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Issues in the Management of Native Domestic Fishing in the Northwest Territories

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ISSUES IN THE MANAGEMENT OF NATIVE DOMESTIC FISHING IN THE NORTHWEST TERRITORIES

by

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ABSTRACT

Yaremchuk, G.C.B., and B. Wong. 1989. Issues in the management of native domestic fishing in the Northwest Territories. Can. Manuscr. Rep. Fish. Aquat. Sci. 2010: iv + 10 p.

Possible improvements to regulations and programs related to native domestic fishing in the Northwest Territories (NWT) are discussed. The Department of Fisheries and Oceans (DFO) gives first priority in the allocation of fishery resources to native domestic fisheries. These fisheries are essentially unregulated. Native domestic fishermen are prohibited from giving their catch to persons other than natives and from selling or wasting their catch. DFO provides a lower level of service to the native domestic fishery than to other fisheries in the NWT. There is no comprehensive program for monitoring the harvest taken by native domestic fisheries.

The settlements of comprehensive native land claims will establish many of the rules and procedures for management of fisheries in the NWT. DFO should promote the establishment of native domestic fishing quotas and of licence or registration systems for native domestic fishermen through consultation. In the absence of quotas, stocks should be managed by deducting an estimate of the native domestic harvest from the safe harvesting level for a stock. Restrictions on the disposition of products of the native domestic fishery are necessary where there are no limits on the sizes of harvests. Improved monitoring of the native domestic harvest is a prerequisite for improvement of DFO's fishery management programs in the NWT. Survey and inventory activities should be expanded to include unexploited stocks. DFO could reduce future conflicts between fisheries by fishery development planning. Monitoring of contaminants, parasites and general quality in the products of native domestic fisheries appears to be insufficient. DFO should improve communication and consultation with native organizations and establish management or advisory boards where appropriate.

Key words: subsistence; fish; native land claims; harvest monitoring; stock assessment; research; co-management.

RÉSUMÉ

Yaremchuk, G.C.B., and B. Wong. 1989. Issues in the management of nativedomestic fishing in the Northwest Territories. Can. Manuscr. Rep. Fish. Aquat. Sci. 2010: iv + 10 p.

L'amélioration possible des règlements et des programmes relatifs à la pêche autochtone de subsistance dans les Territoires du Nord-Ouest (T. du N.-O.) est examinée. Le ministère des Pêches et des Océans (PO) attribue, en priorité, les ressources halieutiques à la pêche autochtone familiale qui, essentiellement, n'est pas réglementée. On interdit aux pêcheurs autochtones de céder leurs captures à des non-autochtones, de les vendre ou de les gaspiller. L'aide offerte par PO aux pêcheurs autochtones se situe à un niveau inférieur comparativement aux autres types de pêche dans les T. du N.-O. Il n'existe pas de programme global de surveillance des captures effectuées par les pêcheurs autochtones.

Le règlement global des revendications foncières autochtones permettra d'établir bon nombre de règles et de méthodes de gestion de la pêche dans les T. du N.-O. PO devrait promouvoir, par le biais de consultations, l'établissement de quotas pour la pêche autochtone familiale et de systèmes d'enregistrement ou d'octroi de permis à l'intention des pêcheurs autochtones. En l'absence de quotas, les stocks devraient être gérés en soustrayant une estimation de la récolte familiale du niveau de récolte considéré sans danger pour le stock. La réglementation de la disposition des produits de la pêche autochtone familiale est nécessaire lorsque la taille des récoltes n'est pas limitée. Une meilleure surveillance des récoltes autochtones familiales est essentielle à l'amélioration des programmes de gestion des pêches de PO dans les T. du N.-O. Les relevés et les inventaires devraient être étendus afin de comprendre les stocks inexploités. PO pourrait réduire les conflits futurs entre les divers types de pêche en planifiant l'exploitation halieutique. La surveillance des contaminants, des parasites et de la qualité générale des produits de la pêche autochtone familiale semble être inadéquate. PO doit améliorer ses moyens de communication et de consultation avec les organisations autochtones, et établir, au besoin, des commissions consultatives ou de gestion.

Mots-clés: subsistance; pêche; revendications foncières autochtones; surveillance des captures; évaluation des stocks; recherche; co-gestion.

PURPOSE

The purpose of this manuscript is to review existing Department of Fisheries and Oceans (DFO) policies, regulations and programs related to native domestic fishing in the Northwest Territories (NWT), identify current issues related to the management of the fishery, discuss options for responding to the issues, and propose changes in policies and programs which would improve the services provided by DFO to native domestic fishermen. The manuscript does not review the management of marine mammals, which is addressed in a separate report (Yaremchuk and Wong 1989), nor does it discuss the management of fish stocks in territorial waters adjacent to Northern Quebec.

BACKGROUND AND PRESENT STATUS

NATURE AND EXTENT OF THE NATIVE DOMESTIC FISHERY

The native domestic fishery is defined by the Northwest Territories Fishery Regulations as fishing by an Indian, Inuk or person of mixed blood for the purpose of obtaining food for himself, his family or his dogs or for barter or gift, but not sale, to another Indian, Inuk, or person of mixed blood. The regulations apply to all species of fish, shellfish and crustaceans, but do not apply to marine mammals, which are managed under specific regulations.

