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Comparative Analysis of 1995, 1996, and 1997 Sentinel Data

with

Interpretative Information from Fish Harvesters, 3Ps

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¹ This series documents the scientific basis for the evaluation of fisheries resources in Canada. As such, it addresses the issues of the day in the time frames required and the documents it contains are not intended as definitive statements on the subjects addressed but rather as progress reports on ongoing investigations.

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Abstract

Catch rates (1997) from cod traps have increased from 1995 and 1996.

While catch rates from nets and trawls have decreased during 1997, they remain above the "bench mark" level (100 pounds per net and 500 pounds per 500 hooks) of a good catch rate suggested by fish harvesters during 1995. Trawl catches are highest at Placentia Bay sites and have not changed (decrease) to the degree catches west of the Burin Peninsula have.

Commercial catch rates, inshore and offshore, were high and quotas were caught quickly.

There is no significant difference (overall in 3Ps - fair to good) in the abundance of bait fish since 1995. Weather conditions during 1995 were fair, during 1996 were good, and during 1997 were poor.

Most areas have reported good signs of recruitment.

The average number of cod per net from the 3.25" mesh versus the average number of cod from the 5.5" mesh appear to indicate there has been some recruitment.

Regretfully, sentinel data cannot be used to calculate biomass estimates. Science does not have a model or formula for computing biomass estimates from data collected by fixed gear (nets, trawls, hand lines or cod traps). While still very important to the stock assessment process, the maximum utilization of sentinel data will not occur until a formula or model is developed.

Résumé

Les taux de capture de morue à la trappe (1997) ont augmenté depuis 1995 et 1996.

Bien que les taux de capture au filet et à la palangre aient diminué en 1997, ils demeurent supérieurs à ceux du niveau de « référence » (100 livres par filet et 500 livres par 500 hameçons) d'un bon taux de capture proposé par les pêcheurs en 1995. Les captures à la palangre sont supérieures dans la baie Placentia et n'ont pas changé (diminué) de façon aussi importante que celles de l'ouest de la péninsule Burin.

Les taux de capture commerciaux des pêches côtière et hauturière ont été élevés et les quotas ont été rapidement atteints.

Il n'y a pas d'écart significatif (généralement dans 3Ps - acceptable à bonne) en ce qui a trait à l'abondance des poissons appâts depuis 1995. Les conditions météorologique ont été acceptables en 1995, bonnes en 1996 et mauvaises en 1997.

Des indices de bon recrutement ont été signalés pour la plupart des régions.

Le nombre moyen de morues par filet à mailles de 3,25 pouces par rapport au nombre moyen de morues dans ceux à mailles de 5,5 pouces indique un certain recrutement.

Les données sur les pêches sentinelles ne peuvent malheureusement pas être utilisées pour calculer l'estimation de la biomasse. Les scientifiques ne disposent pas d'un modèle ou d'une formule leur permettant d'estimer la biomasse à partir des données amassées des engins fixes (filet, palangre, ligne à main ou trappe à morue). Bien qu'encore très importantes pour le processus de l'évaluation des stocks, les données des pêches sentinelles ne pourront être pleinement utilisées que lorsqu'une formule ou un modèle approprié soit développé.

Survey Design

This is the third year in the sentinel time series. We began surveying in 1995 and since then the survey has been conducted as follows:

- Inshore fishing enterprises using gill nets, trawls (long lines), hand lines and cod traps, collect and help interpret data.
- The same enterprise owners have participated in each survey.
- The same fishing grounds have been surveyed during each survey.
- Each year, each gear type has been used during the same weeks, wherever and whenever possible.
- The same survey and sampling protocol has been used each year at each site.
- All sites have one (1) person who has completed the six (6) week sentinel training program designed by DFO Science and delivered by The Marine Institute of Memorial University of Newfoundland and Labrador.
- Sentinel participants and local fish harvesters committees review sentinel data and provide their interpretation. In addition to their comments on sentinel data, they are asked to provide information on cod by-catch, sounder recordings, recruitment and other information they feel is important.

Considerations Necessary for Interpretation

Enterprise owners record observations about weather and oceanic conditions experienced while surveying. Fish harvesters will tell you wind direction, wind speed, and water condition will always influence catch rates.

The sentinel survey in 3Ps is conducted primarily from late summer to early winter. **Overall, weather and oceanic conditions throughout 3Ps were fair during 1995, good during 1996, and poor during 1997.** Some fish harvesters have commented that conditions during the fall and winter of 1997 have been consistently bad and among the worst they have ever experienced.

Sentinel participants record their observations concerning the presence, or lack thereof, of bait fish (such as caplin). Caplin have been abundant in some areas and scarce in others, the abundance of squid appears to be increasing, and herring appear to be most abundant in areas west of the Burin peninsula. **Overall, throughout 3Ps there appears to be no significant change in the abundance of bait fish from 1995 to 1997.**

Weather, oceanic conditions, water conditions, and bait fish all play a factor in catch rates from gill nets and trawls. Since the majority of inshore fishing occurs in less than 50 fathoms of water, what may seem like a minor change may have a major impact. Therefore, it is very important the survey be extensive in time and geographic coverage.

The 1997 survey had 16 sites from St. Brides to Burgeo. Each site surveyed for twelve (12) weeks using a variety of gear. For many days during the survey most of these sites would be surveying at the same time. With this coverage (in time and geography) each site surveys through changing oceanic and environmental conditions. While one site may have experienced worsening conditions another may have experienced improving conditions.

Obviously the overriding factor in catch rates from fixed gear is the abundance of cod in the areas gear is set. However, for as long as fish harvesters can remember, some weather and water conditions, especially north east and northerly winds and "slubby" water, have always decreased catch rates and the amount of bait (especially caplin) has always been associated with cod migrating to inshore areas. It is impossible to measure the degree to which weather conditions and bait have influenced sentinel catch rates during the last three years but, **the comprehensive coverage of sentinel should serve to reduce, but not**

eliminate, the impact of those influences on "overall" average catch rates.

Local Fish Harvester Committee Comments

During 1997 we took two separate approaches to the consultative process. Firstly, the committee that represents fish harvesters at each sentinel site (16 in 3Ps) were provided sentinel information collected by their site and asked for interpretative comments (**figure 1**). Secondly, we wanted to have input from as many fish harvesters as possible so we sent a questionnaire (**figure 2**) to ALL committee chairpersons in 3Ps (44 committees).

First (under the heading "Sentinel Sites) in this section are the comments received from the sentinel review meetings at sentinel sites. Second (under the heading "ALL") are the response from the questionnaires sent to all 3Ps committees.

Sentinel Sites

Please Note - Comments in this section are those of the fish harvesters present at meetings held at each site. During each meeting a review of sentinel catch rate data was conducted and a summary form was completed. Due to the late survey ending dates for many of the sites in 3Ps, review meetings have not yet been requested. At some sites, meetings have not yet been conducted or the summary report of the meeting has not yet been received. Below are the comments, of fish harvesters, recorded on the summary reports received to date.

St. Brides

The consensus among fish harvesters is that abundance has increased and sentinel catch rates show that trend.

Fish harvesters recommend sentinel during 1998 survey with hook and line for part of the survey and use a combination of mesh sizes to check for recruitment.

Fox Harbour

Fish harvesters see an increasing trend in abundance and sentinel catch rates agree with that trend. However, they feel the low effort in sentinel makes catch rates hard to interpret.

Traditionally, November and May are peak times for cod and July can be but is dependent on the amount of caplin in the area. Cod are plenty at times but there is always some.

Cod seemed to be quite a bit larger in this area.

Fishermen recommend "reopening" the cod fishery during 1998.

Little Harbour East

Arnolds Cove

North Harbour

Monkstown

Little Paradise

Fish harvesters agree, sentinel catch rates indicate an increasing trend in abundance. However, some feel the increase in abundance of the stock is very slight and others feel it is time for a "full-fledged" commercial fishery.

The abundance of cod appeared to have increased substantially during the cod trap and gill net portions of the survey. However, early in the trawl survey, catch rates decreased from day 1 to day 3 each week but later in the survey the pattern changed (somewhat) as cod began to migrate back into the bay.

Fish harvesters have many questions about the migratory patterns and the influence of mixing of other stocks. They strongly recommend more tagging be done to help answer these questions.

Fish harvesters recommend: try to blend sentinel into commercial fishing activity, a longer cod trap survey to get more information on recruitment, and spread sentinel activity over 3 seasons (spring, summer, and fall or winter).

Red Harbour

Lawn

Sentinel catch rates show an increasing trend in abundance and the trend agrees with the general consensus of area fish harvesters.

Weather conditions were very unsettled during 1997 with a lot of northeast winds which have traditionally had a very negative impact on

catch rates. With 1997 catch rates being about the same as 1996 (better fishing conditions) this also indicates an increase in abundance.

There seems to be a good sign of 10 to 16 inch cod in the area. Some small cod were tangled by the mouth in all fishing gear, including lump nets. Small cod were caught during the test and food fisheries and "whip sculpins" were feeding on them.

