total catch on commercial vessels are:

- Best visual estimation of total catch (from observer and captain)
- Measure volume total catch in hopper
- Counting number of rotations of sorting belt
- Measuring weight of total catch in cod end
- Sort a sample of the catch

Uncertainties in current methods

We have identified a number of factors and conditions that can greatly impact the raised estimate of catch and discards from the haul level. For example: visual estimates are highly inaccurate, total catch volume can be difficult to measure, and weight of total catch can be influenced by large quantities of sand and water. To increase accuracy of catch and discard estimates there is an urgent need for a device to measure all discards on commercial vessels in an effective and cost efficient way.



Solution: automatic discard valves

Discard valves are conceptually designed for fully automatic accurately weighing all discards quantities falling through the discarding shaft, this is done by two independent valves and a load cell measuring device. Several specifications are identified for successful application:

- Adaptable to most commercial vessels
- Automatic measuring of weight
- No obstruction in commercial catch processing
- Mobile and easy to handle
- Stainless steel and electronical design

Questions/Ideas?

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