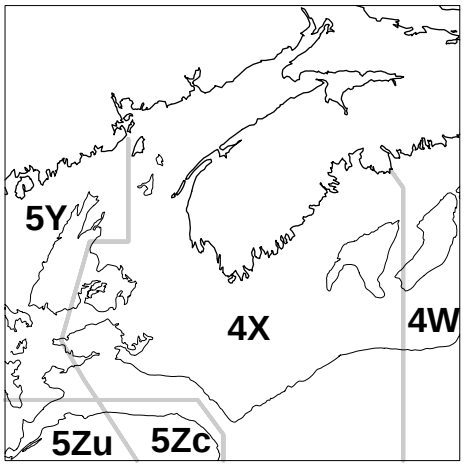
SOUTHWEST NOVA FLATFISH



Background

Flatfish are bottom dwelling fishes primarily associated with soft substrate (mud and sand bottom). They are unique among other fish in being asymmetrical, both eyes lying on one side of the highly flattened body. They commence life swimming in the normal manner but early in life they start to swim on one side, and the eye on the underside migrates to the upper side. Flatfishes lie on the bottom on the blind side. Principle food items include crustaceans, molluscs, polychaete worms and small fishes. All four commercially important species fished in the 4X area (winter flounder, witch flounder, American plaice and yellowtail flounder) are right eyed flounders.

Up to and including 1993, flounders were managed as one stock complex (4VWX). In 1994, the management area was divided into an eastern (4VW) and western (4X) component and the overall Total Allowable Catch (TAC) reduced to 10,000, with 4,500t allocated to the 4X area based on catch history. The 1995 management plan set a TAC of 7,500t which was partitioned between 4VW and 4X giving the western component a TAC of 3,375t. This allocation included winter flounder.The flounder fishery in 4X was placed under the Individual Transferable Quotas (ITQ) program in August 1994.

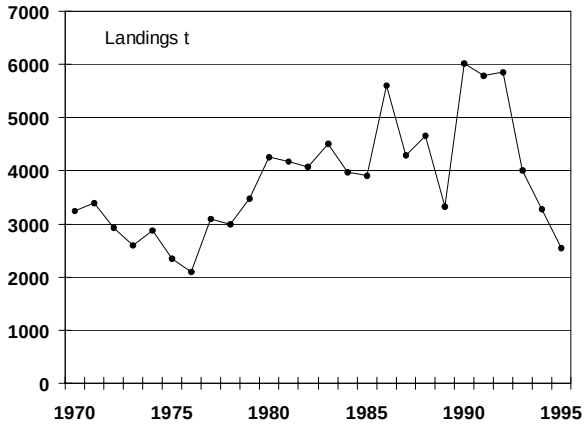
Management of the four species together under one TAC reflects the fact that it has to date been impossible to obtain reliable statistics on landings by each species separately. A system initiated in the late 1960s which assigned landings to species based on regional keys, and equated local names with official ones for each species was abandoned in 1991. However, the system which replaced it (ITQ logs and dockside monitoring of landings) was unsuccessful in assigning more than one-third of the landings in 4X to individual species because landings were not separated at weighout or were misidentified by the weighmaster. Separation by species, although requested formally in 1993 (letter to ITQ holders and weighmasters) was never enforced. The absence of reliable landing statistics makes it difficult to determine the level of exploitation for the individual species. The bulk of landings in 4X are made up of winter flounder and witch flounder. Plaice and yellowtail make a relatively small contribution to the fishery.

The Fishery

Landings (thousands of tonnes)

Year	70-79 Avg.	80-89 Avg.	1991	1992	1993	1994	1995
TAC*						4.5	3.4
Canada	2.7	4.2	5.8	5.9	4.0	3.3	2.5
Foreign	0.2	0.1	0.1	0.1			
TOTAL	2.9	4.3	5.8	5.9	4.0	3.3	2.5

* New management unit established in 1994.



