

WATER UNDER THE BRIDGE? THE ROLE OF INSTREAM FLOW NEEDS (IFNs) IN FEDERAL AND INTERJURISDICTIONAL MANAGEMENT OF ALBERTA'S RIVERS

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ABSTRACT

The extent to which river management frameworks are aimed at determining and maintaining “instream flow needs” (IFNs) is a partial litmus test for assessing the adequacy of those frameworks for sustaining aquatic ecosystems. This paper addresses the role of IFNs in the legal and policy frameworks for federal and inter-jurisdictional involvement in managing Alberta’s rivers (the role of IFNs in provincial management is addressed in the accompanying paper by Kwasniak, Wenig, and Quinn). The present paper concludes that these frameworks generally lack a concerted approach to maintaining IFNs which, together with the equivalent characteristic of Alberta’s river management framework, indicate a significant gap in the overall management of Alberta’s rivers to meet ecological sustainability objectives. While not insisting that the gap should be filled entirely at the federal or inter-jurisdictional level, the paper makes several recommendations for further research and federal policy development to improve the federal and inter-jurisdictional contributions to maintaining IFNs.

KEYWORDS/PHRASES: Alberta, ecological sustainability, federal, instream flow needs (IFNs), interjurisdictional, provincial, river management, transboundary.

INTRODUCTION

In simple terms, *IFNs are the amount and timing of water that is necessary to protect aquatic ecosystems*. While originally conceived narrowly as minimum, year-round flows needed to protect single fish species, IFNs are now viewed more holistically as year-round flow *regimes* needed to sustain entire aquatic ecosystems or multiple ecosystem components (Clipperton *et al.* 2003). Thus, the term “environmental flows” is arguably a more accurate reflection of this emerging holistic perspective, than IFNs (Dyson *et al.* 2003). However, the methodologies for determining holistic environmental flows can be complex, time consuming, and expensive, so traditional IFN-type methodologies remain practical alternatives in many instances (Kwasniak, Wenig, and Quinn, in preparation). In addition, “IFNs” is still the more frequently used term in North America and will thus be used for purposes of this paper.

There is an increasingly widespread recognition of the need to manage natural resources for ecological sustainability. In the context of river management, the determination and maintenance

of *instream flow needs* (IFNs) are essential steps for sustaining aquatic ecosystems (Richter *et al.* 1997). This paper addresses the role of IFN determinations in the context of federal and interjurisdictional institutions' involvement in managing rivers in Alberta. The accompanying paper by Kwasniak, Wenig, and Quinn (2006) addresses the role of IFNs in still another important river management context – the Government of Alberta's own river management framework.

Because maintaining IFNs is critical for aquatic ecosystem sustainability, the significance of IFN determinations in river management frameworks is a key litmus test for assessing whether those frameworks are suitably designed to sustain river ecosystems (Kwasniak, Wenig, and Quinn 2006). The purpose of this paper, together with the companion paper by Kwasniak, Wenig, and Quinn in this book, is to conduct this IFN litmus test for the frameworks for managing Alberta's rivers.

The plural term “frameworks” is used here because several sets of laws, institutions, and political jurisdictions have relevant river management roles, as consistent with a trend toward generally expanding institutional contexts for river management (Plummer, 2005). Because of Alberta's proprietary water rights and legislative powers under the Constitution of Canada, the province's water management framework is the most obvious context for considering the role of IFNs in managing Alberta's rivers (Kwasniak, Wenig, and Quinn 2006). Alberta is committed to sustaining aquatic ecosystems as a general policy (Alberta 2003). However, the province's own river management framework lacks a corresponding province-wide commitment to both assess and maintain IFNs (Kwasniak, Wenig, and Quinn 2006).

The Constitution also provides the federal government with several significant sources of leverage for managing Alberta's river flows to meet IFNs. Thus, the purpose of this paper is to consider the role of IFNs in the legal and policy framework for federal involvement in managing Alberta's rivers (“federal river management,” for short) and in the federal government's application of that framework in project- and river-specific management contexts. (For purposes of this paper, the term “management” excludes scientific research on methodologies for determining IFNs and on actual IFN determinations.) In addition, several interjurisdictional institutions make, or have the potential to make, important contributions to the management of Alberta's rivers. Among these institutions are three that were created to address the transboundary nature of Alberta's river basins. (In this paper, Alberta's “transboundary” rivers are those that cross domestic or national political borders.) Thus, this paper also considers the role of IFNs in these interjurisdictional institutions' river management frameworks.

FEDERAL RIVER MANAGEMENT CONTEXT

This part addresses the role of IFNs in the federal river management context. The discussion focuses first on federal constitutional roles and then addresses the generic federal legislative and policy frameworks. Finally, this part discusses the federal government's use of IFNs in its application of those generic frameworks in specific Alberta river management contexts.

The constitutional context

As noted above, there are several constitutional sources of federal river management authority. The clearest of these sources are those granting the federal government broad legislative powers in the areas of navigation and inland fisheries. Although the full scope of these powers is

ambiguous, they impliedly include federal authority to compel the maintenance of river flows to facilitate navigation and to conserve fish habitat. And, when applied in a demonstrably clear fashion to achieve these objectives, these federal flow management authorities trump or, in legal parlance, are “paramount” over, conflicting provincial river management decisions (Saunders and Wenig 2007).

The federal government also has proprietary water rights under the Constitution. These rights apply to the portions of provincial rivers flowing through national parks and other federal lands, and to rivers in the territories that are downstream of northward flowing provincial rivers. (Federal proprietary rights may also apply to water on Indian reserves, although this is a contested and uncertain issue.) Federal proprietary rights give rise to corresponding federal legislative powers to manage federally-owned waters, but this river management authority is in conjunction with, rather than paramount over, provincial authority relating to the non-federal portions of the same rivers.

Several additional constitutional provisions likely grant the federal government still other sources of power to directly or indirectly influence the management of Alberta river flows. These additional legislative powers relate to agriculture (shared powers with the provinces), trade and commerce, taxation, and criminal law; and, the implementation of treaties entered by the British Empire on behalf of Canada including, the *Migratory Birds Convention of 1916* and, as most relevant here, the *Boundary Waters Treaty of 1909* (both discussed below). As with the fisheries, navigation, and proprietary powers noted above, the precise scope and significance of this latter set of federal powers are uncertain.

Still another federal legislative power relates broadly to promotion of the “peace, order and good government” of Canada (POGG). This is technically a “residual” power in that it vests the federal government with all constitutionally permissible legislative power not otherwise covered by the specific federal and provincial powers. However, because the scope of those specific powers is itself uncertain, the residual nature of POGG does not provide a ready means of defining its own scope. Because the scope of the POGG power is perhaps the biggest “wild card” among this set of relevant federal powers, it is worth additional discussion here.