During the test fishery and food fishery, squid were more evident this year. Sea gulls did not return to the area in abundance this year so that suggests bait fish were more abundant elsewhere.

Fish harvesters recommend sentinel surveys be continued.

Lord's Cove

Fish harvesters see an increasing trend of abundance from sentinel catch rates which agrees with their own observations. Cod were very abundant this year and there was a better sign of recruitment.

When sentinel activity occurred at this site it was really done under commercial fishing conditions with commercial type effort. The French were catching loads of cod from Point May to Lords Cove and their gear was set side by side with sentinel gear (same day, same area).

Fish harvesters say observer coverage for the French boats was "lousy" and if the same thing occurs during 1998 there will be "all out war". They feel we have, in effect, allowed cod to grow for the French.

Fish harvesters recommend IQ's for future directed fisheries for cod.

Rencontre East

Harbour Breton

Seal Cove/Hermitage

Francois

Ramea

There is no change in abundance indicated by sentinel catch rates which agrees with the observations of local fish harvesters. The abundance of cod is directly related to the amount of bait fish. When squid moved into

the area, cod were more abundant; when bait fish were present catch rates improved.

Fish harvesters recommend expanding the survey to cover all four seasons. Additionally, they feel the amount of gear used is an impediment to covering all the fishing ground. To correct the situation, more gear is recommended .

Burgeo

Response From "ALL" Committees

Of the 44 questionnaires sent, 8 responded and a total of 106 fish harvesters participated. The questionnaire (figure 2) asked fish harvesters to compare their results during the "test" fishery of 1997 with their results from the last commercial fishery in 1993.

St. Brides

Cod Traps - The largest body of cod arrived with the caplin after the cod trap quota had been taken. There was an increase in the average size of cod but there were cod from 18 to 24 inches and some were nearly too small to sell.

Gill Nets - Catch rates during 1992 were 30 to 50 pounds per net but during the test fishery they had increased to 300 to 500 pounds per net. Bait was scarce in the spring. Cod during the fall season were fatter than during the spring.

Trawls - There were big and small (probably more small) cod caught on trawls.

Hand Lines - There was a lot of small cod caught in shoal water and big cod caught in deep water.

The timing of the test fishery was perfect. Caplin were scarce.

As evident in the catch from all gears (big and small cod) there seems to be a fair share of recruitment.

Fair Haven

Cod Traps - Catch rates were 10 to 15 times better than during 1993. There was a good range of small to large fish.

Gill Nets - Catch rates during this (time of 1997 test fishery) particular season during 1993 were 20 to 25 pounds per net but during the test fishery they were 150 to 500 pounds per net. The catch from 5.5 to 7 inch mesh nets showed an excellent range of cod sizes.

Trawls - Catch rates were excellent and much better than 1993.

Hand Lines - Catch rates were excellent and cod ranged from small to big.

Bait fish appeared to be very plentiful. Cod were in excellent condition.

There is plenty of recruitment as evidenced by the small cod seen in cod traps and around wharves.

Fisheries for all species produced a high by-catch of cod.

Monkstown

Cod Traps - Catch rates weren't all that good and most cod were the size caught in 5.5 inch mesh gill nets.

Gill Nets - Catch rates were good the first day, poor the second day, and hardly anything the third day. During October, catch rates were low.

Trawls - catch rates were really good in some areas and not very much in others. Cod were mostly from 55 to 75 centimeters in length and in excellent condition. There wasn't much smaller (as traditionally) cod caught on trawls.

Hand Lines - Catch rates ranged from low to fair and the locations where cod were found were "spotty". Cod averaged about 50 centimeters in length.

The timing of the fishery was fine but boat quotas would give everyone equal access and a better quality fish would be produced.

There is a very small abundance of caplin and the herring fishery has destroyed stocks to a point where enough for lobster bait cannot be caught. Squid were very abundant during 1997.

The lack of small cod caught in cod traps and on trawls has area fish harvesters very concerned.

Fish harvesters recommend boat quotas, like those in the crab fishery, to ensure a better sharing of the resource.

Petite Forte

Cod Traps - It was hard to tell how plenty cod were because the quota was caught so quickly. Cod were in cod condition and ranged in sizes from 14 to 34 inches.

Gill Nets - Cod were in deeper water than usual (from 20 to 70 fathoms), ranged in sizes from 18 to 30 inches and were in good condition, and were very plentiful in inland areas and off on the banks.

Trawls - Cod were as plentiful out on the banks as they were inshore, in good condition, and ranged from 16 to 40 inches. As evident from 700 to 800 pounds per 400 hooks, cod were very plentiful.

Hand Lines - Cod were plentiful but a lot smaller than those caught on trawls. Fish harvesters feel the size was influenced by the use of feather hooks.

Timing of the fishery did not negatively impact catch rates. However, poor weather conditions during times when gear **HAD** to be removed from the water created serious safety problems.

Herring were very plentiful. There were a lot of caplin (mostly male) during June and July and they were small.

There were some small cod caught on trawls and hand lines during the fishery (12 inches and up).

Fish harvesters recommend "boat quotas" for a commercial fishery to ensure safety and fair sharing.

St. Lawrence

Cod Traps - There were no cod in shoal water until August therefore, cod traps did not catch any cod in July.

Gill Nets - Cod were in deep water (40 to 50 fathom) and the average catch per net for 5 to 6 hours soak time was about 100 pounds. In comparrison, during 1993 catch rates were about 20 pounds per net for 48 hours soak time.

Trawls - During the first two quota periods, cod were glutted on sand lance and caplin and the fishery wasn't successful. However, during the last opening fish harvesters averaged 100 pounds per line compared to 20 to 30 pounds per line during 1993.

Hand Lines - Weren't used extensively but when they were catches were up to 2000 pounds per day compared to 300 to 500 pounds per day during 1993.

The water was cold early and cod stayed in deeper water. During the fishery catch rates were good during periods of north east winds. This is unusual as this wind has traditionally caused catch rates to be poor.

Sand lance were fairly abundant in the spring, caplin did not show up in large amounts, there was some herring, and there was a good sign of squid in the fall.

There was a good sign of small cod in the trawl fishery, cod averaged 15 to 18 inches. There were a lot of cod in the 12 to 15 inch range in the hand line and fly hook fishery.

Fish harvesters saw a good sign of cod this year. However, they are concerned that with a quota of $\frac{1}{4}$ of previous annual landings only allowing a fishery of 7 days during 1997, how will they ever be able to have a normal 6 month fishery.

St. Jacques/English Harbour West/Mose Ambrose

Cod Traps - Not used.

Gill Nets - Catch rates have improved since 1993, cod appeared healthy, and ranged in sizes from small to large

Trawls - Catch rates have improved since 1993, cod appeared healthy, and appeared to be larger.

Hand Lines - Catches were good and there were a variety of small, medium and large cod which appeared healthy.

During the May and June fisheries cod were plentiful and weather conditions were suitable. During August cod were not as abundant which is consistent with previous years results. The October fishery was (not completed when the meeting was held) proving to be difficult due to poor weather conditions.

The trawl and hand line fisheries caught more small cod than the gill net fishery and, overall, there seemed to be good recruitment.

Herring, Mackerel, and Squid were abundant but there appeared to be a lack of Caplin.

Harbour Breton

Cod Traps - Not used.

Gill Nets - Catch rates were not high but cod were big.

Trawls - Catch rates were a lot better and cod were a lot bigger than during 1993. Some small cod were caught but not a lot.

Hand Lines - Cod were in good condition.

The first two quotas were caught quickly and the timing was not what fish harvesters wanted. During the last quota period weather conditions were bad.

There were lots of herring and some caplin.

Fish harvesters feel the fishery should be opened on a commercial basis and not as a test fishery.

Burgeo

Cod Traps - Not used.

Gill Nets - Cod were of good size and in good condition.

Trawls - In the beginning cod seemed to be of large size but in the later part of the season there were more small cod in certain places. During the October portion of the fishery cod were caught in a mixture of sizes (small, medium and large) much like previous winter fisheries.

Hand Lines - Were used during the food fishery and landings were good.

Fish harvesters feel the way quotas were structured and the amount of effort in areas east of Burgeo meant that quotas were caught and the fishery was closed before they could get a sense of where cod were on the fishing grounds. They feel had things been different maybe a better picture, for the time of year, would have been obtained.

Bait fish were scarce. There were some squid and caplin but herring and mackerel were scarce. Cod were feeding on anything they could find, including small cod.

Gill Nets (5.5"), Trawls, and Cod Traps

Gill nets, trawls, cod traps and hand lines were used to conduct the survey. However, hand lines were used for the first time during 1997, by only two sites, for a short period of time. This summary analysis focused on data from nets, trawls and traps.

Gill nets and trawls have been the gear types used most extensively and the gear types that have provided the most overlap during all three years of the survey.