Total landings in 1995 for flatfish in 4X amounted to 2,538t, a decrease from 3,277t taken in the 1994 fishery. Landings for the greater than 65ft mobile gear fleet have been insignificant in the 4X area since the early 1980s. Fixed gear landings decreased from

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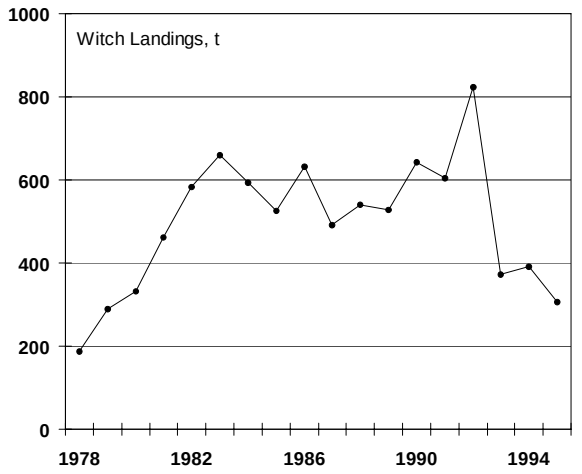
214t in 1994 to 52t in 1995. For witch flounder (the species usually identified in the catch statistics due to higher price), landings have declined significantly since 1993 to a low of 306t in 1995. Most of the catch is taken by the less than 65ft mobile gear fleet. Allocations in 1995 were not restrictive, even though landings for that fleet dropped by about 20%. Unspecified flounder continued to make up a large proportion (45%) of the flatfish landings in 1995. The 1996 TAC is 3,400 t.

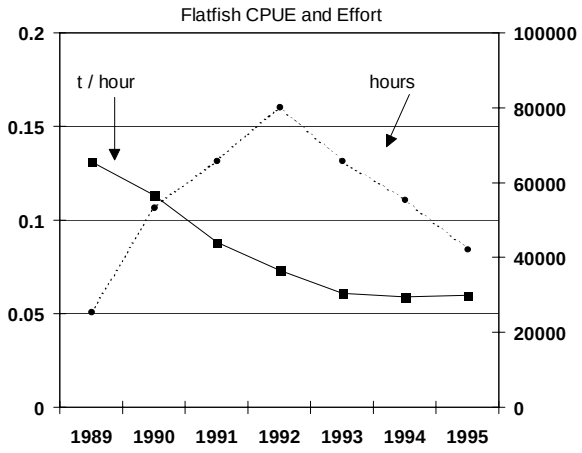


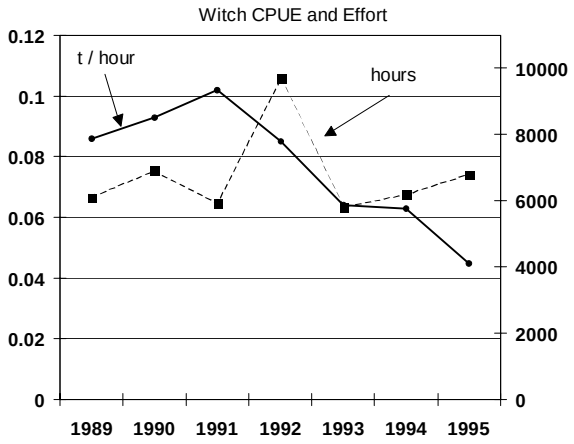
In 1995, the commercial fishery was conducted on Browns Bank and in the Bay of Fundy area for winter flounder. The witch flounder fishery was more widespread throughout 4X. There is very little directed fishery for plaice and yellowtail flounder.

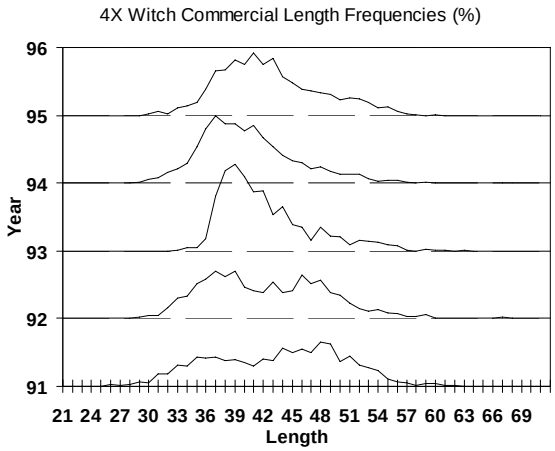
Resource Status

Stock status evaluations were based on the commercial landings and size composition, the commercial catch rates for combined flounders, and survey abundance indices and size composition by species.