The Supreme Court of Canada has defined several aspects or “branches” of the POGG power, the most relevant of which is the power to legislate with respect to matters of “national concern”. The Court has never specifically considered whether this concept covers legislative programs to maintain IFNs, but a 1975 decision in an analogous context arguably supports these federal efforts, at least, for transboundary rivers. In that decision, three of the Court’s four justice majority held essentially that the management of interprovincial water pollution was a federal, rather than provincial matter for constitutional purposes. Although the opinion for those three justices was unclear, it arguably implied that the “national concern” branch of POGG provided one basis for this federal jurisdiction. (SCC 1976; Kennett 1991; Saunders and Wenig: forthcoming).

Logically, the maintenance of IFNs on inter-provincial rivers is just as much a “national concern” as the regulation of pollution on those rivers because, from a practical and biophysical standpoint, water quantity and water quality are directly linked. In fact, the three-justice majority opinion came close to making this link, by analogizing federal management of pollution that flows across provincial boundaries to federal regulation of a dam in one province that affects flooding in a downstream province (SCC 1976). But it is far from certain whether the present Court would welcome federal authority to maintain IFNs under POGG, for several reasons. First, unlike federal pollution control programs, federal efforts to manage inter-provincial flows to

maintain IFNs are potentially intrusive of water allocation functions which have traditionally been viewed as provincial prerogatives. And second, the Court has generally shown more reluctance in recent years to invoke the “national concern” doctrine as a constitutional basis for federal environmental protection authority (Saunders & Wenig, forthcoming). For both these reasons, the Court might view federal flow maintenance as a more constitutionally suspect exercise of federal authority than federal pollution control, notwithstanding that the two functions are complimentary tools for protecting inter-provincial resources.

While these numerous potential sources of federal constitutional power raise equally numerous uncertainties (Pearce 1985, Kennett 1991, Saunders and Wenig: forthcoming), the federal power to protect inland fisheries, alone, likely provides ample constitutional authority for the federal government to take an active river management role for purposes of maintaining IFNs. Viewed collectively, the other constitutional sources of federal power mentioned above appear to provide significant additional federal authority. Thus, as noted in other areas of environmental protection (Boyd 2003, Brandes *et al.* 2005), any perceived constraints on the federal government’s exercise of its constitutional authority likely have substantial roots in political rather than strictly legal concerns (Saunders and Wenig 2006).

The federal legislative river management framework

Has the federal government exercised its constitutional authority in connection with river flows and IFNs? The short answer is no, in the sense that no federal statute specifically requires the federal government to engage in river management to maintain IFNs. However, the *Fisheries Act* gives the federal government considerable legislative discretion to do so and several other statutes collectively enhance this discretion, although all of those statutes work in a somewhat patchwork or scattered fashion.

The Fisheries Act

Several sections of the *Fisheries Act* empower Fisheries and Oceans Canada (DFO) to regulate dams and other instream developments that impede river flows. In addition, section 35 authorizes DFO to regulate – through the issuance or denial of permits and the setting and enforcement of permit conditions – a wide range of instream and upland “works and undertakings” that may directly or indirectly harm “fish habitat”. That section has been held to cover harms to fish habitat resulting from both excessive and inadequate dam releases (B.C. Supreme Court 1997). This interpretation, and the plainly broad text of that section, strongly suggests that it also covers water diversions or withdrawals that reduce flows needed to maintain fish-based IFNs. However, this regulatory coverage is hardly seamless – most notably, DFO faces challenges in establishing a direct relationship between any given withdrawal and harm to fish habitat, especially, for withdrawals that are more significant on a cumulative than individual basis (Wenig 1999).

As relevant here, DFO has published four policy guides for its implementation of section 35. Read together, these guides arguably acknowledge that water withdrawals which threaten IFNs are subject to DFO’s regulation under section 35. But the guides project a cautionary federal posture toward using section 35 to maintain IFNs. More specifically, of the four policy documents, two make no express or even strongly implied reference to the relevance of section 35 for maintaining IFNs or river flows more generally, although that approach is implicit in their generally broad, ecosystemic view of the legislative concept of “fish habitat” (DFO 1998 and

1995). Neither of the other two policy guides expressly uses the terms “instream flow need” or “IFN”. But both of these latter two documents refer to the bio-physical attributes of aquatic environments as comprising part of the overall concept of “fish habitat” protected by section 35 (DFO 1986 and 1998a); one expressly refers to river “flow” as one such bio-physical attribute (DFO, 1998a:6 and 9); and both acknowledge that water withdrawals are among the kinds of activities that are potentially subject to the section 35 permitting requirement (DFO 1986 and 1998a).

Putting aside the scope of activities and types of harms regulated under section 35 of the *Act*, that section lacks clear guidance on the extent of harm to fish habitat that Parliament intended to allow under that section. The section starts by generally prohibiting works and undertakings that harm fish habitat; it then exempts from this prohibition all such activities authorized by DFO under that section, but gives DFO no express guidance on when to issue any such authorizations and on the conditions to include in them (Wenig 1999). Thus, the section lacks clear direction on the extent to which DFO should actually aim to maintain IFNs in its regulation of water withdrawals and other disruptions instream flows. DFO’s policies attempt to fill this legislative gap by providing a regulatory target of achieving a “net gain,” or at least, a “no net loss” of fish habitat (DFO 1986). However, these targets raise a host of questions – including the extent to which they need to be implemented on a watershed-by-watershed basis – which DFO’s policies arguably fail to answer (Wenig 1999). Thus, DFO’s policies also lack clear guidance on the extent to which IFN maintenance should be a target for DFO’s exercise its regulatory authority under the *Act*.

In short, DFO’s generic policy guides hardly encourage an aggressive federal stance toward maintaining IFNs. But they at least impliedly recognize the link between IFNs and legislatively protected “fish habitat”. They also recognize that water withdrawals may impair “fish habitat” and, thus, that these withdrawals may need to be regulated under the *Act*.

Besides these four written guides, DFO also apparently has an unwritten policy against applying section 35 to water withdrawals from operations that arose before 1977 – when Parliament added section 35 to the *Act*’s long legacy of pollution and habitat protection provisions (Wenig 1999) – at least, as long as the volume of current withdrawals is consistent with historic practices (Courtney 2005: personal communication). This unwritten policy may pose significant limitations on DFO’s use of section 35 to maintain instream flows, especially in regions like the South Saskatchewan River Basin, where much of the surface waters are subject to allocations dating back to the turn of the twentieth century.

DFO’s unwritten policy no doubt stems from its respect for courts’ aversion to interpreting legislative provisions governing private conduct that occurred before the provisions came into effect. However, this judicial rule of interpretation seems irrelevant with respect to the application of section 35 to withdrawals that began before 1977, but that are *continuing* or ongoing, because s. 78.1 of the *Act* specifically states that each day the *Act* is contravened is a separate offence (QB 2003). In other words, the unwritten policy seems legally unnecessary, if not also unlawful, in the context of ongoing water withdrawals and other ongoing activities that may impair IFNs.