Figure 3 shows catch rate information for nets and trawls for overlap weeks in 1995, 1996 and 1997.

Figure 4 shows the per haul average estimate for cod traps during 1997 with the per haul average for overlap weeks during 1995 and 1996.

Chart 1 shows gill net data from figure 3.

Chart 2 shows trawl data from figure 3.

Chart 3 shows the overall average catch rates for the overlap weeks from figure 3.

Chart 4 shows the overall survey averages for 1995, 1996 and 1997 for gill nets and trawls.

Chart 5 shows the overall average weight per cod for 1995, 1996 and 1996 from gill nets and trawls.

Chart 6 shows the overall average estimated weight per haul from cod traps for the 1997 survey and the average estimated weight per haul for the overlap weeks during 1995 and 1996.

Small Mesh Survey Design

During 1997 we surveyed with 3.25 inch mesh gill nets. Of the 16 sites in 3Ps, 4 used this mesh size.

All sites followed the same procedures:

- one 5.5 and one 3.25 inch mesh net were set as 1 fleet, a minimum of once per week.
- all cod from each net were kept separate from each other and the cod from this fleet was kept separate from all cod caught in other gear.
- Cod from this fleet (and each net) were measured, counted, weighed, and recorded on separate data forms.

There are two factors that were thought might influence the catch rates and pose a problem for making comparisons. Those factors were:

- the catch-ability of the 3.25 inch mesh verses the 5.5 inch mesh net.
- the observation of fish harvesters that small and large cod do not generally congregate in the same area.

Catch-ability

The question was, would the fact that the 3.25 inch mesh net had more "holes" per square foot than the 5.5 inch mesh net mean that the catch-ability of the 3.25 inch mesh was higher. If the two nets were "fishing" for the same time could the 3.25 inch mesh net potentially catch more cod ?

The 3.25 inch mesh nets were "hung" in the same manner as the 5.5 inch mesh nets. The area covered by the 3.25 inch mesh net is 337 square feet less than the area covered by the 5.5 inch mesh net (3.25" is 1,462 sq. ft. and the 5.5" is 1,800 sq. ft.).

Based on past sentinel results, we have caught up to 300 cod in one 5.5 inch mesh net. It can be reasonably assumed the "saturation" point of the 5.5 inch mesh net is a minimum of 300 cod. During the use of the two mesh sizes the highest number of cod taken from the 5.5 inch mesh net was 198 and the overall 3Ps per net average was 68 cod per net.

The coverage area of the 3.25 inch mesh net is less than the 5.5 inch mesh net and the saturation point of the 5.5 inch mesh was never obtained. Therefore, it can be reasonably assumed comparisons between the two mesh sizes can be made.

Observation of Fish Harvesters

The 3.25 inch mesh net did not appear to target cod under 35 centimeters in length. There was no indication or evidence (at least during this experiment using 3.25" mesh) that the observation (small cod do not congregate.....) was a negative influence on the catch rate from the 3.25 inch mesh. That is not to say there would not be a negative influence if a mesh size smaller than 3.25" was used.

The number of cod caught in each net varied greatly but there appeared to be no trend in the number from each net. The overall ratio of the number of cod was the same in depths of water under and over 30 fathoms. Sometimes the number of cod from the 3.25 inch mesh exceeded the number from the 5.5 inch mesh, sometimes it was vice versa. Sometimes there were equally low numbers from each mesh size and sometimes there were equally high numbers from each mesh size.

The overall ratio of the number of cod from the 3.25" mesh verses the 5.5" mesh was 1.5(3.25" mesh) to 1(5.5" mesh). Although not evident, if the catch rate from the 3.25" mesh was negatively influenced by the observation it is reasonable to assume that resulting conclusions (from this experiment) about the abundance of small cod would be understated.

Data Analysis

The following analysis was completed from the catch from the 3.25 inch mesh and the catch from the 5.5 inch mesh that was tied to it.

The average weight from the 3.25 inch mesh net was 2 to 3 pounds and from the 5.5 inch mesh was from 4.5 to 5 pounds. The ratio of the number of cod from the 3.25 inch mesh net per 1 from the 5.5 inch mesh net was **1.53 to 1**

Figure 5 shows the results from each mesh size from each site.

Chart 7 shows the average catch from each mesh size and the overall average for the division.

During 1996, North Harbour and Little Harbour East did some survey work with these mesh sizes. However sampling and recording procedures were changed during 1997 and some days, during 1996, the small mesh nets was used with mesh sizes other than 5.5 inch. While an

accurate comparrison cannot be made between 1996 and 1997 catch rate results, they were similar

Sentinel Before/After First Phase of the Test Fishery

The week immediately before the test fishery began, a number of sentinel sites began the 1997 survey. With few exceptions, survey work was not conducted during periods when the test fishery was ongoing but resumed after each quota allocation was caught.

Commercial catch rates during 1997 were considered high and quotas were caught very quickly. While there were concerns related to management issues and the impact of the TAGS income limit, fish harvesters consider the test fishery a success. Overall, catch rates from the commercial fishery (as commented by fish harvesters) were not significantly different than those of sentinel during 1995 and 1996.

Figure 6 shows the catch rates from those sites that surveyed immediately before and after (with the same gear type) the first quota allocation was caught. Also shown are the sentinel catch rates from the same weeks during 1995 (we did not survey those weeks during 1996).

Charts 8 and 9 shows the data from figure 6.

EARLE McCURDY
President

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REG ANSTEY
Secretary-Treasurer

October 7th 1997

Michael Dyson
Black Tickle
Labrador
A0K 1N0

Dear Mike,

The 1997 sentinel survey at your site has concluded and now the process of interpreting the information you collected has begun. As we have stated in the past, the input of fish harvesters from your area is a crucial part of that process.

As per clause 1.2 of your 1997 sentinel contract, we now need your help to ensure all fish harvesters in your community are given an opportunity for input. Please contact the chair of your local committee and request he/she set up a meeting.

Enclosed are two copies of a report form we need completed at that meeting. One copy is for your committee and the other is to be returned to me. To ensure fish harvester's interpretation of sentinel data is included in our presentations to assessment and management officials, **I need this form completed and returned to me by November 7th.**

Thank you for your cooperation in giving this matter your immediate attention.

Yours truly


Harvey Jarvis

Coordinator, 2J3KL3Ps sentinel

Figure 1, Page 1

Fish Harvester Interpretation of Sentinel Results (1997)

Black Tickle

The information provided to you with this form contains catch rate information for the weeks surveyed during 1997. Additionally, for all weeks surveyed during 1997, the catch rates for the corresponding weeks during 1995 and 1996 are included. The average weight per cod caught (for nets, trawls and hand lines) during 1996 and 1997 are provided. The comment section of the weekly report filed by the sentinel enterprise owner are also included.

Based on the information provided and the observations of fish harvesters in this area please comment on the following:

There may be certain trends in sentinel catch rates. If so is that trend indicating a decline, no change or increase in abundance of cod.

No trend Decline No Change Increase

If there is a trend in sentinel catch rates, does that trend agree with the general consensus of fish harvesters in this area. yes No

Comments

The same mesh and/or hook size were used during 1996 and 1997 but the average head-on-gutted weight per cod, at most sites, did not remain the same. Based on your experience and knowledge, what does the average per cod weight change (if any) at this site mean.

Figure 1, Page 2

Although a previous request asked for information concerning the status of cod in your area, please comment here on any signs of recruitment you have observed during 1997.

Please record any additional information you feel can help in the interpretation of sentinel data.

Figure 1, Page 3

Recommendations for 1998

Sentinel Enterprise Owner

Committee Chair/Vice-Chair

Date of Meeting

Return Completed Form To
Harvey Jarvis
c/o The FFAW
P. O. Box 10
2 Steers Cove
St. John's
A1C 5H5

Figure 1, Page 4

Summary Of 1997 Commercial Test Fishery (3Ps)

(community or communities represented by committee)

In comparison with 1993, for each of the gear types listed below, please comment on catch rates, condition and, size of cod during the test fishery of 1997.

Cod Traps

Gill Nets

Figure 2, Page 1

Trawls

Hand Lines

Please comment on factors such as (but not restricted to) test fishery timing, weather and, oceanic conditions that may have had a positive or negative effect on your results.

Please comment on the abundance or lack of abundance of bait fish (caplin, herring, lance, etc.).

Information concerning recruitment or small cod

Additional comments.