The native domestic fishery has several special characteristics. The first is that it is essentially unregulated. A native domestic fisherman can fish at any time in any location, by almost any means, without a licence and with no obligation to report his catch. The intent of this special regulatory treatment is to preserve those elements of native Canadian culture associated with use of fishery resources. The cultural aspect of the fishery and its linkage to aboriginal rights form a second special characteristic. A third characteristic, which the fishery shares with other domestic and, to some extent, recreational fisheries, is that it operates outside the cash economy. The combined effect of these characteristics is to make the fishery largely invisible to government management agencies. The lack of information on the native domestic fishery causes uncertainty in the management of many stocks. It also may cause assignment of too little management effort to the fishery.

Native domestic fisheries occur in the vicinity of all communities in the NWT. The size, species composition and locations of the harvest are poorly documented. McCart and Den Beste (1979) compiled much of the available information on the domestic fishery. The majority of the domestic harvest is taken in the Mackenzie Valley, with over half the Mackenzie Valley harvest coming from the Mackenzie Delta area. Species utilized include lake whitefish (Coregonus clupeaformis), broad whitefish (Coregonus nasus), lake trout (Salvelinus namaycush), inconnu (Stenodus leucichthys), northern pike (Esox lucius), ciscoes (Coregonus spp.), suckers (Catastomus catastomus and Catastomus commersoni), burbot (Lota lota) and Arctic grayling (Thymallus arcticus). Arctic charr (Salvelinus alpinus) are also taken in the Delta. Coastal Inuit communities utilize Arctic charr, whitefish, ciscoes and lake trout. The weight of fish taken in Mackenzie Valley domestic fisheries, including the Delta, has been estimated at 375 000 kg (DIAND/MPS 1973) and 947 382 kg (Berger 1977).

Falk (unpublished data) estimated from fishery officers' reports that native domestic fisheries in the NWT harvest approximately 1 200 000 kg of fish annually. This figure is in general agreement with other estimates. Falk estimated that in 1978 6 000 native persons were engaged in the domestic fishery and 18 000 native persons were dependent on the fishery. The native population of the NWT in 1978 was 30 733.

During its fiscal year 1982-83, the Freshwater Fish Marketing Corporation bought 1 484 000 kg of fish (lake whitefish, walleye, lake trout, northern pike, Arctic charr, inconnu) from commercial fishermen in the NWT. The catch had a landed value of $1 353 000 and a market value of $2 341 000. These figures exclude local sales and some export charr fisheries. An estimated 134 people were employed in the 1982-83 commercial fishery.

During 1985, licensed recreational anglers in the NWT caught an estimated 672 413 fish of all species of which 188 557 were retained for a total harvest of 325 714 kg. There were 16 907 anglers licensed in the NWT that year. The number of days of angling activity is estimated at 172 692. Total direct expenditure by anglers in the NWT was $15 574 537 (DFO 1985).

Given the uncertainty of the statistics and the lack of an agreed basis for measurement of value it is impossible to reach a conclusion on the relative importance of the native domestic, commercial and recreational fisheries. Based on the above figures the native domestic fishery accounts for approximately 40%, by weight, of the annual harvest of fish in the NWT. Native domestic fishermen comprise approximately 30% of all people engaged in fishing activities in the NWT.

POLICIES

The primary policy of DFO on native domestic fisheries is that native domestic fishermen receive first priority in the allocation of fishery resources. This policy ensures that the traditional and cultural needs of natives are safeguarded.

A second related, but unstated, policy is to regulate such fisheries only when regulation is absolutely necessary for the conservation of the resource. Any regulatory agency must balance the benefits of regulation against the burden regulation places on its clients. In the case of DFO and native domestic fisheries this balance is shifted towards the desire of the client for freedom. This is partly the result of historic assurances given to natives that their freedom to hunt and fish would not be unduly restricted by European intrusion.

Today the ability to fish without licence or regulation has acquired a great deal of symbolic value to native peoples as they seek to assert their existence as political and cultural entities. On a more pragmatic level there is concern that restricting native domestic fishing may cause hardship among those natives who still subsist on fish and game.

While the domestic fishery is essentially unregulated with respect to time, location, method, quantity and reporting requirements, the uses to which the fish may be put are regulated very tightly. Native domestic fishermen in the NWT cannot sell fish or give fish to non-natives. This policy of restricting the disposal of fish caught in the native domestic fishery is viewed by many as a corollary of the policies on priority and minimal regulation. If allocation of the resource to the native fishery is based on the high value assigned to personal traditional use and maintenance of culture, then it is unfair to others who seek the right to fish if the fish caught under this allocation are used for another purpose, such as sale. Secondly, because of the small quantities taken by each participant for domestic use, the fishery is less likely than a commercial fishery to damage a stock; the introduction of sale or wide trade in fish caught in the fishery might cause expansion which would deplete stocks.

REGULATIONS

The policies previously outlined are given effect by Section 22 of the NWT Fishery Regulations:

22.(1) Notwithstanding subsections 5(1) and 7(1), an Indian, Inuk, or person of mixed blood may fish without a licence by angling or by means of gill nets, set lines, spears, snares or dip nets, for food for himself, his family, or his dogs.

22.(2) No person shall give any fish caught under the authority of subsection (1) to any person other than an Indian, Inuk, or person of mixed blood.

22.(3) No person, other than an Indian, Inuk, or person of mixed blood, shall accept or be in possession of any fish caught under the authority of subsection (1).