Other federal statutes

Several other federal statutes provide additional IFN-related federal river management authority, but this authority is in most instances implied and indirect and, on the whole, not systematic or

comprehensive. Of these statutes, the *International River Improvements Act*, R.S.C. 1985, c. I-20, is the most directly applicable to IFNs, because it requires federal approvals of various works intended to “decrease or alter” natural river flows. However, the *Act* has extremely narrow application – it relates only to rivers that flow from Canada to the U.S. and it specifically exempts: activities located in Canada-U.S. “boundary waters” covered by the 1909 *Boundary Waters Treaty* (discussed below); and withdrawals intended for “domestic, sanitary or irrigation purposes or other similar consumptive uses” (s. 7). Moreover, regulations implementing the *Act* make no mention of IFNs either in connection with requirements for approval applications or in the setting of approval conditions, for those few projects – mostly hydroelectric operations – that are actually subject to the *Act* (Canada Government 1987).

The *Canada Water Act*, R.S.C. 1985, c. C-11, adopts a more holistic and geographically comprehensive outlook than the *International River Improvements Act*, by authorizing the federal government to enter into agreements with provinces to develop cabinet-approved “comprehensive water resource management programs” aimed, among other things, at the “control and regulation of water quantity”. The *Act* provides that, if the federal government cannot reach such agreements after “reasonable” efforts, the government can develop those programs itself (s. 6). While it does not expressly mention IFNs, this authorization to manage water quantity would appear to sanction federally designed programs to maintain IFNs. However, this authority is arguably greatly circumscribed by other provisions of the *Act* which state that, if the federal government cannot reach an agreement, it can develop its own water management programs only with respect to waters under federal jurisdiction, or to interjurisdictional, international, or boundary waters with a “significant national interest”. The *Act* also conspicuously omits any reference to the federal government’s authority to actually *implement* any such management programs with respect to interjurisdictional rivers.

The *Canadian Environmental Assessment Act (CEEA)*, S.C. 1992, c. 37, is another relevant federal statute. This *Act* generally requires the preparation and federal consideration of environmental assessments for “projects” that have various kinds of federal linkages, including projects seeking federal funding or other federal sponsorship or federal regulatory approval. The *Act* defines the term “projects” broadly, including activities prescribed by regulations. Those regulations, in turn, prescribe all activities requiring *Fisheries Act* approvals, including activities that drain water bodies or alter water levels so as to harm fish habitat, as “projects” for *CEAA* purposes (Canada Government 1994a). (Still other regulations specifically exclude modifications to “irrigation structures” from the *Act*’s coverage [Canada Government 1994b]. However, the water withdrawals by any such structures might still require assessments under *CEAA* if they threatened to harm fish habitat.) The *Act*, then, prohibits the federal government from approving or otherwise supporting any such projects that, as demonstrated in an assessment, are likely to cause “significant adverse” environmental effects that are not “justified” under the circumstances (ss. 20(b) and 37(1)(b)). The *Act* also provides for environmental assessments, under specified circumstances, of projects that do not require federal support or approval, but which may nevertheless cause significant adverse transboundary or international environmental effects.

While *CEAA* does not expressly require IFN considerations as part of these assessments, the *Act* generally requires a comprehensive approach toward defining the scope of individual and cumulative environmental effects to be considered (CEA Agency 1994), and thus, would implicitly require IFN considerations for relevant projects that may materially impair natural flows. However, *CEAA*’s application in this context is somewhat problematic, in part, because of the wide deference that courts have afforded federal officials in defining the scope of

environmental effects to consider. In addition, it is unclear whether the *Act* implicitly requires IFN-related assessments to include *new* IFN determinations if no such work already exists and is up-to-date, and how the *Act* expects federal decision-makers to respond if an assessment shows that a reviewed project will impair IFNs. More significantly, the *Act*'s project-specific focus likely provides only limited federal leverage to maintain IFNs on rivers whose flows are reduced by the cumulative effects of multiple withdrawals, diversions, or other activities although, by requiring an assessment of the cumulative effects of individual projects, the *Act* at least implicitly requires environmental assessments to identify cumulative effects problems. The *Act*'s project-specific focus also precludes federal oversight under the *Act* of provincial regulations, plans, or other management tools that may frustrate the maintenance of IFNs.

The *Species at Risk Act (SARA)*, S.C. 2002, c. 29, provides still another brick in the legislative structure for federal river management. This statute prohibits activities that harm aquatic species listed under the *Act* as threatened, endangered, or extirpated. *SARA* also prohibits activities that destroy any listed species' "critical habitat," as identified in federally adopted "recovery strategies" for listed threatened or endangered species. While the *Act* does not expressly require the maintenance of IFNs in rivers with listed species, the *Act*'s core prohibitions, and provisions for the adoption and implementation of "recovery strategies," impliedly require IFN-related federal decisions with respect to water withdrawals and other activities that may impair any such IFNs. However, the significance of this management role is undermined by several factors, including: practical problems in proving violations of *SARA*'s prohibition; uncertainties as to the scope of federal authority to implement recovery strategies; and, the discretionary nature of the federal government's power to list threatened or endangered aquatic species in the first place.

Of course, even if all such scientifically identified species were listed, the *Act*'s focus only on species "at risk" means that it is designed only to respond to biodiversity "train wrecks" or imminent wrecks, rather than to prevent them from occurring well in advance (Boyd 2003). Thus, *SARA* does not directly encourage a proactive federal role in maintaining IFNs.

As with *SARA*, the *Migratory Birds Convention Act (MBCA)*, R.S.C. 1985, c. M-7, likely provides additional indirect, albeit implied and somewhat uncertain, legislative support for federal involvement in managing Alberta's river flows. In general, migratory birds are a relevant subject for river management because many species and numbers of migratory birds use Alberta's riparian habitats as migratory corridors as well as for nesting, cover, and food supplies, and Alberta's instream river habitats for various purposes including, most notably, to obtain fish and other aquatic food sources (Fitch and Adams 1998). Adequate flow regimes are necessary to sustain both those riparian and instream habitats. Thus, many migratory birds are indirectly dependent on the maintenance of those instream flows.

On its face, the *MBCA* does not make this connection between migratory birds and IFNs. As the *Act*'s name implies, Parliament adopted the *MBCA* to implement the Canada-U.S. *Migratory Birds Convention*. In its statement of purpose, the *Act* purports to accomplish this objective by "protecting and conserving migratory birds ... and their nests," but without referring to other components of the birds' habitats (s. 4). The *Act*'s remaining provisions lack any habitat conservation requirements except a ban on harmful pollution. However, the *Act* gives the federal cabinet express authority to prescribe "protection areas" for migratory birds and their nests, and to provide for the "control and management" of those protected areas (s. 12(1)(i)). The *Act* also gives cabinet discretion to adopt regulations prohibiting or restricting activities that kill or harm migratory birds or which destroy their nests (s. 12(1)(a), (e), (h), and (h.1)). This authority

arguably impliedly covers conservation of habitats other than nests although this coverage is hardly clear.