Date of Meeting _____

Number of fish harvesters present for the completion of this report _____

Committee Chairperson

Committee Vice-Chairperson

Figure 2, Page 3

**1995, 1996, 1997 Overlap
Gill Nets and Trawls**

Gill Nets												
St. Brides	23-Jun	7-Jul	4-Aug	11-Aug	1-Sep	8-Sep	15-Sep					Overall
Average Weight Per Net (1995)	94.2	140.4	80.0	128.3	182.4	24.0	69.8					102.7
Average Weight Per Net (1996)	171.5	230.3	83.0	160.8	32.8	87.9	40.4					115.2
Average Weight Per Net (1997)	284.2	200.7	199.1	85.7	235.3	192.8	201.9					200.0
Fox Harbour	8-Sep	15-Sep	6-Oct	13-Oct	20-Oct	27-Oct	3-Nov	10-Nov				Overall
Average Weight Per Net (1995)	61.5	190.7	151.8	123.3	370.6	348.0	210.2	200.2				207.0
Average Weight Per Net (1996)	51.3	91.4	98.5	134.6	117.5	410.7	428.3	338.8				208.9
Average Weight Per Net (1997)	75.5	68.7	45.2	91.8	31.3	431.6	370.7	333.3				181.0
Little Harbour East	3-Nov	10-Nov	17-Nov	1-Dec	8-Dec							Overall
Average Weight Per Net (1995)	423	307	278	417	402							365
Average Weight Per Net (1996)	964	228	698	834	460							637
Average Weight Per Net (1997)	570	794	535	896	521							663
North Harbour	3-Nov	10-Nov	17-Nov	24-Nov	1-Dec	8-Dec	15-Dec	29-Dec				Overall
Average Weight Per Net (1995)	515.7	515.7	392.9	551.2	422.3	480.6	598.9	311.8				473.6
Average Weight Per Net (1996)	945.3	945.3	797.1	361.6	643.6	581.4	496.3	403.2				646.7
Average Weight Per Net (1997)	557.9	715.6	735.7	695.4	576.7	364.7	540.5	442.8				578.7
Monkstown	23-Jun	7-Jul	14-Jul	28-Jul	4-Aug	1-Sep	8-Sep					Overall
Average Weight Per Net (1995)	87.5	256.0	237.5	185.0	165.0	63.3	68.8					151.9
Average Weight Per Net (1996)	287.4	307.0	272.8	420.2	208.0	55.6	36.7					226.8
Average Weight Per Net (1997)	291.6	163.9	220.3	365.4	276.1	136.5	88.4					220.3
Lords Cove	11-Aug	18-Aug	25-Aug	1-Sep	8-Sep							Overall
Average Weight Per Net (1995)	120.3	203.9	134.5	242.5	75.5							155.9
Average Weight Per Net (1996)	146.7	226.5	173.7	88.2	119.8							151.0
Average Weight Per Net (1997)	109.3	151.9	81.9	67.5	37.5							89.6
Trawl												
Arnolds Cove	29-Sep	13-Oct	20-Oct	27-Oct	3-Nov	10-Nov	17-Nov	24-Nov	8-Dec	15-Dec		Overall
Average Weight Per 500 Hooks (1995)	462.9	631.0	933.3	986.7	522.7	999.7	609.3	625.0	555.6	640.7		696.7
Average Weight Per 500 Hooks (1996)	160.4	175.8	488.3	663.6	927.5	1216.7	1037.2	942.0	906.7	588.4		710.7
Average Weight Per 500 Hooks (1997)	113.1	43.3	144.7	242.2	672.8	628.9	720.7	806.4	714.6	1045.3		513.2
Little Paradise	26-Aug	8-Sep	15-Sep	22-Sep	29-Sep	6-Oct	20-Oct					Overall
Average Weight Per 500 Hooks (1995)	383.3	639.2	420.0	451.9	536.7	587.2	723.6					534.6
Average Weight Per 500 Hooks (1996)	373.1	287.8	256.5	298.5	350.7	382.3	445.8					342.1
Average Weight Per 500 Hooks (1997)	458.1	260.7	285.6	408.7	218.3	679.4	551.7					408.9
Red Harbour	25-Aug	1-Sep	15-Sep	22-Sep	29-Sep	6-Oct	20-Oct					Overall
Average Weight Per 500 Hooks (1995)	418.3	282.7	628.0	371.0	297.5	225.5	280.8					357.7
Average Weight Per 500 Hooks (1996)	424.8	199.8	252.3	226.0	260.4	220.6	273.8					265.4
Average Weight Per 500 Hooks (1997)	110.2	214.5	319.6	111.1	334.3	1504.4	304.3					414.1
Rencontre East	3-Nov	10-Nov	17-Nov	24-Nov	1-Dec	8-Dec	15-Dec	22-Dec	29-Dec			Overall
Average Weight Per 500 Hooks (1995)	179.5	279.7	550.7	589.4	599.1	544.6	693.0	701.2	589.7			525.2
Average Weight Per 500 Hooks (1996)	217.7	364.3	506.0	487.7	675.0	692.5	525.3	435.7	377.8			475.8
Average Weight Per 500 Hooks (1997)	59.8	60.0	146.7	417.7	493.3	450.7	503.0	570.3	337.3			337.6
Harbour Breton	10-Nov	17-Nov	24-Nov	1-Dec	8-Dec	15-Dec						Overall
Average Weight Per 500 Hooks (1995)	285.5	493.7	224.5	394.3	369.0	348.8						352.6
Average Weight Per 500 Hooks (1996)	597.7	572.5	569.0	604.5	446.0	505.3						549.2
Average Weight Per 500 Hooks (1997)	151.5	185.2	422.5	324.4	272.3	323.2						279.9
Seal Cove/Hermitage	3-Nov	10-Nov	17-Nov									Overall
Average Weight Per 500 Hooks (1995)	428.2	324.8	278.7									343.9
Average Weight Per 500 Hooks (1996)	492.5	518.5	644.7									551.9
Average Weight Per 500 Hooks (1997)	130.5	175.2	140.8									148.8
Francois	25-Aug	8-Sep	22-Sep									Overall
Average Weight Per 500 Hooks (1995)	700.0	426.0	656.7									594.2
Average Weight Per 500 Hooks (1996)	632.3	468.2	817.7									639.4
Average Weight Per 500 Hooks (1997)	377.8	284.0	254.0									305.3
Ramea	8-Sep	15-Sep	22-Sep	6-Oct								Overall
Average Weight Per 500 Hooks (1995)	362.5	227.3	319.8	193.0								275.7
Average Weight Per 500 Hooks (1996)	338.3	361.8	357.0	200.3								314.4
Average Weight Per 500 Hooks (1997)	350.5	207.7	126.2	287.2								242.9

Figure 3

Cod Traps
Average weight Per Haul

	<u>1995</u>	<u>1996</u>	<u>1997</u>				
Little Paradise	n/a	2,889	4,692				
Red Harbour	300	130	3,271				
Lords Cove	5,500	592	7,415				
Above is the average estimated "live" weight per haul for cod traps. The numbers under 1997 represent the average per haul for the 1997 survey. The number under 1995 and 1996 represent the average per haul for the weeks that overlap with 1997.							

Figure 4

3.25 vers 5.5 Inch Mesh

			Number of Nets	# From 3.25"	Per Net	Per Net
	# of cod – 3.25"	# of cod – 5.5"	(each mesh size)	per 1 From 5.5"	3.25"	5.5"
St. Brides	231	537	8	0.43	28.9	67.1
Little Harbour East	1327	632	8	2.1	165.9	79
North Harbour	1108	765	8	1.45	138.5	95.6
Lawn	549	174	7	3.16	78.4	24.9
Overall	3215	2108	31	1.53	103.7	68

Figure 5

Sentinel Catch Rates

Before and after the first commercial quota allocation was caught.

Gill Nets (Placentia Bay)		
Little Harbour East	12-May	2-Jun
Average Weight Per Net (1995)	76.1	95.8
Average Weight Per Net (1996)		
Average Weight Per Net (1997)	251.2	231.3
North Harbour	12-May	2-Jun
Average Weight Per Net (1995)	52.8	83.8
Average Weight Per Net (1996)		
Average Weight Per Net (1997)	223.6	224.4
Monkstown	12-May	2-Jun
Average Weight Per Net (1995)	84.5	39.2
Average Weight Per Net (1996)		
Average Weight Per Net (1997)	35.4	144.7
Trawls (Fortune Bay and west)		
Rencontre East	12-May	26-May
Average Weight Per 500 Hooks (1995)	158.3	65.8
Average Weight Per 500 Hooks (1996)		
Average Weight Per 500 Hooks (1997)	323.3	115
Harbour Breton	12-May	26-May
Average Weight Per 500 Hooks (1995)	336.3	195
Average Weight Per 500 Hooks (1996)		
Average Weight Per 500 Hooks (1997)	272.3	197.5
Francois	12-May	26-May
Average Weight Per 500 Hooks (1995)	274.8	177.5
Average Weight Per 500 Hooks (1996)		
Average Weight Per 500 Hooks (1997)	384.8	249.3
Ramea	12-May	26-May
Average Weight Per 500 Hooks (1995)	250	316.7
Average Weight Per 500 Hooks (1996)		
Average Weight Per 500 Hooks (1997)	295.2	118