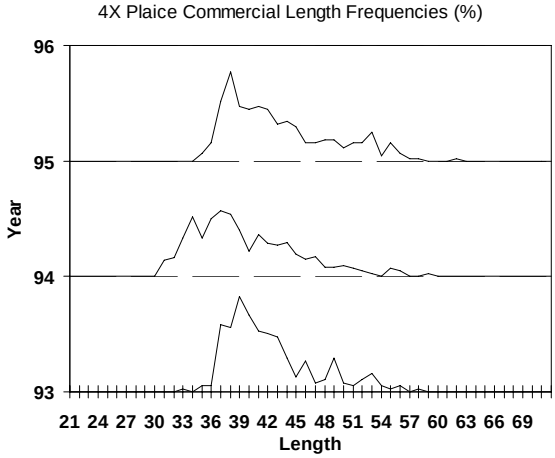
Commercial catch rates of all flounders declined between 1989 and 1992 and has remained stable since, while total effort has declined since 1992. In 1989, the 4X fishery was closed in June resulting in both low catch and effort in that year. Effort on flatfish then increased to 1992, possibly due to the introduction of ITQs and interest by the ITQ fleet to develop a catch history in flatfish. For witch flounder, catch rate initially increased between 1989 and 1991 with effort relatively stable. In 1992, coincident with high landings, catch rate declined and effort increased significantly. Catch rates have continued to decline while effort after the peak in 1992 has declined back to pre 1992 levels. During this period catches declined sharply. Reports in 1994 indicated that a redirection of effort to Georges Bank yellowtail may have occurred. Given the reduced 400t quota on Georges bank yellowtail in 1995, this should not have been a major factor. In addition restrictions in other fisheries (e.g. quota, closed areas) may have impacted the fleet's ability to fish flounder.

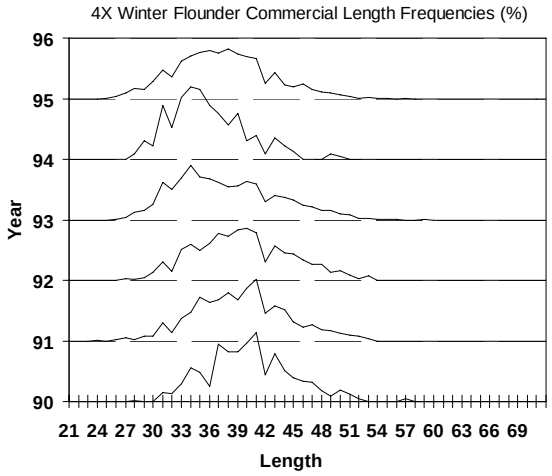






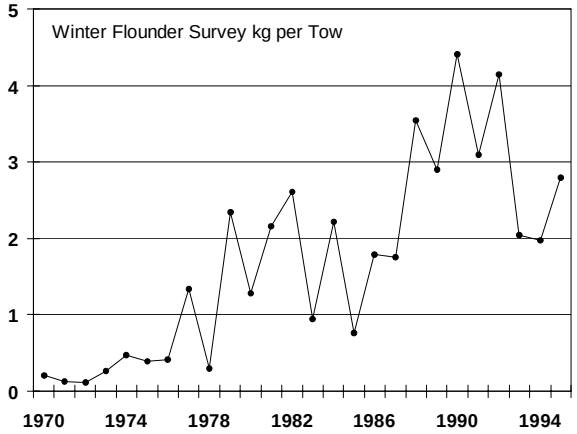
Length frequencies of commercial fishery landings for witch and winter flounder show an apparent shift to a smaller modal length during 1990 and 1994. This is not sustained with the addition of the 1995 length frequency. Yellowtail and plaice represent a small portion of the landings and while a short time series based on few samples is available for plaice, a time series is not available for yellowtail.