22.(4) No person fishing pursuant to subsection (1) shall waste any fish that is suitable for food.

An Indian is defined as a person entitled to be registered as an Indian under the Indian Act. An Inuk is defined as a direct descendant of a person of the race of aborigines commonly referred to as Eskimos. A person of mixed blood is defined to be any person of at least one-quarter Indian or Inuk blood.

PROGRAMS

Fishery management programs in the NWT are organized largely on a geographical basis. Identification of programs and resources devoted to the management of domestic fisheries is difficult.

Harvest monitoring

DFO does not have a comprehensive program for the collection, publication and storage of statistics on native domestic fishing locations and harvests in the NWT. DFO staff attempt to monitor the native domestic fishery through interviewing community members and through Government of the Northwest Territories (GNWT) Wildlife Officers. This information is neither detailed nor comprehensive and is seldom recorded in any form other than field notes. An exception was a one year study of the native domestic fishery in the Mackenzie Delta, the results of which have not been published.

DFO has contributed funding to harvest studies conducted by native organizations. These studies, by the Baffin Regional Inuit Association (BRIA) and Keewatin Wildlife Federation (KWF), attempt to obtain a comprehensive record of the domestic wildlife harvest, but did not identify the waterbodies in which fishing took place (Donaldson 1983, Gamble 1984). DFO currently is participating in the Inuvialuit Harvest Study in the Western Arctic. This study is funded by DFO, the GNWT and the Canadian Wildlife Service as part of the implementation of the settlement of the Inuvialuit land claim. The study is conducted with the Inuvialuit Game Council through the Joint Secretariat, Inuvialuit Renewable Resources Committees. The survey attempts to interview all wildlife (including fish) harvesters each month on the amount and location of harvesting.

The GNWT currently is attempting to organize monthly recall surveys of native wildlife harvesters throughout the NWT. The primary focus of these surveys will be terrestrial wildlife but fish species will be included.

In contrast, DFO attempts to collect comprehensive data on the commercial and non-native domestic harvest through reports and interviews with licensed fishermen. The commercial harvest also is monitored through the purchase records of the Freshwater Fish Marketing Corporation and through local sale receipts. The recreational fishery is monitored through angling licence sales records, observation or creel census.

Stock assessment

Stock assessment is based on inventory and survey research and monitoring of biological parameters of stocks, such as size and age distributions, population size, and growth and reproduction rates. The goal of stock assessment is to identify harvestable stocks and establish safe harvesting levels for these stocks. Most stock assessment by DFO is in support of existing or potential commercial or recreational fisheries. Stocks utilized by domestic fisheries generally have been assessed only when a potential for conflict existed between the domestic fishery and a recreational or commercial fishery.

Fish habitat management

Fish habitat management consists of habitat protection, restoration and enhancement. Habitat protection includes the identification of fish habitat, assessment of the potential effects of human activities on fish and their habitat, and the prevention of deleterious effects through licensing and influence over development plans.

DFO's policy on fish habitat conservation and protection is that the level of protection given to habitats will take into account all actual or potential contributions to sustaining the nation's fishery resources (DFO 1986). The habitat of fish stocks used by native domestic fisheries is extended protection according to this principle. The locations of major native domestic fisheries are generally known. While lack of information on the value of these fisheries may hinder efforts to ensure fish habitat protection, the existence of a domestic fishery generally has been sufficient to ensure full protection of the utilized stock and its habitat.

Regulation and compliance

Under the policy that harvesting of fish by natives for domestic purposes should take precedence over commercial or recreational fishery development, every attempt usually is made to ensure that fish stocks are managed for the needs of native domestic fishermen. This usually is achieved by restricting commercial fishing, sports lodges and outfitting development and by reducing catch and possession limits for recreational fishing. There is only one example of restricting domestic harvest to protect a stock for long-term domestic use. This occurred in 1987 for the Arctic charr of the Big Fish River in the Western Arctic at the request of the local harvesters.

Value

DFO currently does not assess the economic performance or value of the domestic fishery. Such assessments are produced for other fisheries.

Fish inspection

DFO currently does not have a program for inspecting fish taken in the domestic fishery. Analysis of contaminant levels and of general quality of fish products from stocks utilized by domestic fisheries is conducted by DFO only when there is a special reason for concern, as recently has occurred at the community of Fort Good Hope (Lockhart et al. 1987).

The primary responsibility for ensuring the safety or quality of fish which are consumed by domestic fishermen or anglers lies with the Department of National Health and Welfare (NHW). In contrast, DFO inspects commercially caught fish for freshness, parasites, contaminants and general quality under the authority of the Fish Inspection Act which provides for the inspection of fish destined for inter-provincial trade or export.

NATIVE COMPREHENSIVE LAND CLAIMS

With the exception of the Dene occupying the southern end of the Mackenzie Valley, the native people of the NWT have not surrendered aboriginal title to the land through treaty. During the 1970's, the Government of Canada instituted the comprehensive land claim negotiation process to translate aboriginal title into specific rights to land, resources, and participation in land and resource management. Three claims have been accepted for negotiation within the NWT: the Western Arctic Inuvialuit (COPE), the Eastern Arctic Inuit (TFN) and the Dene and Metis of the Mackenzie Valley. The Western Arctic claim was settled in 1984 (DIAND 1984). Negotiations are proceeding on the remaining two claims.