Pursuant to this authority, the federal cabinet has adopted regulations prescribing migratory bird sanctuaries throughout Canada, including several sanctuaries in Alberta, and then prohibiting or otherwise regulating various activities within those sanctuaries. However, nests are the only component of migratory birds' habitat that is protected by these provisions (Canada Government 1980). To the extent migratory birds nest in riparian zones, the regulations' focus on protecting those nests may provide some implied, indirect protection for instream flows needed for riparian health, but this connection is likely too tangential or remote to provide a meaningful basis for federal management of river flows to maintain IFNs in rivers flowing through designated bird sanctuaries.

Cabinet has adopted other regulations implementing the Act outside of designated sanctuaries but, as with the sanctuaries regulations, these other regulations focus on protecting nests to the exclusion of all other habitat components (Canada Government 2005).

In short, the regulations implementing the *MBCA* do not purport to protect migratory birds' habitat to the full extent that they are arguably allowed to do under the Act and their limited focus on nests provides a weak basis for making the linkage between migratory birds and IFNs for river management purposes.

Besides considering whether the regulations could be strengthened under the Act, it is also worth considering whether the Act's habitat protection provisions themselves could be strengthened to implement the *Convention*. As originally adopted in 1916, the *Convention's* focus was on hunting and trade; the closest it came to protecting migratory bird habitat was a prohibition on the "tak[ing]" of migratory bird nests (except pursuant to a permit) (Bankes 2006). However, in 1995 Canada and the U.S. adopted a *Protocol* which, when it came into force in 1999, amended many of the *Convention's* original provisions. As relevant here, these amendments expanded the scope of migratory bird species covered under the *Convention* (Art. I), endorsed habitat protection as a guiding principle for conserving migratory birds (Art. II), and committed the two countries to take "appropriate measures" to "preserve and enhance the environment" of migratory birds. These actions specifically include "seek[ing] means" within the countries' "constitutional authority" to "prevent damage" to migratory birds and the birds' "environments" (Art. IV).

As amended by the *Protocol*, the *Convention's* broad references to migratory birds' habitat and "environments" arguably make an implied linkage to IFNs and, more generally, commit the countries to adopt much stronger legislative protections for migratory bird habitat than those existing in the current *MBCA* and implementing regulations. However, the *Convention's* limitation of the extent of the countries' commitments to their respective "constitutional authorit[ies]" may be problematic for Canada's adoption of amendments to strengthen the *MBCA's* habitat protection provisions. There is at least some question as to whether the federal government's specific constitutional authority to implement the original *Convention*, and other treaties entered by the British Empire on Canada's behalf, applies equally to the government's implementation of the *Convention's* habitat and environmental protection provisions that were added by the 1999 *Protocol* (Bankes 2006). Of course, even if this authority is inapplicable, the federal government may still rely on its constitutional POGG power (as discussed above) to legislatively implement the amended *Convention* although, again, the availability of that power is itself uncertain.

Canadian water policy

The above discussion mentioned DFO's generic policies for implementing the fish habitat protection provisions of the *Fisheries Act*. This part addresses two even "broader brush" federal water policy statements – the 1978 "Federal Policy Statement on Inland Waters" and the 1985 "Federal Water Policy". While not legally binding, these policies provide further guidance on federal roles in river management (Brandes 2005; Pearce 1985). However, neither policy makes a clear, express case for federal management of water uses to maintain IFNs.

The 1978 policy focused more on water quality than quantity and as to the latter, did not expressly mention the need to maintain IFNs generally, let alone purport to define the appropriate federal role in that endeavor. However, the policy committed the federal government to promote broad water conservation and aquatic ecosystem protection objectives which impliedly include maintaining IFNs (Canada Government 1978).

The 1985 federal policy came on the heels of a comprehensive federal inquiry whose report – *Currents of Change* – arguably became more renown than the policy itself and, thus, is worth mentioning here. The report started by accepting, as among the basic "principles" for water management, that water managers should "aim" to protect aquatic ecosystems and should account for the "intrinsic value" of natural flows and hydrologic regimes more generally when considering major or irreversible changes to water systems (Pearce 1985). The report addressed IFNs specifically by lamenting the dearth of relevant scientific analysis but also by suggesting that the problem of meeting IFNs was likely only or most acute in the southern prairie region (Pearce 1985:44-48). The report noted that reallocations may be needed in that region but did not clearly link this endeavor to IFNs or define what role the federal government should play in making any such reallocations (Pearce 1985). However, the report impliedly endorsed federal considerations of IFNs, in calling for more comprehensive environmental assessments as a basis for federal decisions with respect to irrigation projects and other large-scale water developments (Pearce 1985).

The ensuing "Federal Water Policy" made no express federal commitment to maintain IFNs. However, that function could well be inferred from the Policy's more general commitments to promote integrated watershed management and to protect fish habitat (EC 1985). National water policy development and implementation largely stagnated in the roughly 15 years following the federal government's adoption of the 1987 "Federal Water Policy" (PRI 2005; CESD 2005). However, in 2003, the federal government identified water as a priority for sustainable development and convened an interdepartmental committee which produced a "Federal Water Framework" that was approved by a committee of deputy ministers in 2004 (CESD 2005). According to a secondary government source, the 2004 "Framework" lists several broad federally-desired outcomes, including aquatic ecosystem protection (CESD 2005). This outcome impliedly requires programs to maintain IFNs, but it is uncertain whether the "Framework" makes this link expressly, because the "Framework" apparently has not been publicly released. Moreover, the committee's status and future work are uncertain (CESD 2005) or, in harsher words, have "go[ne] nowhere" (Senate 2005).

Whether the 2004 "Framework" is itself re-energized, there are substantial pressures to reform the 1987 "Federal Water Policy" resulting from recent droughts and growing concern about effects on supplies from climate change and over biodiversity losses. A 2005 Senate report, several recent Environment Canada reports on aquatic ecosystem health, and ongoing federal water policy research, may provide further impetus for federal policy change (Senate

2005; EC 2001 2004; PRI 2003, 2004, and 2005). The Senate report is particularly noteworthy because it focuses on what its authors consider to be an “emerging water crisis” in western Canada, particularly in Alberta (Senate 2005). The report does not expressly call for the widespread use of IFNs in water management, but this approach is arguably implied in the report’s lament that water management decisions are being made without adequate information on the report’s question: “How much water can you take out of rivers for irrigation and other consumptive uses and still have a sustainable ecosystem?” (Senate 2005:).

Although the Senate’s report provides still additional impetus for new federal water policy development, the 1987 “Federal Water Policy” remains the leading current statement of federal water policy (PRI 2005). And, as noted above, that Policy provides only implied direction for federal involvement in river management to maintain IFNs.