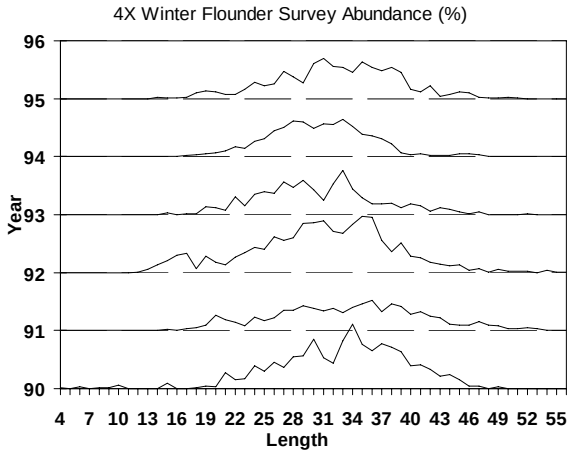
Winter Flounder

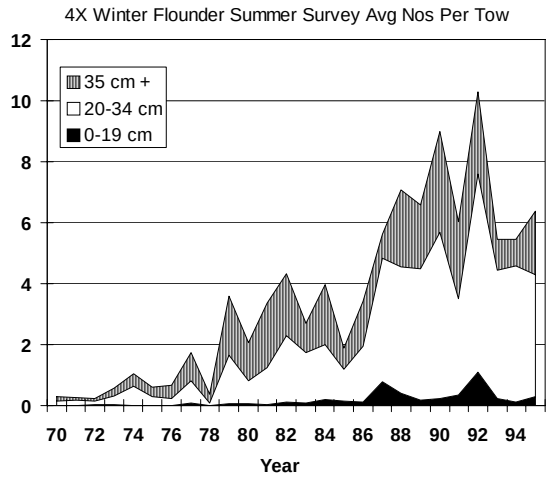
Survey biomass estimates of winter flounder increased in the late 1980s and have remained at a relatively high level since. The 1993 to 1995 points have declined, while remaining above the long-term average.



It should be noted that the summer survey does not cover the inshore portion of 4X which is thought to contain a large proportion of the winter flounder resource.

Survey length frequency distributions indicate that the abundance of fish less than 35 increased in the mid 1980s and has remained relatively stable since. While overall abundance has increased since the mid 1980s, the numbers of large winter flounder have declined. However, in 1995 the number of fish greater than 35cm show a slight increase.

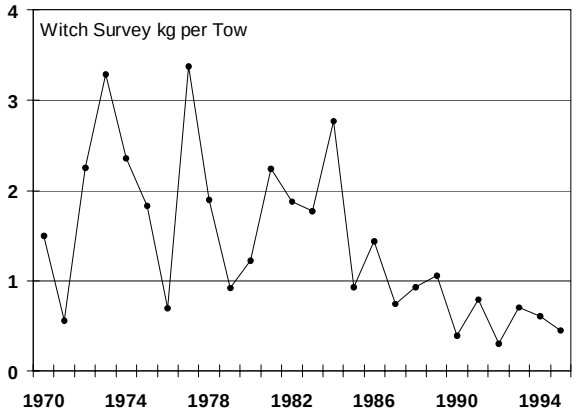




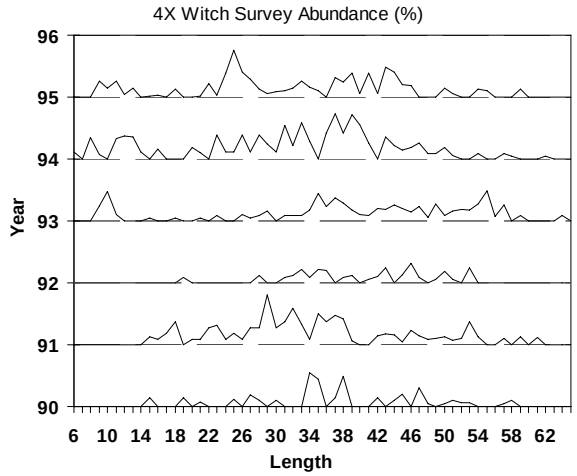
In summary, survey abundance estimates for winter flounder in 4X are still relatively high although declining from the early 1990s peak. Industry comments have indicated that no dramatic change is apparent, although some have expressed concern for depletion of winter flounder in localized areas.

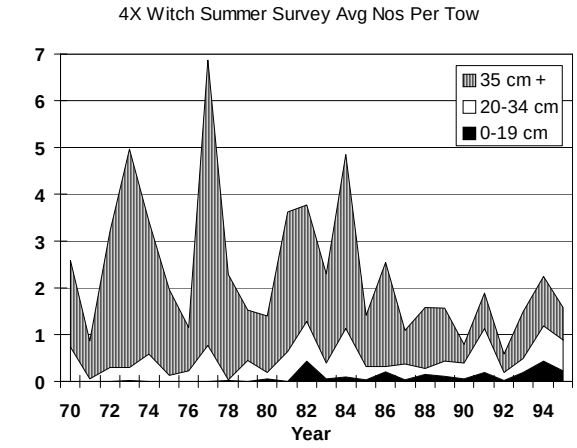
Witch Flounder

Survey biomass estimates for witch flounder exhibit a declining trend since the early 1980s. A small increase in numbers per tow since 1992 as well as the length frequency distribution indicates some incoming recruitment.



Survey length frequencies indicated fewer large fish in recent years and in 1995 fish greater than 45cm are virtually absent from the population; however, larger numbers of small witch flounder were present in recent years.