Under the current government policy, land claim settlements may provide for native harvesting rights and participation of natives in wildlife management. The Inuvialuit Final Agreement (IFA) provides for the allocation of subsistence or domestic fishing quotas based on the needs of the native people. This allocation is done on the recommendation of a joint native-government board, the Fisheries Joint Management Committee (FJMC).

The terms of reference of the FJMC also include management of the public right to fish on Inuvialuit lands, monitoring of fish harvesting within the settlement region, recommending on harvestable quotas for Inuvialuit commercial fisheries, and advising the Minister of Fisheries and Oceans on all aspects of fishery management within the settlement area. The IFA contains provisions allowing the Inuvialuit to sell the products of subsistence fisheries to other Inuvialuit and to other natives within the claim area. The IFA also provides that the Inuvialuit will be allowed to fish without a licence or, where a licence is required for conservation purposes, that they will receive a licence without payment of fee.

Land claim agreements obviously will have a great effect on the future management of northern fisheries. The IFA already establishes many of the rules and procedures for the management of the fisheries in the Western Arctic. The draft wildlife agreements for the other two claims have raised expectations as to the management of native domestic fisheries and indeed all wildlife harvesting. There also is agreement that government will not impose any new management measures affecting native harvesting opportunities, without prior consultation, until land claim agreements are implemented. This has been widely interpreted as a promise not to materially change the wildlife management system during negotiations.

ISSUES

POLICY

Safe harvesting levels

Management of fisheries by the establishment of safe harvesting levels (SHL) for stocks

and the allocation of shares from the SHL to various fisheries is an important fishery management method which can prevent over-exploitation of stocks and conflict between fisheries. Making specific allocations to native domestic fisheries and possibly embodying these allocations in a regulatory quota would be a major change in the management of native domestic fisheries. Such a change generally is supported by fishery managers and opposed by native harvesters.

Licensing

Licensing is an important fishery management tool which is useful for monitoring harvests and enforcing allocations. Natives generally are opposed to licensing, viewing it as a restriction on their freedom to fish.

Restrictions on disposition of the harvest

Natives across Canada constantly are calling for the removal of restrictions on the disposition of the products of domestic fisheries. They feel such regulations restrict their ability to manage resources at their disposal and lead to inefficient use of fishery products. Within the NWT the most frequent request is to allow sale of domestic fishery products to other native groups in other settlements, referred to as inter-settlement trade.

Co-management

Native groups have expressed a desire to increase their involvement in the management of native domestic and other fisheries. In the context of land claims this desire has taken the form of demands for the establishment of management boards made up of equal numbers of native and government nominees.

PROGRAMS

Harvest monitoring

Many internal and external observers (e.g. McCart and Den Beste 1979) have commented on the need for improved monitoring of native domestic fisheries. The Department also frequently is asked to support financially wildlife harvest studies conducted by native organizations.

Stock assessment

The vast majority of DFO's inventory and survey research in the NWT is directed toward the maintenance or development of commercial or recreational fisheries rather than toward the more extensive native domestic fisheries. The lack of knowledge of stocks which are or could be utilized by native domestic fishermen may be imposing costs on the fishery through missed harvesting opportunities or over-exploitation and decline of the most accessible stocks.

Value

The lack of analysis of the value of the fishery may cause insufficient funding, planning and execution of a number of fishery management, fishery development and fish habitat protection programs.

Fish inspection

Several recent incidents (e.g. hydrocarbon contamination at Fort Good Hope) have raised native's concern about contaminants, which may pose a danger to the health of consumers, in fish caught in domestic fisheries. These incidents may have exposed weaknesses in the programs of government agencies responsible for maintaining the wholesomeness of fish products and promoting public health.

DEPARTMENTAL RELATIONS WITH NATIVE DOMESTIC FISHERMEN

Due to the high profile of enforcement activities and lack of other programs supporting the native domestic fishery, native domestic fishermen may believe DFO ignores or suppresses the fishery rather than attempts to provide services to the fishery.

DISCUSSION

POLICY

Safe harvesting levels and quotas

The current policy of not placing an annual limit on the number of fish which can be removed from a stock by the native domestic fishery is based on two considerations: a hesitancy to limit the ability of natives to sustain themselves by living off the land, and native resistance to catch limitations. These considerations must be balanced against the important role which setting SHL and making enforceable allocations from the SHL to each fishery could play in ensuring conservation of the resource and reducing conflict between fisheries.

Uncontrolled fishing by native domestic fishermen is the major shortcoming in DFO's ability to limit exploitation to the productive capacity of stocks and to allocate efficiently and fairly the right to use the resource. Commercial harvests are controlled by quotas. The harvest taken through angling is controlled through catch and possession limits, closed seasons, and in one case, the Tree River Arctic charr fishery, by quota. Non-native domestic fishing is controlled through allocations contained in licences and other licence conditions.

Managing by SHL with allocations to each fishery would allow management of individual stocks for best use while meeting the needs of all users. For example 'trophy' lake trout fisheries are important in the northern economy. Anglers are willing to pay high prices for the opportunity to catch very large fish. In an area where there is both a domestic fishery and a trophy fishery, it is most efficient to apply zoning, managing some stocks for use by domestic net fisheries and managing stocks in other areas for the maintenance of large standing stocks of large fish to be utilized by the trophy fishery.