Federal practice and IFNs

As suggested above, the generic legal and policy frameworks for federal water management lack a clear, express call for federal efforts to maintain IFNs, but they at least impliedly leave the door open for that kind of federal management role. This part addresses how the federal government has implemented its ambiguous general mandate. This record, at least with respect to Alberta rivers, is multi-faceted, complex and unclear in many respects.

One of the simpler facets of this overall record is that the federal government has developed no unilateral or even federal-provincial program under the *Canada Water Act* to maintain IFNs.

Nor has the government had the occasion to decide whether to implement IFN-related tools under *SARA*. To date, the “western silvery minnow” is the only Alberta-based aquatic species that is already listed under *SARA* and whose “threatened” status has resulted, at least in part, from reduced river flows. But the government has not yet completed its recovery strategy and action plan for that threatened species, so it is uncertain how the strategy and plan will address reduced flows (EC 2006; Hnytka 2006).

With increasing droughts forecasted, increasing demands, and Alberta’s general aversion to using IFNs as targets for managing flows in southern rivers (Kwasniak, Wenig, and Quinn 2006), aquatic biodiversity concerns stemming from reduced flows in Alberta are likely to heighten and *SARA* could well become the focal point for addressing these concerns. For example, the federal government is currently considering listing the eastslope sculpin, found in Alberta’s Milk and St. Mary rivers, as threatened. This listing could place IFN maintenance issues squarely on the federal radar screen because the species’ primary threat is from reduced river flows (Hnytka 2006). Alberta’s lake sturgeon and westslope cutthroat trout are currently being scientifically assessed for potential listing and, due to their sensitivity to reduced river flows, may likewise trigger federal IFN maintenance issues under *SARA* (Hnytka 2006).

The record to date of federal attention to IFNs is less clear in connection with project-specific federal assessments or approvals under *CEAA*, the *Fisheries Act*, and the *International River Improvements Act*. One reason for this lack of clarity is that there is no central listing of federal IFN-related decisions in these project-specific contexts. (In fact, while all *CEAA* assessments since 2003 are reported in an on-line registry maintained by the Canadian Environmental Assessment Agency, there is no central, readily accessible listing of any project-specific federal approval decisions under the *Fisheries Act* and *International River Improvements Act*.) Thus, to identify how and whether the federal government considered IFNs in its reviews of projects that might affect IFNs of Alberta rivers, it would be necessary to

research the records of the government's review of likely numerous potentially relevant projects. That extensive research task is beyond the research scope for this paper.

With this huge information gap in mind, the information reviewed to date suggests that IFN issues have been addressed by the federal government in environmental assessments that it has conducted as well as in issuing any corresponding federal approvals, of dams and other instream obstructions of Alberta river flows. However, even here the record is mixed – albeit mostly uncertain – as to whether the government has even required approvals, at least under the *Fisheries Act*, for most dams and other obstructions of Alberta rivers (Kostuch 2006) and, where approvals have been required, as to the extent or rigour of the federal government's attempt to actually *maintain* IFNs in these project-specific contexts. The history of downstream flow-related concerns from the federally approved, B.C. based Bennett Dam, which altered downstream flows in the Alberta portion of the Peace River (NRBS 1996), provides at least one example where the government has not insisted on maintaining IFNs in its regulation of instream obstructions. Another example might be DFO's *Fisheries Act* approval for the Oldman River dam. The approval contains conditions that are broadly tied to IFN-related work, but the approval expired in 2000 and, to date, DFO has not insisted that Alberta apply for a new approval (Petry 2006). While DFO has been involved in considerations of IFN issues downstream of the dam, the approval's expiry suggests that DFO does not view the approval as an important regulatory instrument for maintaining IFNs below the dam.

The track record of federal IFN considerations in the context of managing withdrawals from or diversions of Alberta's surface waters is also uncertain but is likely much less extensive than in the context of managing instream obstructions. The reason for the federal government's greater indifference to managing withdrawals and diversions than obstructions is no doubt tied to constitutional concerns and DFO's unwritten "policy" against applying the fish habitat protection provisions of the *Fisheries Act* to withdrawals or diversions that have historic legacies. As discussed above, however, neither of these reasons is fully justified.

Putting aside the federal government's past record, it appears that the government is paying increasing attention to IFN issues at the national level, by recently forming an internal DFO IFN working group (Courtney 2006). The federal government is also reportedly paying closer attention to IFN issues in the prairie provinces more specifically (PPWB 2005), and in the context of managing Alberta-based withdrawals and diversions, in particular. As to the latter, the adequacy of instream flows in the lower Athabasca River has become a significant concern in federal, and joint federal-provincial, environmental assessments of oilsands projects in recent years (Griffiths *et al.* 2006). Until recently, the federal government's strategy for addressing that concern had been to allow iterative oilsands projects all the while bemoaning continued delays in the development of an IFN framework by the multi-stakeholder "Cumulative Effects Management Association" (CEMA) (Wenig 2004, Griffiths *et al.* 2006). However, there are recent signs of growing federal dissatisfaction with this approach. One of these signs is DFO's inclusion of its own flow protection conditions in its first *Fisheries Act* oilsands approval for water withdrawals (Courtney 2006). And, in a 2004 oilsands environmental assessment, the federal-provincial "Joint Review Panel" recommended that DFO and Alberta Environment take the lead if CEMA did not complete its IFN work by the end of 2005 (JRP 2004). Alberta proposed such a draft framework on its own in early 2006, but the province and DFO are now working together on a new IFN framework (Courtney 2006).

Federal responses to Alberta's long-standing plan to increase irrigation diversions from the Highwood River, in southwest Alberta, provide another example of increased federal attention to

the IFN implications of Alberta water withdrawals and diversions. A multi-component project proposal – including the increased diversion – triggered an environmental assessment which the federal government completed jointly in 1998 with Alberta’s Natural Resources Conservation Board (NRCB 1998). In its broadly focused assessment, the Joint Review Panel criticized Alberta’s historic licencing of water from the Highwood basin as “inconsistent with sound resource management practices” and “not protective of fish habitat” (NRCB 1998:4-29). The assessment similarly expressed “serious concern” with then-existing management of fish habitat which the panel viewed as inconsistent with the *Fisheries Act* and accompanying DFO policy (NRCB 1998:4-19 – 4-20). The federal government subsequently participated in an additional IFN study (Clipperton *et al.* 2002) and, while DFO granted an interim authorization for diversions at historic levels, it has yet to authorize the increased diversions proposed by the province (Courtney 2006).

These two examples of recent federal management of Alberta water withdrawals or diversions both involved federal environmental assessments under *CEAA*. However, it appears that the federal government pays less attention to IFN concerns that arise from projects or other actions that do not trigger *CEAA* assessments. Thus, for example, DFO has provided no formal response to Alberta’s recent proposal, in Phase 2 of its draft South Saskatchewan River Basin Plan to adopt water conservation objectives that are insufficient to maintain IFNs (Courtney 2006).

