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Document No. 50ANNUAL MEETING - JUNE 1963Comparison of Performance of Response
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Offshore groundfish vessels landing in the Maritime Provinces of Canada report their catches mostly on trip bases. Our field technicians have been collecting auxiliary information on areas and efforts (hours) fished by these vessels since 1947. The collection of efforts has been met with variable success. Table I summarizes the number of trips made to ICNAF Subarea 4 with respect to whether or not the reporting of effort and area is complete.

Table I. Number of trips with complete and incomplete effort for boats landing their catches in the Maritimes.

<u>Gross tonnage class</u>	<u>No. of trips in 1959</u>		<u>% Complete</u>
	<u>Complete</u>	<u>Incomplete</u>	
Below 25	71	1,302	5
26- 50	985	2,893	25
51-150	778	1,437	35
151-500	1,352	162	89
Type of vessel over 25 gr. ton.			
Otter trawler	2,704	2,087	56
Dory schooner	55	131	30
Danish seiner	92	216	30
<u>Longliner</u>	264	2,058	11

The effort information may have some economic uses, but the primary impetus for the collection has come from its biological significance in management problems. Whatever its uses are, however, it is important that the collection when not complete be at least representative of the class.

Information available for smaller vessels (Table I) is so scanty as to be of no use. For the classes of vessels better covered by our effort collection, we may compare the total catches (catches per trip) of response with non-response boats, i.e., of those boats which do, with those which do not, report the hours spent fishing.

In order to make this comparison, all the trips in a given area and class were separated into two groups depending whether the trip total was below or above the median catch (per trip). The numbers of complete and incomplete trips in the low and high pile were then counted and a (contingency table) test was made for the equal distribution of complete and incomplete trips in the low and high pile. The table below lists some of the results.

Table II. Comparison of catches per trip with complete and incomplete effort.

<u>Area</u>	<u>Gross ton.</u>	<u>Years</u>	<u>d.f.</u>	<u>χ^2</u>
4T	26 - 50	1957-61	4	47.61*
	51 - 150	1957-61	4	44.67*
4V	26 - 50	1959-60	2	7.91*
4X	0 - 25	1957,'61	2	11.50*
	26 - 50	1957-59	3	46.14*
	51 - 150	1957,'61	2	17.30*
4W	26 - 50	1957-60	4	17.07*
	51 - 150	1957-61	4	1.75
	151 -	1958-61	3	3.86

*indicates significant difference at 5% level

Table II indicates non-random sampling of vessels or catches in all areas except in 4W. In an attempt to explain the observed differences in the total catches between the completely reported and incompletely reported trips the gross tonnage of vessels for response and non-response trips were compared and a median test was applied. The resulting χ^2 for comparisons made are shown in Table III A. Inspection of the table shows that in some cases the incompletely reported trips tended to be made by vessels with a different (in effect lower) than average gross tonnage within their gross tonnage class, but this does not explain all the differences found.

Table III A. The χ^2 values of the median tests applied to the gross tonnage for response and non-response trips.

<u>Area</u>	<u>Gross ton. class</u>	<u>Year</u>	<u>d.f.</u>	<u>χ^2</u>
4T	26 - 50	1958	1	39.00*
4T	51 - 150	1958	1	0.30
4X	26 - 50	1957	1	0.13

Table III B. The χ^2 values of median tests applied for the total catches for response and non-response trips. Trips were split at a median catch for each vessel separately and the numbers of response and non-response trips on the low and high side of the median were counted.

<u>Area</u>	<u>Gross ton. class</u>	<u>Year</u>	<u>d.f.</u>	<u>χ^2</u>
4T	26 - 50	1958	1	15.48*
4T	51 - 150	1958	1	12.46*

*indicates significance at 5% level

Since it was noticed that in a number of cases a skipper reported his effort figures for some trips and neglected to report them for others, we also studied whether his reporting was in any way associated with his total catch. Some results are shown in Table III B. In all cases studied, it was noticed that when a skipper brought in a small total load he was more likely to forget to mark down the hauls made or hours fished than when he brought in a good catch.

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The study shows that our sampling practices do result in biased estimates of catch-per-effort figures in all areas except 4W. In most cases the data for only one year out of three or four examined have been responsible for the significant χ^2 's. In retrospect, these changes are hard to explain and almost impossible to correct. A continuous check of the incoming statistics on a timely basis may serve to detect any such deviations and to correct or explain them.

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