There is some reason to believe that natives would accept allocations established through consultation. Native organizations have, in the land claims forum, supported management by Total Allowable Harvest and subsistence (domestic) quotas set by joint government-native boards according to yearly assessments of native needs. Natives appear to be beginning to view subsistence quotas as a method for safeguarding an entitlement, rather than as an unwarranted restriction. If this is true, then the issue becomes agreeing on a fair method of establishing SHL or Total Allowable Harvest and allocation or quotas, rather than the merits of the management system. This issue is suitable for negotiation.

Imposing a general system of allocations or quotas on the native domestic fishery without consultation would be counter-productive due to loss of local cooperation in the management of the fishery. Such a general system can be implemented only after consultation with the native harvesters. Perhaps such a system will result only from land claims negotiations, but discussions still should be pursued with local native organizations. It may be necessary, if estimated native domestic harvest exceeds the SHL, to impose a regulatory quota without the agreement of the local native organization. Stocks also may be managed by deducting an estimate of the native domestic harvest from the SHL before allocations are made to other fisheries. This would require increased monitoring of native domestic fisheries, more frequent adjustment of commercial fishing allocations (quotas), and possibly the establishment of angling quotas.

Management by SHL and specific allocations to fisheries according to 'best use' of the resource implies the development of plans for fishery resource use. Such plans could be developed by negotiation between user groups, with DFO essentially acting as an arbitrator and provider of information. DFO currently is establishing a management advisory board for Great Bear Lake which will, among other functions, serve as a forum for the negotiation of fishing zones for recreational, native domestic and commercial fisheries. The FJMC does not, under the terms of the land claim agreement, have a role in allocations except to Inuvialuit fisheries. DFO could expand the role of the FJMC to include other fisheries. Efforts should be made to establish planning boards elsewhere in advance of the settlement of land claims.

Licensing

Natives are opposed to licensing of native domestic fishermen. Although the reasons for this opposition have been articulated poorly they probably include the symbolic value of an unregulated harvest, fear of restrictions, and aversion to the effort of obtaining and carrying a licence (this aversion is, of course, widespread). Natives often seem more averse to the need for carrying a licence than to the need for registering or obtaining one. Again, imposition of a licence requirement without the support of the native community probably would decrease the overall effectiveness of the management effort through loss of public support.

Fishing licences can serve three management purposes: monitoring of the harvest, allocation of the right to harvest a portion of the resource, and collection of revenue or resource rent. Only the first two of these purposes are relevant to the native domestic fishery.

Licences provide information on participation in the fishery which can be used in collection of data through surveys. A licence also can specify the stocks which are to be fished, allowing estimation of the harvest taken from each stock from the number of licensed fishermen (NWT commercial fishing and angling licences do not currently specify a stock). Finally, licences can provide direct information on the quantity of the harvest, if a reporting requirement is attached.

Native groups in the north prefer to collect harvest information through recall surveys of community members who are known to be active hunters. Such surveys have been conducted by BRIA and KWF, and the Inuvialuit Harvest Study currently is being organized in the Western Arctic. The GNWT, in cooperation with native organizations, is attempting to organize similar studies elsewhere in the NWT. These studies, although costly, are capable of providing the harvest data necessary for management of fish stocks. Harvest surveys therefore would appear to be an alternative to licensing. However, a licensing system would aid harvest studies through identifying active harvesters. Identification of the harvester population has been a problem in all harvest studies.

The second important management purpose of licences is in formalization and enforcement of the right to use the resource. A licence system greatly facilitates management by making specific allocations to fisheries and to individuals. Authority to sub-allocate to individuals from the allocation for native domestic fisheries could be delegated to organizations of native harvesters such as the Inuvialuit Game Council. These organizations could be made responsible for monitoring harvesting and enforcing sub-allocations. A registration or licence system could be administered by these organizations. Local administration of licensing may remove many objections which natives have to a licence system.

Restrictions on the disposition of the harvest

The current policy of rigid restrictions on the disposition of the native domestic harvest is a major source of conflict between DFO and natives across Canada. Even within DFO there is recognition that permitting people only to eat fish when they could obtain a much higher return by selling it is inefficient use of the resource. Generally, fishery managers believe that stocks should be exploited at an optimum level and utilized in the way that generates the greatest return.

The sale of fish taken in the native subsistence fishery is not as large an issue in the north as it is in other parts of Canada, due to the lower commercial value of the resource and excellent access of natives to commercial fish-

ery quotas. The issue has arisen in the context of inter-settlement trade (trade in wildlife products between native communities) and on Great Bear Lake, where there is no commercial quota.

There are two reasons for this policy. First, the allocational priority for native domestic fishing is based on the need for fish for food. It would not be fair to other potential users of the resource for natives to parlay recognition of traditional lifestyles and dependence into an open-ended economic advantage. Second, the policy protects the resource from over-harvesting by indirectly controlling the size of the harvest. While the domestic fishery takes a large aggregate yield, it is a diffuse fishery with a large number of fishermen taking small catches from a large number of stocks. Introduction of trade in domestic fishery products might both increase the total size of the fishery and increase the aggregation of fishing effort as some fishermen specialize in catching large amounts of fish for trade. This would greatly increase the risk that some stocks would be over-exploited.

Two possible solutions to the problem of the illegal sale of fish caught in the native domestic fishery are increasing native access to commercial fishing quotas, and negotiation of a finite native traditional entitlement which could be used for any purpose.