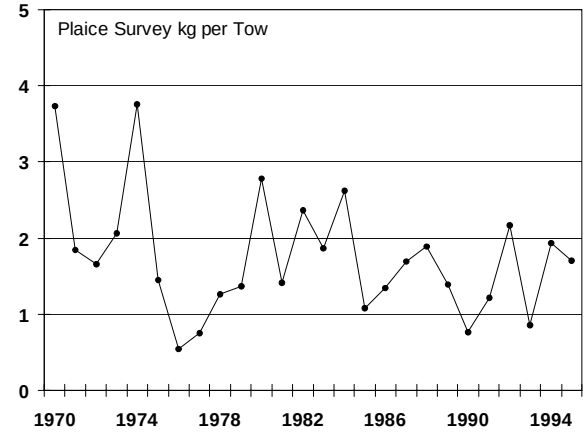




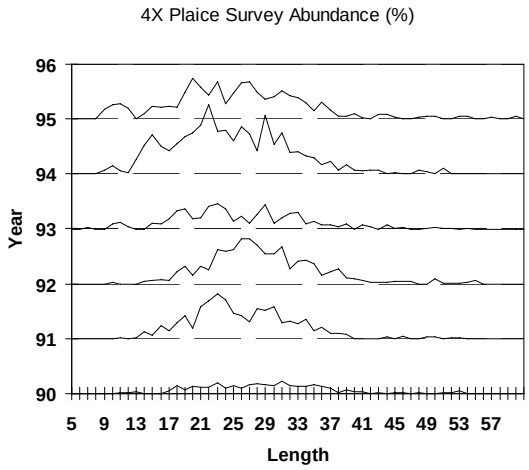
In summary, although there are signs of incoming recruitment the situation for witch flounder in 4X includes a low weight per tow and a reduced proportion of large fish in the population. As well, landings have declined since 1993, even though witch commands a much higher price than other flounders. Industry groups have commented that good concentrations of witch flounder are more difficult to find.

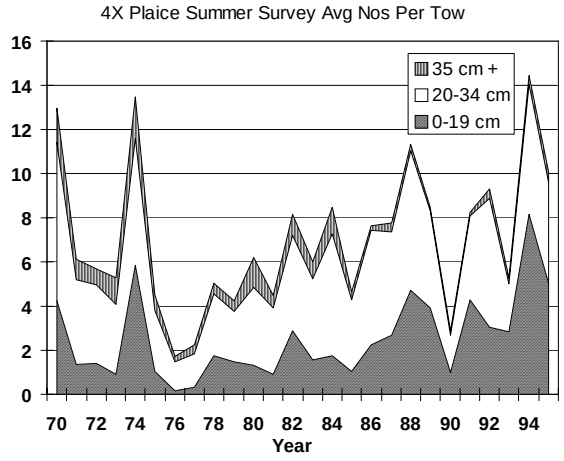
American Plaice

Survey biomass estimates of American plaice, on the other hand, have been variable and without trend since 1970.



Survey length frequency distributions show that there are fewer large plaice currently in the population. Increasing numbers of small plaice have been observed since 1993.

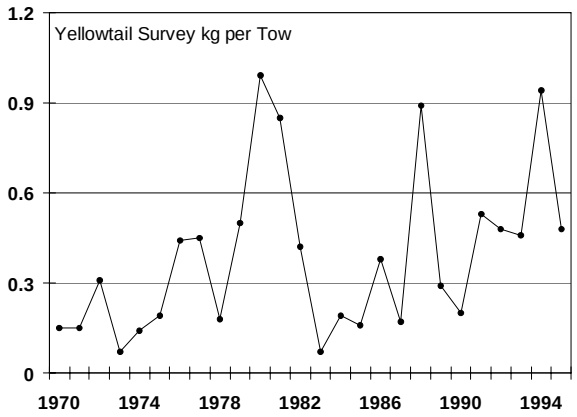




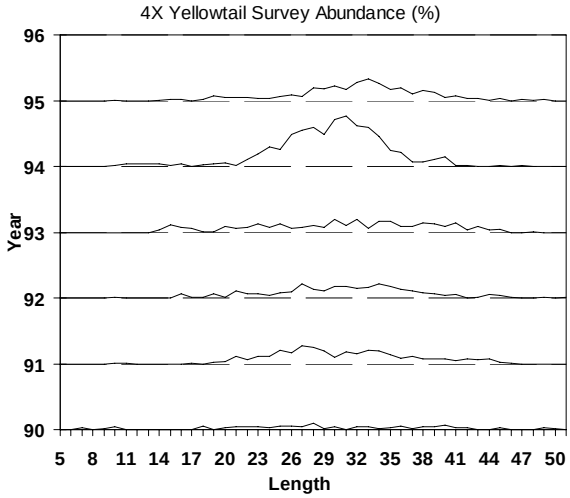
In summary, indices for American plaice have been relatively stable with some indication of incoming recruitment.