Summary of the federal framework

Federal water policy has long subscribed to the goal of sustaining aquatic ecosystems, but has not made a clear call for federal river management efforts to actually maintain IFNs. The legal framework for federal involvement in river management also falls short of this policy goal in its lack of attention to IFNs. The most obvious feature of this framework is that it is multi-faceted and not cohesive due, in no small part, to the scattered sources of relevant federal Constitutional authority. However, those sources collectively, and the federal constitutional power to conserve inland fisheries in particular, likely provide the federal government with considerable authority to develop programs to maintain IFNs.

Federal legislation is devoid of express references to IFNs, but several federal statutes – particularly the *Fisheries Act* – implicitly require IFN considerations for relevant projects that may impair river flows. DFO’s written policies implementing the *Fisheries Act* recognize this linkage, but hardly call for an aggressive use of the *Act* to maintain IFNs. If anything, a passive approach has likely been engendered by DFO’s unwritten, and likely legally unwarranted, policy disfavours application of the *Act*’s fish habitat protection provision to ongoing activities that commenced before the provision was adopted.

Considerable further research is needed to document the federal government’s record of considering IFNs in its actual project approval decisions and environmental assessments for projects located on or otherwise affecting Alberta rivers, and in other Alberta river-specific management contexts in which the federal government has played a role. Research to date, however, suggests that this record is spotty, at best, from geographic, chronological, and program standpoints.

MANAGING THE TRANSBOUNDARY ASPECTS OF ALBERTA'S RIVERS

Alberta's rivers are part of drainages that flow in essentially three general directions. The province's three northern river basins – the Hay, Peace, and Athabasca – flow north into the Mackenzie River basin which drains into the Beaufort Sea. The Beaver River basin in Alberta's east-central region flows into the Churchill River system which ultimately drains into Hudson Bay. That water body also receives flows from Alberta's North and South Saskatchewan River basins. Finally, Alberta's Milk River basin drains into the Missouri River and ultimately into the Gulf of Mexico (having originated in Montana). Three other Alberta rivers – the Waterton, Belly, and St. Mary – also originate in Montana but then flow into the South Saskatchewan basin (Alberta Environment 2005). Thus, Alberta's river systems cross provincial, territorial, and international boundaries.

Special interjurisdictional management regimes exist for each of these river systems because of their transboundary nature, so those special regimes provide still another context for assessing the prevalence of IFN determinations in Alberta river management.

Interjurisdictional management of Alberta's domestic transboundary rivers

Alberta's rivers in the Mackenzie and Hudson Bay drainages are covered by river management agreements among the federal government and – Alberta, Saskatchewan, and Manitoba, in the case of the Churchill and Saskatchewan drainages; and, Alberta, B.C., Saskatchewan, and the Yukon and Northwest Territories, in the case of the Mackenzie drainage. These two agreements are discussed below.

The Master Agreement on Apportionment

The federal government and the three prairie provinces entered into an agreement in 1969 to manage rivers flowing into Hudson Bay from the Rockies. As its name suggests, this *Master Agreement on Apportionment* focuses on apportioning river flows among the three prairie provinces. The *Agreement* also has reconstituted the then-existing Prairie Provinces Water Board to oversee flow monitoring, conduct other water management studies, and to provide assistance in implementing the *Agreement's* apportionment provisions.

In a nutshell, those apportionment provisions allow Alberta to divert up to 50% of net natural flows into Saskatchewan. (The provisions allow Alberta to divert up to 75% of natural flows for three tributaries of the Milk River that drain into the U.S. via Saskatchewan.) Saskatchewan can then divert up to 50% of its net natural flows into Manitoba. The *Agreement* modifies this general rule by allowing Alberta to divert up to a specified volume of the South Saskatchewan River but only as long as the resulting flows into Saskatchewan exceed 1500 cubic feet per second (PPWB 2003).

The 50% flow diversion rule was intended to provide an equitable framework for the provinces to maximize their consumptive uses, although it might incidentally facilitate, rather than frustrate, efforts to achieve IFNs under certain circumstances. The intent behind the 1500 cfs rule is more directly tied to then-existing determinations of instream flow needs, but likely only with respect to flows that Saskatchewan believed it needed for navigation and effluent dilution, rather than for conserving fish habitat or aquatic ecosystems more generally (Dybvig 2006; PPWB 1982). However, this intent is not certain because the historical origins of the 1500

cfs rule are poorly documented (Dybvig 2006).

While its title refers specifically to “apportionment,” the *Master Agreement* includes several provisions addressing “water quality”. These provisions include a commitment by the parties (in Schedule E) to take “reasonable and practical measures” to keep the quality of inter-provincial rivers within limits set by numeric “water quality objectives” for various parameters.

The *Agreement* itself includes several tables of agreed numeric objectives, but the *Agreement* also requires the PPWB to periodically review the “appropriateness” of these objectives and to make recommendations to the parties on revising them (Sched. E, s. 8(c)).

Most of the *Agreement*’s listed objectives are pollutant-specific (e.g. chlorine, ammonia), but several refer to instream chemical and physical characteristics (oxygen, pH, and total dissolved solids). Thus, while flow controls may be needed to achieve the agreed objectives, none of the objectives themselves relate directly to IFNs or to IFN-related, flow-based parameters. However, the *Agreement* arguably does not preclude this IFN-water quality linkage, because the *Agreement*’s text ties the term “water quality” to a broad concept of “aquatic environment” protection. And the *Agreement* defines water quality “objectives” broadly in terms of “chemical, physical, or biological” variables which impliedly cover flow-related variables (Sched. E, ss. 1(a) and (e), 2, and 4). Thus, the *Agreement* would appear to sanction the Board’s development and recommendation of IFN or flow-based parameters as additional “water quality objectives”.

Besides the *Agreement*’s broad concepts of “water quality” and instream “objectives,” the *Agreement* gives the Board broad authority to conduct research and make recommendations to further a cooperative, comprehensive, and integrated water management approach generally, and a “preventive and proactive ecosystem approach” to water quality management, more specifically (s. 13; Sched. C, ss. 2 and 4; Sched. E, ss. 1(b) and 8(e) and (f)). These provisions further buttress interpreting the *Agreement* as giving the Board broad general authority to investigate and report on IFN issues, albeit without any capacity to actually enforce IFN-based requirements on the parties.