Figure 6

Gill Nets
Overlap Weeks 1995, 1996 and 1997

Average weight Per Net

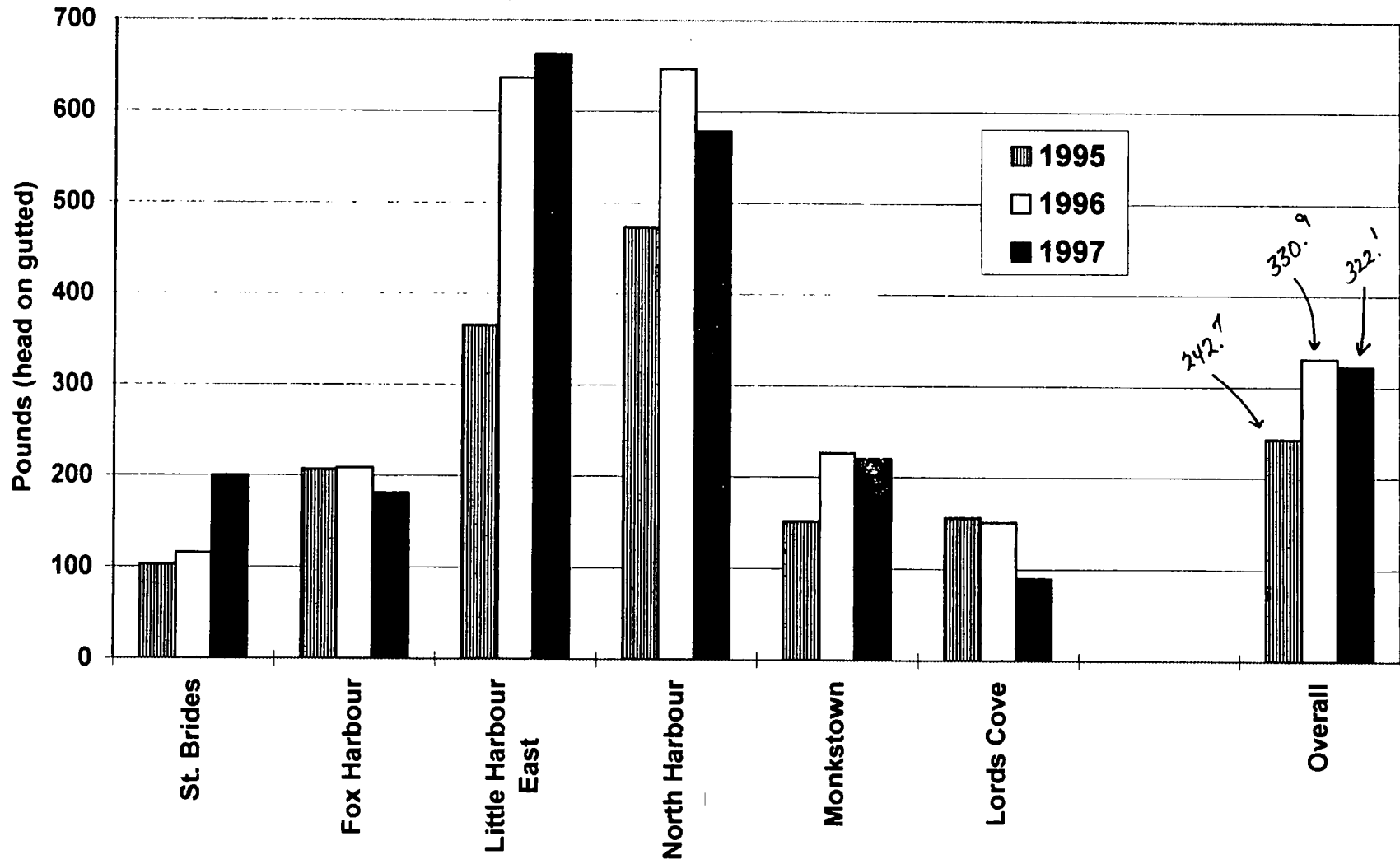


Chart 1

Trawls
Overlap Weeks 1995, 1996 and 1997

Average Weight Per 500 Hooks

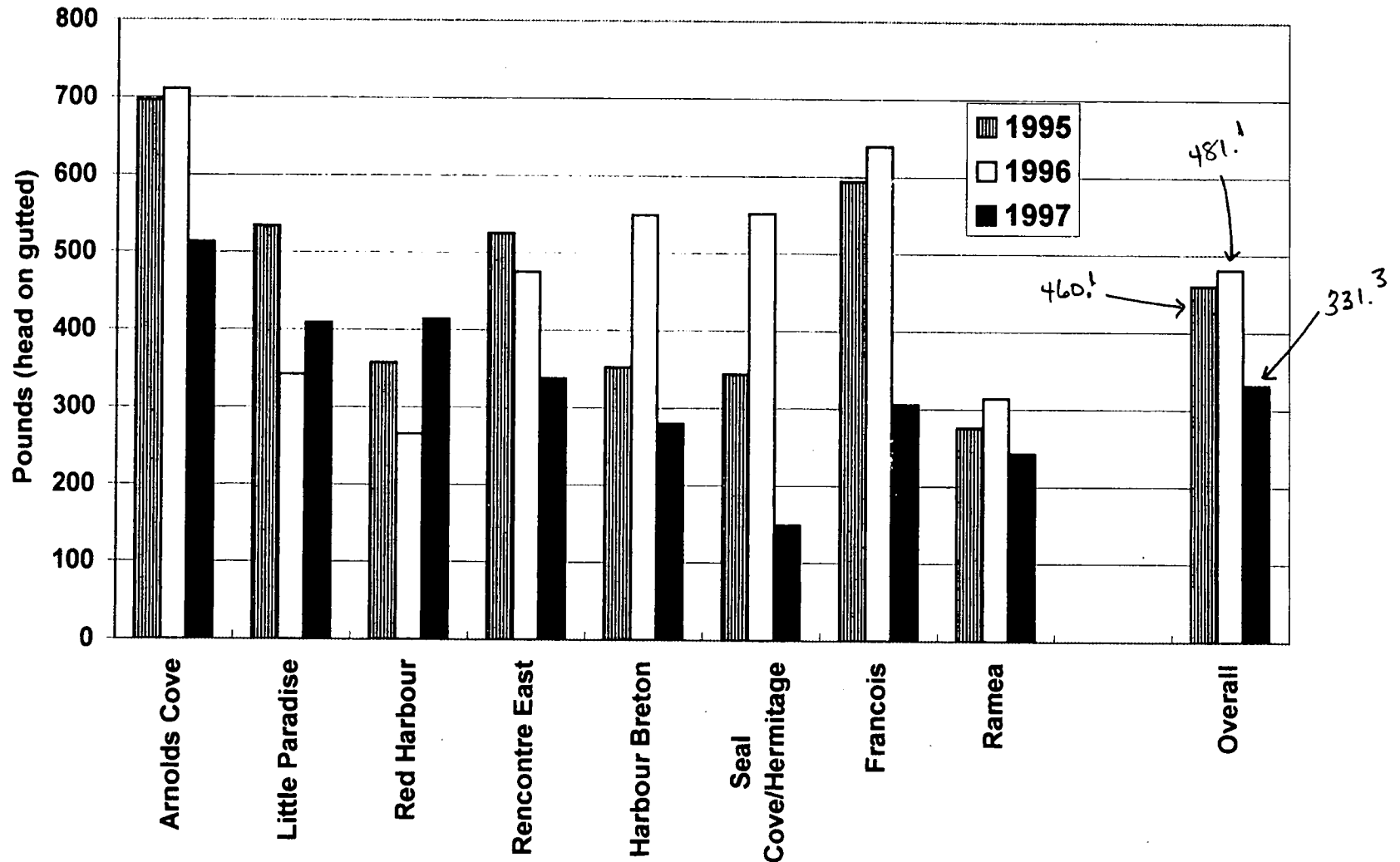


Chart 2

**Average Overlap Catch Rates
1995, 1996 and 1997**