The first solution would preserve the native right to fish for food. In the north, where the fish resource often is not fully allocated, native access to commercial quotas often could be increased by allocating commercial quotas and through streamlining procedures for opening commercial seasons. Fishermen could be encouraged to obtain commercial licences whenever there is a possibility that they may wish to sell fish surplus to their needs. Perhaps the licence fee should be eliminated, in the interests of obtaining more information on the fishery.

Where the resource is at or nearing full utilization, DFO could recognize a native right, based on traditional use of the resource, to a portion of the resource for sale and trade, in addition to the right to fish for food, and negotiate an allocation. Hopefully, the recognition of traditional rights extending to a stake in the commercial fishery and negotiation of a traditional commercial allocation would generate community support for enforcement of regulations prohibiting the sale of fish caught outside the commercial fishery.

The second solution, negotiation of one allocation which could be used for any purpose, would eliminate restrictions on the disposition of the harvest and ensure efficient utilization of the resource, at the cost of eliminating the unrestricted right to fish for subsistence. Negotiations on the size of the 'native traditional allocation', which could occur as population and usage patterns changed, would of course be more complex than negotiations on a subsistence quota based solely on personal consumption needs. This solution is preferable from a resource management perspective because restrictions on disposal which could lead to inefficient use would be removed.

In land claim negotiations natives are favouring the former solution of separate subsistence and commercial allocations. The ultimate solution to the problem should be sought through land claim negotiations, where either of the two previously outlined options could be supported.

Co-management

Co-management is a poorly defined term which generally refers to participation by resource harvesters with government agencies in resource management. Although demands for increased participation in the management process are being voiced by many types of harvesters, the foremost proponent is the native community. The IFA contains extensive provisions for the establishment of committees which guarantee the Inuvialuit an important role in wildlife and habitat management. Similar provisions certainly will be contained in future land claim settlements.

The importance of involving local native organizations in the establishment of native domestic fishing quotas and licensing or registration requirements has been noted. It also will be important to involve these organizations in monitoring of the harvest, planning of research and stock assessment, and any programs for inspection of domestic fishery products.

Reference also has been made to the importance of fishery management planning in the implementation of management by SHL and specific allocations from the SHL to fisheries and ultimately to individuals or enterprises. Planning and allocation could be done through recommendations by boards made up of representatives of all affected communities of interest. These boards would work closely with DFO to develop recommendations which would be reviewed and implemented by DFO officials. Such a management board could, through the development of fishery management plans, participate in decisions on all aspects of the management of fisheries within its area.

A management board with these broad terms of reference would affect many different communities of interest. It is critical that all affected groups be provided with the opportunity for representation on the board. Providing natives with meaningful involvement in fishery management will require providing the same opportunity to other communities of interest.

The native community could be delegated responsibility for matters which do not affect anyone outside of the community. An example would be sub-allocation from any native fishery allocation to individuals within the group.

DFO is exploring the management board approach through the establishment of the Great Bear Lake Management Board. This board contains representatives of the local native community, sport fishery lodge operators, relevant GNWT departments and DFO.

DFO is participating in the development of co-management through negotiation of the TFN and

Dene, Metis land claims and through establishing the FJMC under the IFA. The FJMC currently is restricted to matters concerning Inuvialuit fisheries. However, if its membership were expanded to include representatives of other communities when issues affecting them were discussed, its terms of reference could be expanded to include fishery management planning and allocation between fisheries.

DFO should seek to improve communication and consultation with native organizations on all aspects of the management of native domestic fisheries. While some issues related to co-management of fisheries resources may be resolved only through the comprehensive land claim process, the existence of this process should not be used as an excuse to delay a greater role for all user groups in the management of fisheries.

PROGRAMS

Harvest monitoring

Data on the native domestic fishery are necessary for setting catch limits for other fisheries, planning of DFO programs, and justifying actions to protect fish and fish habitat. They also are a necessary input to the programs of other government agencies such as comprehensive land claim negotiations and Northern Land Use Planning.

In the past, northern native organizations have preferred that information on the native domestic harvest be collected by them or with their cooperation through recall surveys of all potential harvesters. This approach maximizes local involvement, understanding and support. It also provides the native groups with some measure of control over the nature and uses of the data produced. DFO has contributed funding to two such harvest studies conducted by BRIA and KWF. These studies attempted to obtain data on all wildlife species on behalf of several agencies. Problems included administrative and data handling complexity, high cost, difficulty in defining the population of potential hunters and fishermen, and estimation of the total harvest from an inevitably partial census which was claimed to be an unbiased sample. An additional problem for DFO was a failure to identify the location of the harvest in a manner which allowed determination of the stock identity of harvested animals.

The Joint Secretariat, Inuvialuit Renewable Resources Committee, is currently conducting a recall harvest study in conjunction with the Inuvialuit Game Council on behalf of DFO, CWS and the GNWT. The survey differs from the KWF and BRIA studies in that it is much more closely integrated with the work of the three wildlife management agencies, largely relying on them for biological and statistical expertise. This should reduce costs. Consideration also has been given to the problems identified during the previously named studies. In particular, the waters of origin will be recorded for all harvested fish.

The GNWT has been conducting a recall harvest study in the Kitikmeot Region of the NWT in which staff of the Department of Renewable Resources perform all the central staff functions, further reducing costs. The GNWT is currently attempting to establish similar studies in the Keewatin and Baffin regions and in the Mackenzie Valley.