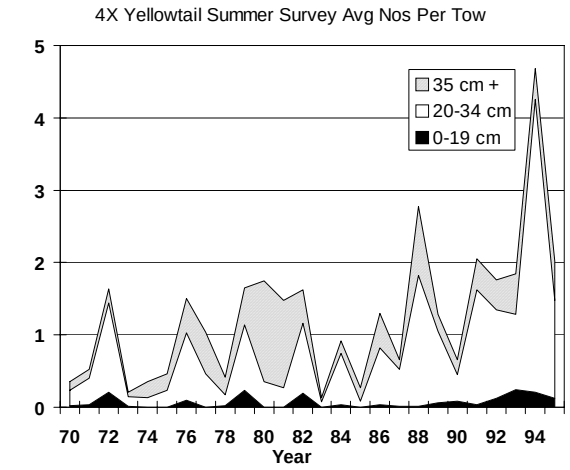
Yellowtail

Survey biomass estimates of yellowtail have increased since the early 1980s. Numbers and weight per tow reached an historic high in 1994 and remain at relatively high levels.



Survey length distributions are highly variable, reflecting low catch rates. In summary, yellowtail appears to be either stable or increasing with modest incoming recruitment.





Outlook

Winter flounder, the primary species fished in 4X and also the two species of minor importance, plaice and yellowtail, appear to be maintaining their abundance. It is noted, however, the survey does not cover the inshore fishing grounds. Witch flounder continues to decline in abundance. The size distribution has been relatively stable in the 1990-1995 period although for witch, and to a lesser extent winter flounder, there has been a decline in the abundance of large fish in the 1990s.

Landings declined by about 20% from the 1994 level and catch rate for witch flounder has declined since 1991. Reduced landings may be accounted for by a reduction in overall effort. Witch effort did not show a decline even though industry indicated some difficulty in catching both witch and winter flounder in some areas.

Overall, resource prospects for 1997 remain reasonable for most of the flounder resource with the exception of witch flounder. Incoming recruitment may be cause for cautious optimism. Therefore, catches at the level of the 1995 TAC of 3,375t are likely to be sustainable. Catches at this level could be taken with the amount of effort observed in the 1995 flatfish fishery. If effort is reduced in this fishery, relative to 1995 levels, catches would be expected to be below the 1995 levels as well.

However as noted previously, witch flounder is an exception, and the extent of the declines in survey abundance, commercial landings, catch rates and size range, suggest protective measures directed at witch flounder, are warranted for the 1996 and 1997 fishery. Continued catches in the order of 300-400t will likely cause a continuation of this downward trend, particularly of the mature component of the stock. In light of the continued decline of mature biomass at recent harvest levels, at this time witch flounder appears unable to sustain a directed fishery. Moreover, a directed fishery on witch flounder at this time would be wasteful of incoming recruits which could contribute to a larger spawning biomass and greater catches if allowed to survive and grow.

Some industry groups have expressed concern about particular localized winter flounder aggregations. As was stated last year, given that these are highly localized, and the extent of mixing unclear, there are important biological advantages to distributing catches among local aggregations. Consideration should also be given to developing a management plan that recognizes the possibility of several population units that may be changing abundance at different rates.

Separation of flatfish catch by species continues to be a problem, Measures intended to improve the separation of flatfish in catch reporting have not been effective to date. Until existing measures are enforced effectively or alternative measures such as the incorporation of the plant weighout by species into the log/purchase slip documents through the use of the Dockside Monitoring Program (DMP) are implemented, the ability to assess the status of the individual flatfish species will be seriously weakened.

For More Information

Contact:

Chris Annand
Marine Fish Division
Bedford Institute of Oceanography
P.O. Box 1006, Dartmouth
Nova Scotia, B2Y 4A2

TEL: (902) 426-3514
FAX: (902) 426-9710
E-mail: c_annand@bionet.bio.dfo.ca

References

Annand, C., and D. Beanlands. 1996. An update of the status of and 4X flatfish stocks. DFO. Atl. Fish. Res. Doc. 96/31.