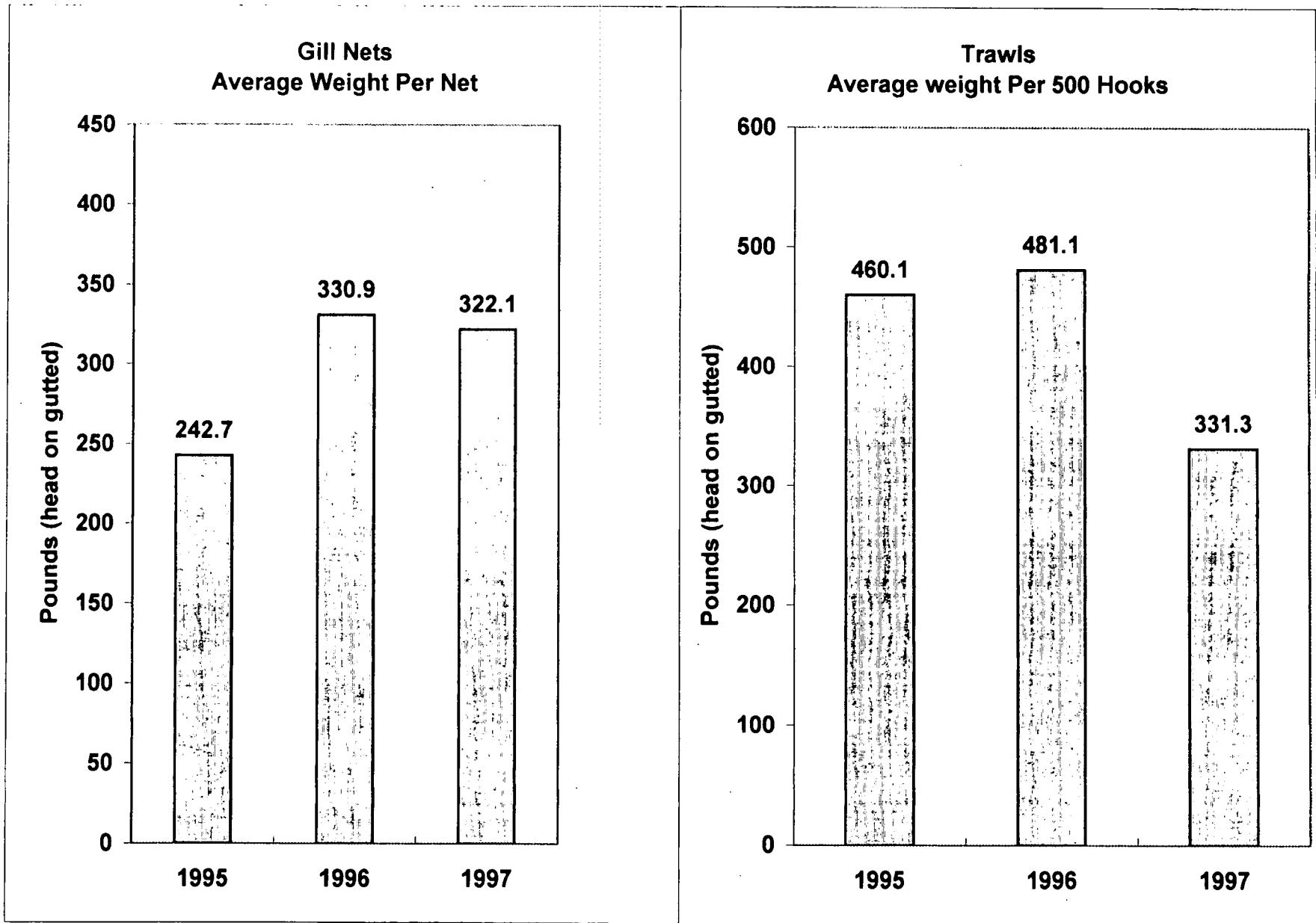


Chart 3

1995, 1996 and 1997 Overall Catch Rates

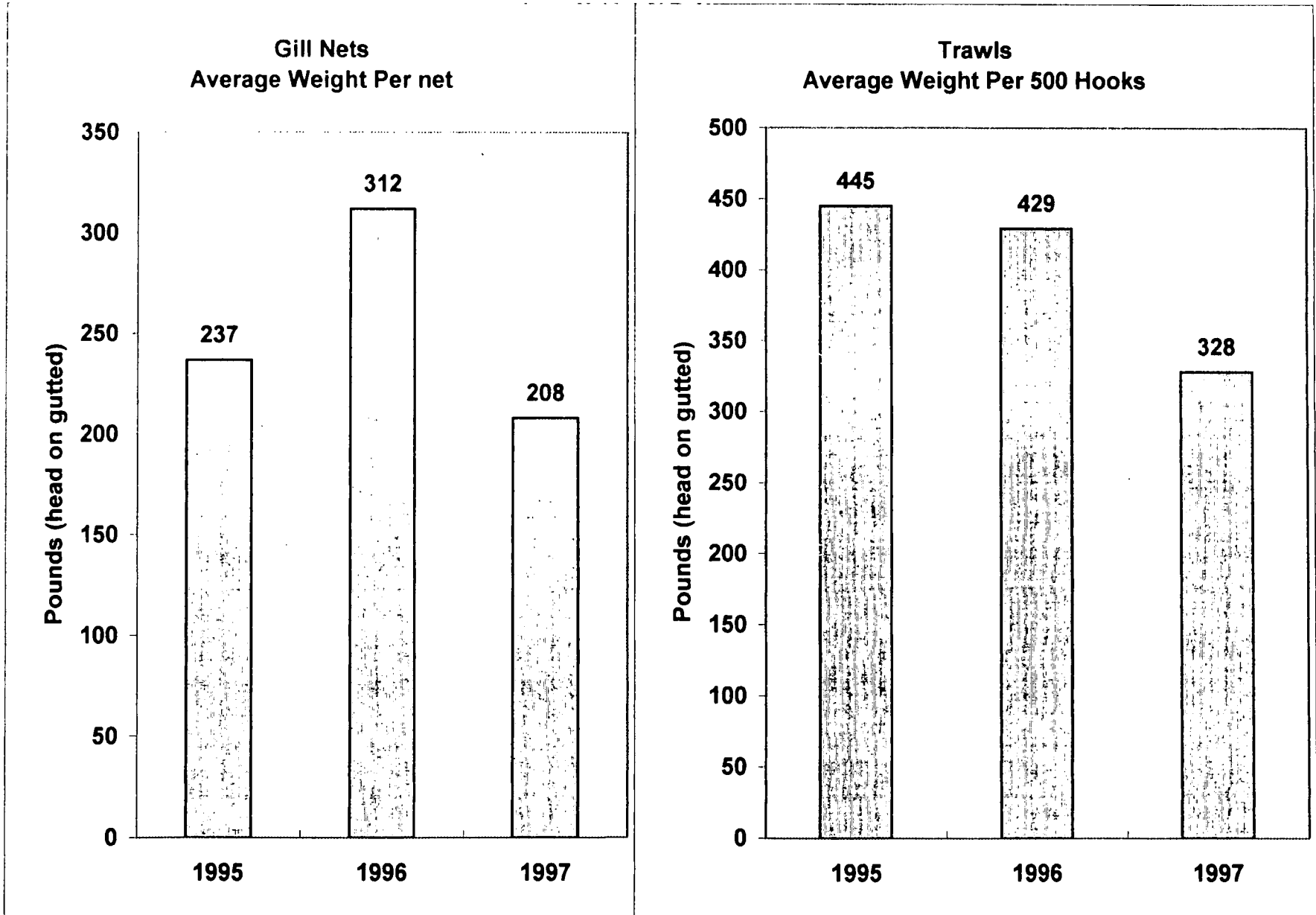


Chart 4

Average Weight Per Cod

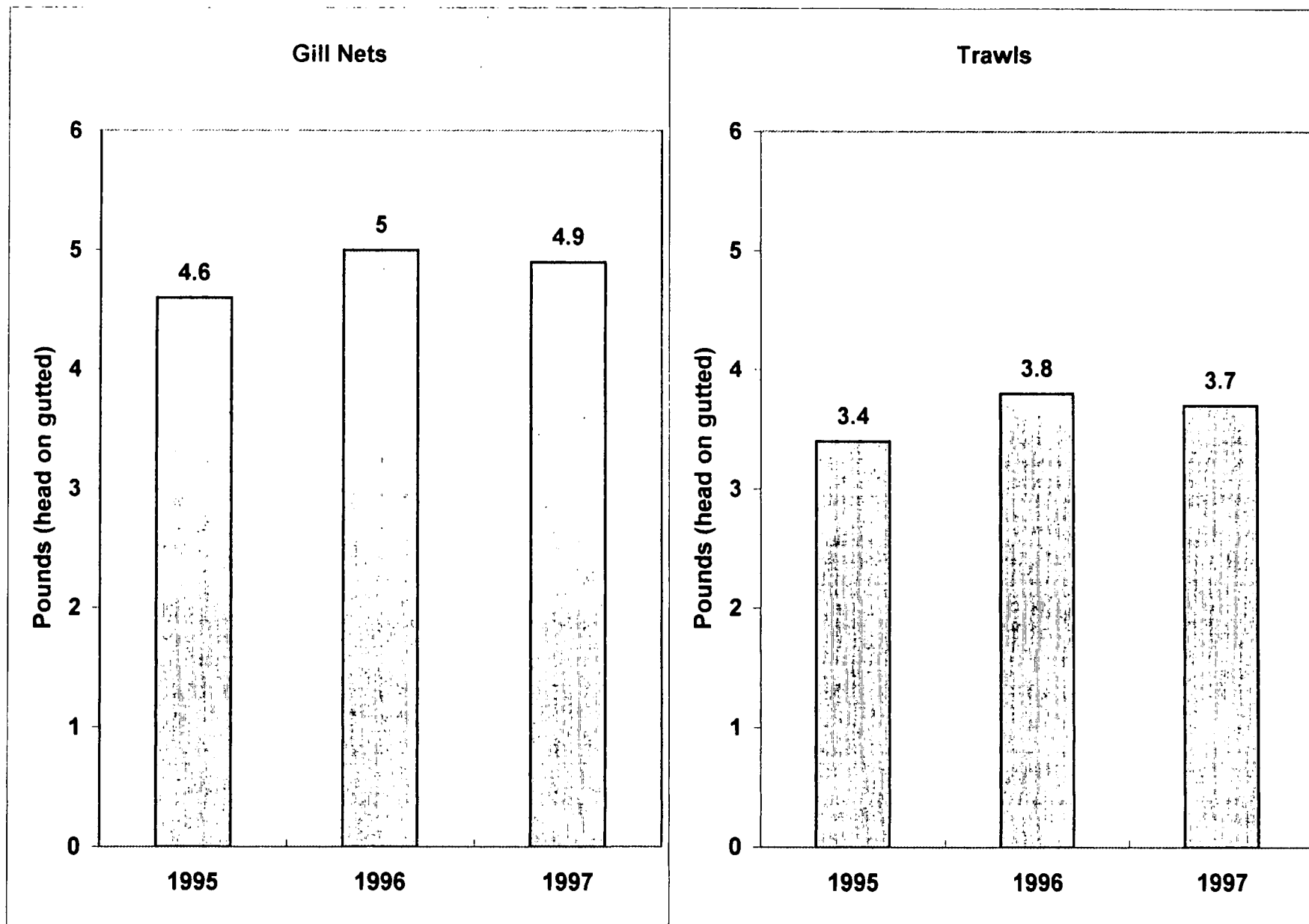


Chart 5

Cod Traps

Average Estimated Weight Per Haul

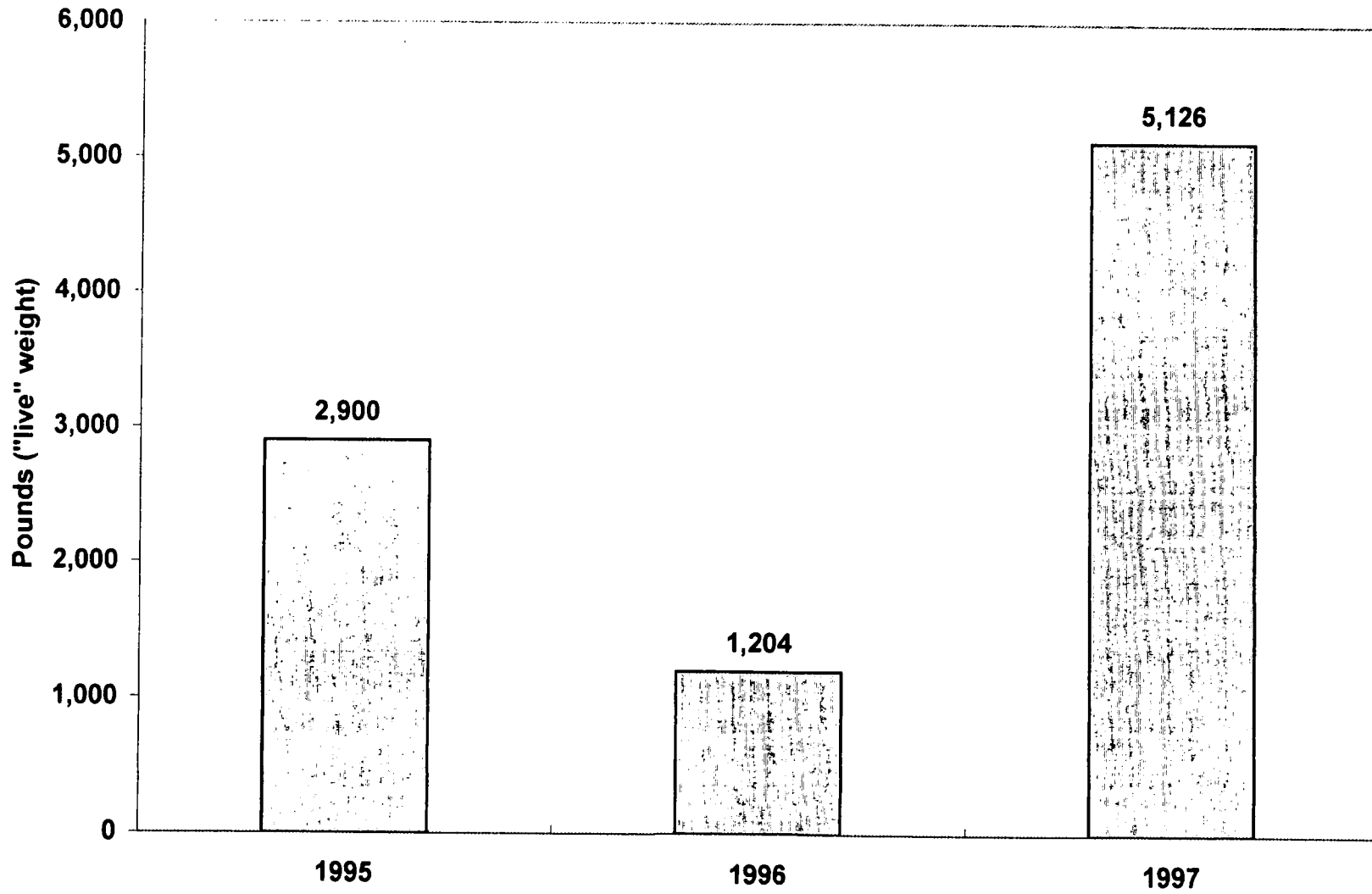