In the future, it may be possible to further reduce the costs of recall surveys through sampling of the harvester populations. It may not be necessary to conduct domestic harvest monitoring on a yearly basis. A rotational program could be established which would monitor the harvest in each of three districts every three years. As land claim agreements are signed it is likely that recall census studies will be established throughout the NWT, if this is not accomplished by the GNWT in advance of agreements. DFO should consider participation in these studies.

Due to the high cost of this type of survey it is likely that, in the absence of surveys funded through implementation of land claims or cooperation with other wildlife management agencies, DFO's efforts to monitor native domestic fisheries will need to take other forms. Alternatives include sampling based on fisherman recall or fisherman diaries. Minimum harvest estimates could be produced through increasing informal surveys by DFO field personnel. Perhaps the most obvious need is to improve the handling of monitoring data to ensure that whatever data are collected and stored, reported and routinely used when making fishery management decisions.

Stock assessment

Stock assessment includes identification of fish stocks, determination of current fishing mortality rates and stock sizes and estimation of the productive capacity of stocks. Stock assessment can be carried out for two purposes: good management of existing fisheries, including prevention of over-exploitation, and planning of fishery development. Assessments of individual stocks are based on monitoring results, inventory and survey research, and knowledge of population dynamics gained from experimental management and experimental research.

With incomplete monitoring of domestic fisheries, some stocks used by the native domestic fishery may become depleted. This would inflict higher costs on domestic fishermen who would have to fish less accessible stocks and possibly inflict hardship on communities for which alternate stocks are not available. These costs cannot be assessed without knowledge of the fishery resources available in an area. Lack of information on the availability of fishery resources in many areas and on the present and potential size of the domestic fishery also prevents efficient fishery development planning. Insufficient planning can cause conflicts between commercial, recreational, and domestic fisheries.

Within the NWT, the detection of depletion of exploited stocks through monitoring and surveys is given priority by DFO. Financial and human resource limits generally do not permit inventories of the available resource for the purpose of planning. An assessment usually is

conducted prior to a major investment being made in the development of a new commercial or sport lodge fishery or when there is reason to believe a stock is being depleted. DFO sets initial quotas for some new commercial fisheries on the basis of the size of the water body containing the fish stock, data on catch per unit effort, and age and size structure of the population. These data are collected with the help of the fishermen interested in developing the fishery through the operation of a small-scale 'test fishery'.

Planning of survey programs must be based on comprehensive monitoring data for all fisheries and must give equal weight to the preservation of stocks utilized by all fisheries. Although prevention of over-exploitation of stocks by existing fisheries should remain the primary objective of stock assessment programs, more consideration should be given to inventories of the available resource for the purpose of planning the orderly development of commercial, recreational and domestic fisheries.

Increased use of test fisheries and fishery monitoring data may decrease the need for more costly survey techniques such as counting fences and experimental gill netting. However, for many northern fish stocks the indices produced by these methods are poor indicators of the state of the stock. For example, monitoring data on the size or age of fish in the current population give little indication of decline in size for stocks which contain large numbers of old fish and have low production rates. Catch per unit effort data from monitoring or test fisheries are very difficult to interpret when collected for migrating fish such as Arctic charr, where timing of sampling can greatly affect results.

If inventory and survey work is to be expanded to more stocks, more cost-effective survey methods must be developed. Development would require research into the use of methods such as hydro-acoustic counting of fish, mark-recapture estimation of population size, and the estimation of the productive capacity of NWT waters from measurements of their physical characteristics, such as the morphoedaphic index (Ryder et al. 1974).

Value

Planning and evaluation of programs to service the native domestic fishery is hampered not only by incomplete information on the location and extent of the fishery but also by a failure to quantify the value of the fishery. Value is a factor in the allocation of resources for the management of a fishery. Although the native domestic fishery is assigned first priority in the allocation of fishery resources, in the absence of quantification the tendency is to assign it a zero value when allotting resources for fishery management. Economic evaluation also is important for environmental impact assessment and compensation.

Although there is no consensus on the proper methodology for evaluating a domestic fishery, several techniques have been developed. Based on these techniques, DFO should develop a measure or measures of the costs and values associated with the domestic fishery suitable for comparison of domestic, commercial and recreational fisheries and for use in environmental impact assessment and compensation. The value of native domestic fisheries should be determined periodically using these methods.

Fish inspection

Concern has been growing among northern natives and among government agencies with responsibility for native health that natives may be ingesting unacceptable concentrations of contaminants through consumption of wildlife products, including fish. This concern is linked partially to industrial development in the north, particularly development of the hydrocarbon industry. A recent report prepared for the Department of Indian and Northern Affairs (DIAND) surveys the available information on heavy metal, chlorinated hydrocarbon, and polynuclear aromatic hydrocarbon consumption by natives in northern Canada (Wong 1985). One conclusion is that major gaps exist in data on contemporary wildlife product consumption by northern natives and on residue concentrations in whole fish. The report recommends filling these data gaps, periodic testing of a representative samples of northern native foods, and research into sources of contamination, particularly of chlorinated hydrocarbons.