An investigation of the Board’s complete involvement with IFNs is beyond the scope of research for this paper. However, the research conducted to date suggests that the Board’s involvement with IFNs has been sporadic and, consistent with its advisory mandate, limited to providing information and facilitating discussion. The Board’s IFN-related work includes a comprehensive 1982 study on water demands in the Saskatchewan-Nelson Basin (PPWB 1982). A voluminous appendix to this study provides an overview of then-existing knowledge of natural flows, fish-based IFNs, flow management approaches, and flow-based environmental threats in the major rivers (and their primary tributaries) in each of the Basin’s eight sub-basins (PPWB 1982a). Notably, both the main report and Appendix caution that the underlying studies had not satisfied the Board’s objectives for obtaining IFN-related information, due to lack of existing data, inconsistencies in data gathering, and the highly generalized nature of the IFN methodology used (PPWB 1982, 1982a).

It appears that the Board’s next major foray in the IFN field was its completion of a 1998 report on IFN methodologies and practices among the three prairie provinces (PPWB 1998). The Board followed up this project by hosting an IFN workshop in 2006. This workshop consisted of presentations on current IFN work, but the participants also brainstormed on: IFN-related information gaps and collaborative opportunities; whether a more consistent approach toward IFNs was needed among the provinces; and the Board’s potential roles with respect to IFNs. The workshop was viewed as only the “first step,” but the next steps – and the Board’s role – were not clarified (PPWB 2006).

The Mackenzie Agreement

The second of the two intra-Canadian, transboundary river management agreements discussed in this section is the *Mackenzie River Basin Transboundary Waters Master Agreement*. Adopted in 1997, this *Agreement* is intended to provide a broad framework for “cooperative management” of the Basin’s “aquatic ecosystem” (Part A). The *Agreement* serves this purpose, in part, by committing to several management principles to guide the development of future bilateral river management agreements and also the work of the Mackenzie River Basin Board, which was created by the *Agreement* (Saunders and Wenig: forthcoming).

Nothing in the *Mackenzie Agreement* expressly requires the determination and maintenance of IFNs for the Basin’s rivers and there have been no bilateral agreements providing for this management approach. However, an IFN-based approach is arguably consistent with the parties’ commitment to collaborate in a “sustainable manner for present and future generations” (part C, ss. 1-2). There is an even stronger linkage between IFN-based management and the parties’ commitment to “maint[ain...] the Ecological Integrity of the Aquatic Ecosystem”, although this linkage is weakened somewhat by the *Agreement*’s approach of defining “Ecological Integrity” in terms of ecosystem “conditions” established in subsequent bilateral agreements (part B), which have not yet been adopted.

The *Agreement* also states that each party has a “right ... to use or manage waters in its part of the Mackenzie Basin provided such use does not unreasonably harm the Ecological Integrity of the Aquatic Ecosystem in any other jurisdiction” (part C, s. 3). By imposing an environmental protection responsibility on each party only with respect to extrajurisdictional environments, this principle is somewhat at odds with the Ecological Integrity principle noted above and it sends still more mixed signals about the importance of maintaining IFNs.

Besides listing core management principles, the *Agreement* gives the Board express authority to identify and conduct studies and develop proposed water quantity-based “objectives or guidelines,” as needed to implement the *Agreement*. This broad authority likely provides the Board with additional discretion to promote IFN-related work although, as with the PPWB, none of this authority includes requiring the parties to maintain IFNs.

Pursuant to its authority, in 2003 the Board published a *State of the Aquatic Ecosystem* report that included discussion of instream flow problems in the Mackenzie Basin. But the report refrained from recommending strategies for solving these problems (MRBB 2003). Nor has the Board proposed flow-based objectives or guidelines or developed any other proposals for management strategies to maintain IFNs. In particular, the Board has refrained from providing formal input on provincial and federal strategies for maintaining instream flows in the lower Athabasca River – likely the most prominent current IFN hotspot in the Mackenzie Basin.

In 2001, one commenter concluded that the *Mackenzie Agreement* had not “significantly enhanced the legal and policy framework for addressing transboundary issues in the northern river basins” (Kennett 2001). The above analysis supports this conclusion, at least, to the extent of suggesting that neither the *Agreement*’s text, nor the Board’s subsequent actions, provides an aggressive framework for maintaining IFNs at a transboundary level.

These observations are consistent with the prior history of unheeded calls for more rigorous attention to IFNs in Alberta’s northern rivers. The *Agreement* is an offshoot of a roughly 35 year history of transboundary initiatives for rivers in the Mackenzie Basin. This history includes a 1981 report recommending that the relevant governments adopt an agreement to address

transboundary management issues, including minimum flows (MRBB 2006; Kennett 2001). This recommendation ultimately led to the 1997 *Master Agreement* but, while that *Agreement* was being developed, the governments of Alberta, Canada, and the Northwest Territories sponsored the *Northern River Basins Study* – a five year program whose purposes were to assess uses of and conditions in the Peace, Athabasca, and Slave River basins, and to then make recommendations for management of those three basins. Although the *Study* was prompted largely by public concerns about pulp mill pollution, the *Study* addressed a wide range of other environmental and health issues including minimum flows. As relevant here, the *Study*'s final, 1996 report encouraged Alberta to take an “active role in setting aside stream flows for protection of aquatic habitat. A positive proactive program with consistent criteria would best serve the public interest.” Toward that end, the *Study* made several flow-related recommendations, including a recommendation that the province incorporate IFNs as a “first priority” in managing the province’s northern rivers (NRBS 1996:158; Kennett 2001). In its formal response to the *Study*, Alberta endorsed this recommendation, stating that it would incorporate IFNs as a “high priority” in water management planning under its new *Water Act* (CANWT 1997; Kennett 1991) However, given the province’s nascent efforts to maintain IFNs in the lower Athabasca River, and still preliminary planning for the Lesser Slave Basins (Kwasniak, Wenig, and Quinn 2006), it is debatable whether the province has lived up to this 1997 commitment.

Alberta’s international rivers

The inter-jurisdictional management regime for Alberta’s rivers that cross national borders stems from the 1909 Canada-U.S. *Boundary Waters Treaty*. Most of the Treaty’s provisions specifically address “boundary waters” which the Treaty defines as waters that straddle the Canada-U.S. boundary. However, several of the Treaty’s provisions address waters that flow across, rather than simply straddle, the boundary. The Alberta-based cross-border rivers (referenced as “transboundary” rivers below) are the Waterton, Belly, St. Mary, and Milk Rivers and associated tributaries.

Chief among the *Treaty*'s provisions for transboundary rivers is Article II, which affirms each country’s sovereign rights – i.e. its rights to “exclusive jurisdiction and control”– over the “use and diversion” of water on its side of the border of transboundary rivers. (This is a treaty-specific expression of the more general “Harmon doctrine” of international law.) For purposes of this paper, the *Treaty*'s affirmation of national sovereignty is most notable as the antithesis of a mutual endorsement of the need and mutual obligation to maintain IFNs in cross-border rivers. However, the *Treaty* does not *preclude* efforts to maintain IFNs by either country if, as likely, the “use” rights affirmed by the sovereignty provision Article II impliedly include instream uses.