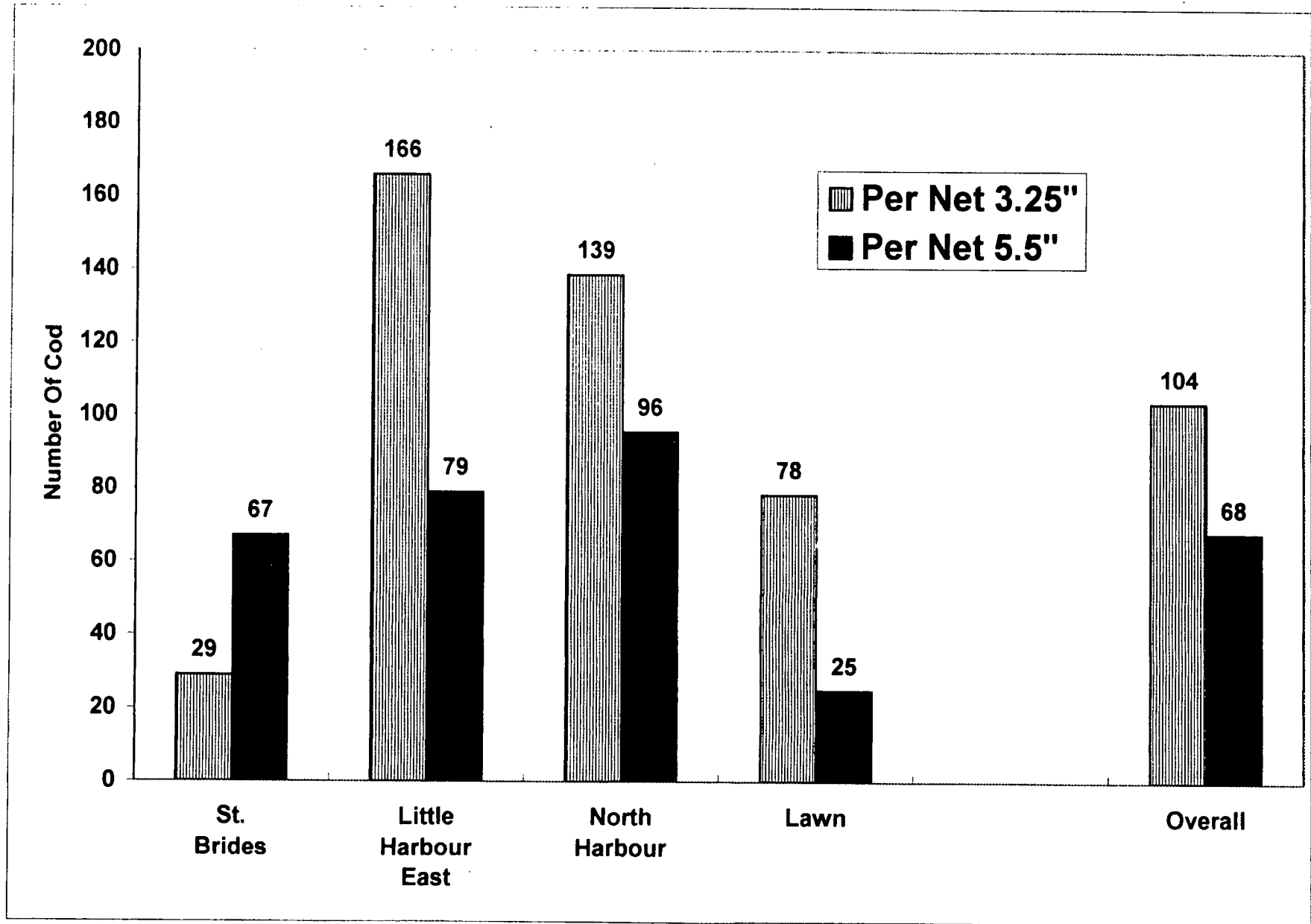


Chart 6

1997 Average Catch Per Net
3.25 vs. 5.5 Inch Mesh



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Chart 7

Sentinel Catch Rates - Placentia Bay
Immediately before and immediately after the first quota allocation was caught.