DFO should continue and expand cooperation with NHW, DIAND, GNWT and any other agency concerned with the health of northern natives. One possible form of cooperation would be to expand testing under the Fish Inspection Program to include samples of fish which are representative of the parts consumed from domestic fisheries. Testing should include fish from areas where contamination is suspected and from areas where there is no apparent source of contamination so that background values can be established. DFO could publicize such a program and encourage the public to suggest stocks for testing. Another possible contribution to monitoring the level of intake by natives would be to collect estimates of human consumption of fish when collecting information on the domestic harvest. This information also would be useful for estimating the value of the fishery as the end use of the harvest has implications for the value of the catch.

DEPARTMENTAL RELATIONS WITH NATIVE DOMESTIC FISHERMEN

It is probably true that northern native domestic fishermen consider DFO to be more of a hindrance than a valued service agency. This image is perhaps understandable when the highest profile activity of DFO is to restrict the freedom of harvesters. Land claim negotiations probably also have had a negative impact on relations by placing native claimants and DFO in adversarial roles. DFO must eliminate any negative perceptions which currently exist and make natives aware of the priority assigned to the native domestic fishery and the objective of DFO to manage the resource for the long-term benefit of the resource users.

This paper has discussed the adjustment of DFO policies and programs so that they may better meet the needs of native domestic fishermen. Consultation during the formulation of policies and programs has been emphasized as the pivotal factor in ensuring that DFO is attuned to the needs of its clients.

Communication of policies and programs and the reasons for them is necessary if the public is to utilize them and understand regulatory restrictions. While this communication function is partially fulfilled by the consultation process there also is a need for a wider education program. DFO should prepare educational materials describing its policies and programs for the native domestic fishery as part of a program to educate the public on the principles of fisheries management and conservation. These materials should be used at schools and meetings of native organizations.

CONCLUSIONS

In general, DFO's policies on the management of the native domestic fishery respond to the desire of natives for unrestricted fishing in order to sustain themselves and their culture. The policy of not regulating the amount, time or place of the native domestic fishery may have contributed to several management weaknesses. First, an uncontrolled fishery tends to be an unmonitored fishery and an unmonitored fishery seriously undermines stock management. Monitoring of the native domestic harvest is crucial for the success of all fishery management programs in the NWT. Second, an uncontrolled, unmonitored fishery lacks the profile to garner appropriate consideration for the needs of native domestic fishermen when fishery management and support programs are planned. The level of service offered to the native domestic fishermen must be the same as that offered to other client groups. Third, it has severely limited DFO's desire and ability to respond to native aspirations for commercial fishery development. These aspirations must be recognized if relations between DFO and native fishermen are to improve.

DFO's relations with native fishermen often have been characterized by lack of trust and communication. The support of native fishermen is a prerequisite for the success of any management program in the NWT. This support only can be achieved through increased participation of natives in the management decision process and through increased efforts to communicate DFO's policies and programs.

While the resolution of some issues may, in the end, be possible only through land claim negotiations, DFO should begin immediately to develop management structures which will increase the involvement of natives in the management of NWT fisheries and use these structures and other forms of consulation to address the issues identified in this paper. Through this process DFO can further develop its programs to serve native domestic fishermen and increase effectiveness of management of all NWT fisheries for the benefit of all its clients.

RECOMMENDATIONS

1. DFO should increase the involvement of natives in the management of NWT fisheries through establishing management boards. All affected communities of interest should be represented on these boards. These boards should be charged with the development of fishery management plans which would be recommended to DFO.

2. Consideration should be given to delegation of authority to sub-allocate from any allocation assigned to a native group to that native group.

3. DFO should seek to improve communication and consultation with native organizations on all aspects of the management of native domestic fisheries. DFO should expand communication of its policies and programs and of the principles of fishery management to native domestic fishermen through the distribution of educational materials and presentations to schools and meetings of native organizations.

4. DFO should continue to assign first priority in the allocation of fishery resources to native domestic fisheries until native fishing rights arising from aboriginal use of the land are clarified through the negotiation of comprehensive land claim agreements.

5. DFO should promote the establishment of native domestic fishing quotas through discussions with native organizations, but should not impose quotas without the support of these organizations unless the native domestic harvest is projected to exceed the SHL for the stock. Where agreement can be reached on an upper limit or quota for the native fishery, DFO should consider removal of restrictions on the disposition of the products of that fishery, except those restrictions normally imposed on fish taken in the commercial fishery.

6. DFO should advocate the establishment of a licence or registration system for native domestic fishermen which would provide information on the identity of fishermen and the stocks utilized but should not impose such a system without the agreement of concerned native organizations. Consideration should be given to licensing systems administered by local native organizations and to voluntary registration systems.

7. The aspirations of natives for increased commercial trade in fish, both within and outside the context of inter-settlement trade, should be facilitated through enhanced native access to commercial fishing quotas and licences.

8. A system should be developed for collecting, compiling, publishing and storing data on the location and size of native domestic fisheries. The system should be developed through consultation with local native organizations and other wildlife management agencies.

9. Planning of stock assessment programs should be based on comprehensive monitoring of all fishery categories, including native domestic fisheries, and should give equal weight to the needs of all categories of fisheries. Prevention of stock depletion by existing fisheries should continue to be the main objective of stock assessment activities. However, more consideration should be given to delineation of the available resource.

10. A method for determining the value of the native domestic fishery should be developed and implemented.

11. DFO should increase its contaminant testing program for domestic fisheries, and should increase cooperation with DIAND, NHW and GNWT in determining the contaminant uptake by natives from the consumption of fish.

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