	Little Hr. East	North Hr.	Monkstown	Overall
12-May	251.2	223.6	35.4	170.1
2-Jun	231.3	224.4	144.7	200.1

Gill Nets
Average Weight Per Net

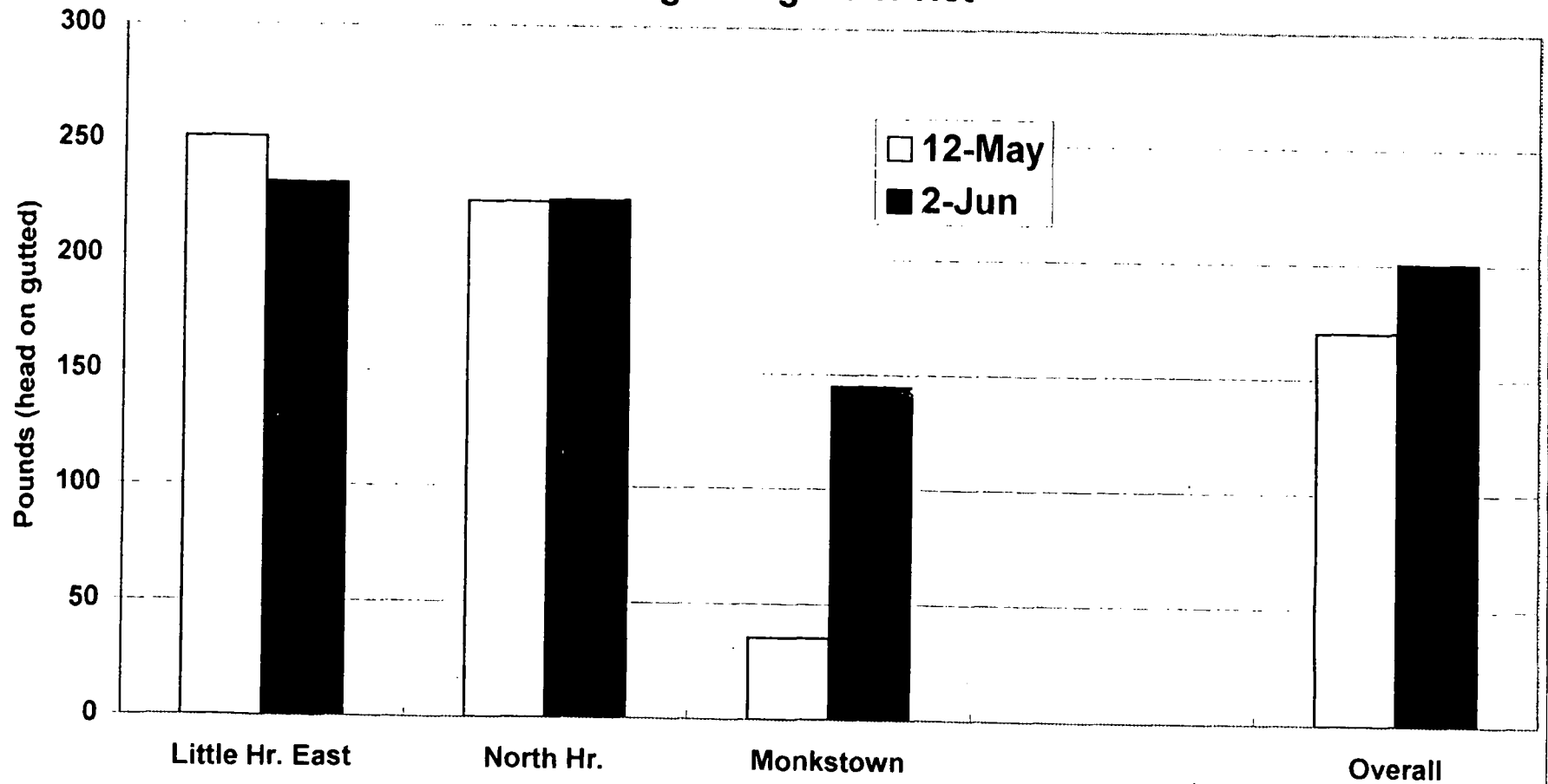


Chart 8

**Sentinel Catch Rates - Fortune Bay and west
Immediately before and immediately after the first quota allocation was caught**

	Rencontre East	Harbour Breton	Francois	Ramea	Overall
12-May	323.3	272.3	384.8	295.2	318.9
26-May	115.0	197.5	249.3	118.0	170.0

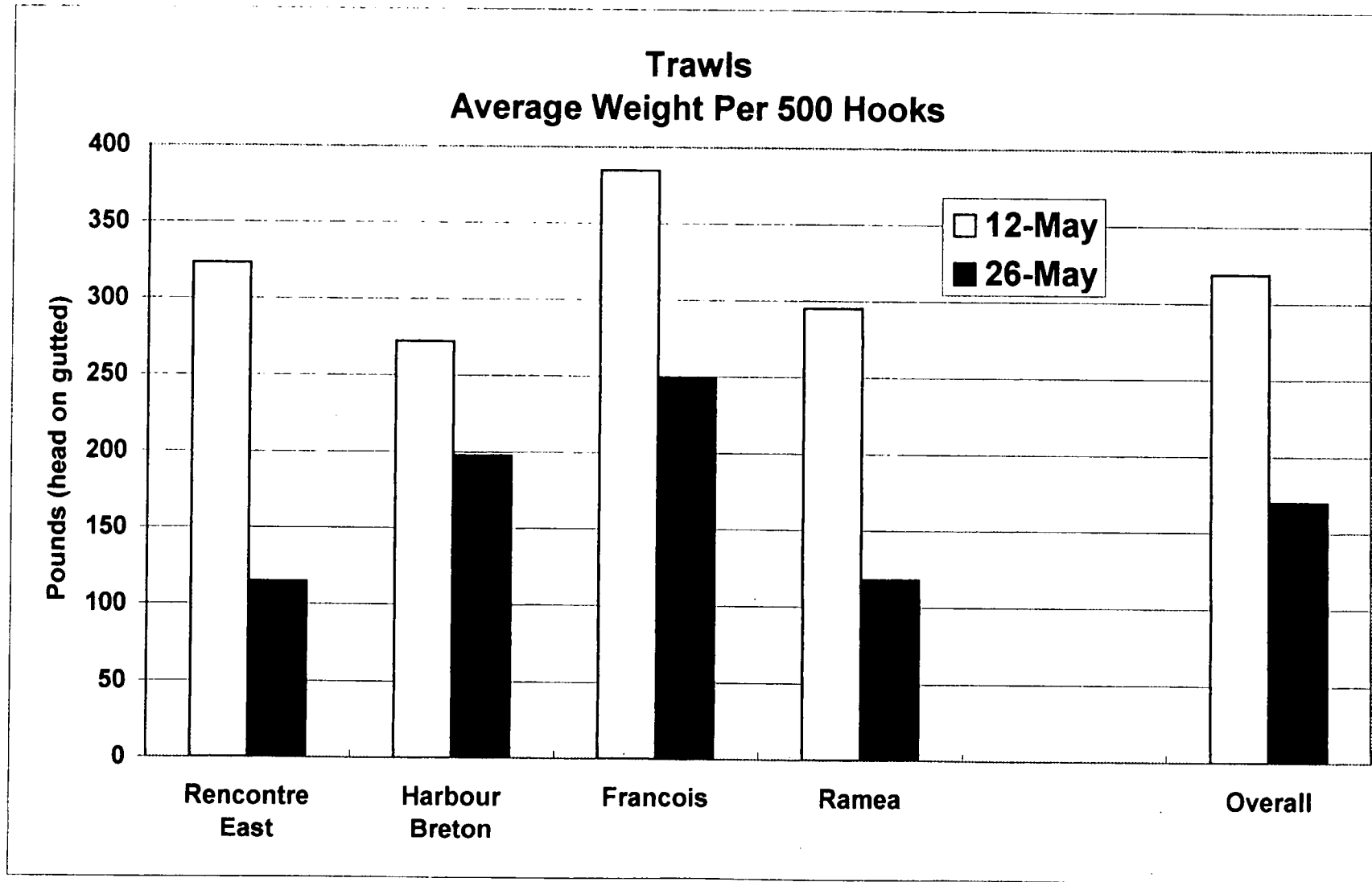


Chart 9