Moreover, the sovereign rights in Article II are not absolute – they are expressly limited by three other treaty provisions one of which requires the approval, by an “International Joint Commission” (IJC) established by the *Treaty*, of projects in one country that raise water levels on transboundary rivers above natural levels in the other country (Art. IV). A second provision grants certain remedial rights to parties in one country who are “injured” by the other country’s exercise of its sovereign water use rights (Art. II). And the third states that waters flowing across the border “shall not be polluted” on either side of the border “to the injury of health or property” on the other side (Art. IV).

The precise scope and application of these limitations is unclear. For purposes here, their

distinguishing characteristic is that none of them expressly requires IFN maintenance or even expressly requires consideration of IFNs as a limitation on the countries' sovereign use rights. (This is equally true of the *International Boundary Waters Treaty Act*, R.S.C. 1985, c. I-17, which is Canada's legislation implementing the *Treaty*.) While all three sovereignty limitations might be read to impliedly authorize IFN considerations, at best, any such implied authority arguably provides only weak leverage for maintaining IFNs.

The *Treaty* provisions discussed above apply generically to all Canada-U.S. transboundary rivers. However, Article VI of the *Treaty* provides additional terms relating specifically to the Milk and St. Mary Rivers. Under that Article, those rivers' waters shall be "apportioned equally" between Canada and the U.S. The Article also essentially sanctions a U.S.-based diversion of St. Mary flows to the Milk River, provides for concurrent consideration of flows in both rivers for purposes of implementing the equal apportionment principle, and includes specific minimum flow diversion rights to each of the two rivers. While these provisions specifically address river flows, they do so without regard to flow regimes needed to actually maintain IFNs (Saunders & Wenig: forthcoming).

Article VI also gives the IJC considerable authority to implement the equal apportionment principle but, again, without requiring the Commission to consider IFNs in carrying out this function. In fact, it is unclear whether that Article gives the IJC even implied discretion to consider IFNs in carrying out this function. Not surprisingly, when called upon to resolve an apportionment dispute arising soon after the *Treaty* was adopted, the IJC issued an *Order* setting out detailed, quantitative and procedural apportionment rules that, on their face, lack any regard for IFNs. The IJC's landmark 1921 *Order* did include water conservation recommendations but, not surprisingly given the scope of water managers' concerns in 1921, they too appear on their face to have been intended to satisfy land-based – i.e. consumptive – needs rather than instream needs for aquatic ecosystem protection (IJC 1921).

More recently, IFN concerns were actually brought to the IJC's attention in connection with a request by the State of Montana to reopen the IJC's 1921 *Order*. Although neither Montana's request, nor Alberta's detailed response, addressed IFN issues, several citizens groups urged the IJC to establish a new apportionment regime for the St. Mary and Milk River systems that accounted for IFNs. The IJC resolved Montana's request by setting up a multi-national task force to study and make recommendations to the IJC on "measures for improvements to existing administrative procedures" of the St. Mary and Milk River apportionment scheme to "ensure more beneficial use and optimal receipt by each country" of its apportionment (IJC 2004). These terms of reference could be read to include an implied charge for the task force to further consider the citizens groups' IFN concerns, although that mandate was hardly clear.

In the face of this uncertainty, the Task Force's 2006 report addressed IFNs, but only cursorily. In a concluding list of "other issues," the report essentially noted the implications of any effort to maintain IFNs for the countries' apportionments and recommended that "additional work" be undertaken on the topic to enable both countries to "optimize" their "entitlements" (Task Force 2006:46-47). In other words, the Task Force's report appeared to focus more on how any national effort to maintain IFNs might affect the bi-national apportionment, than on how the two countries could mutually maintain IFNs as a first or fundamental principle for transboundary river management.

While its management of the Milk and St. Mary Rivers has not had an environmental focus, the IJC has addressed environmental aspects of flow and lake levels in other regions, including the Great Lakes. And the IJC has addressed numerous other environmental issues in the context

of its broader mandate under the *Treaty* to advise Canada and the U.S. on issues of mutual interest to the two countries. In this context, in 1997 the IJC responded to a request by the two countries for recommendations on how the IJC could help them meet environmental challenges in the twenty first century. Two of the IJC's recommendations would likely give IFNs more visibility in the management of transboundary and other Canada-U.S. waters. One recommendation was to study biodiversity in, and ecological needs of, those waters (IJC 1997). The other recommendation was to establish permanent bi-national watershed boards to manage Canada-U.S. waters on an integrated, ecosystem-basis (IJC 1997). Since making these recommendations, the IJC has taken a narrower, pragmatic approach of promoting existing or nascent watershed-based management initiatives in several specific Canada-U.S. watersheds, which do not include those encompassing the Alberta-Montana rivers. But the IJC's intent is to ultimately expand these programs to all Canada-U.S. watersheds (IJC 2005). Thus, the IJC's work in other water and non-water environmental contexts provides a useful precedent for that institution's potential future involvement in maintaining IFNs on Alberta's transboundary rivers.

SUMMARY

Alberta's river basins cross three domestic boundaries and one international boundary and are the subject of three transboundary river management agreements. Both the agreements for the Alberta-Montana cross-border rivers and for Alberta's eastward flowing rivers that drain into Hudson Bay focus on apportioning river flows among the relevant jurisdictions. And both agreements pay virtually no express attention to instream flows needed to sustain aquatic ecosystems. While both the Prairie Provinces Water Board and the International Joint Commission have shown an institutional interest in environmental issues, neither of these two institutions is likely to be able to make IFNs a significant river management focus under its current mandate.

Unlike these two agreements, the agreement for managing the Mackenzie River basin sets broad threshold environmental objectives. But the Mackenzie agreement seems to rely, less on its own terms, than on the adoption of subsequent bilateral 'side' agreements, to achieve these environmental objectives. The Mackenzie River Basin Board has raised IFN concerns in its state of the basin reporting, but has not recommended IFN-related guidelines nor participated in any of the river-specific management fora where IFN concerns have been raised.

INTER-JURISDICTIONAL RIVER MANAGEMENT

There are several inter-jurisdictional groups, in addition to those discussed above, whose functions relate directly or indirectly to Alberta river management. One such group is the Instream Flow Council whose members consist of governments throughout Canada and the U.S. The Council's mission is ultimately tied to determining, protecting, and restoring IFNs, but the Council serves this mission through purely informational functions; it plays no direct river management role (IFC 2005, 2005a).

Alberta and the federal government both participate in the IFC, as well as in several intra-Canadian intergovernmental organizations designed to facilitate intergovernmental cooperation and consistency in environmental and natural resource management. One of these groups is the Canadian Council of Fisheries and Aquaculture Ministers. These Ministers meet annually and the Council sponsors various committees and task forces that report to the Ministers on areas of

mutual interest including freshwater fisheries. The Council's *Freshwater Fisheries Strategy* makes broad commitments to protect fish habitat and calls for an ecosystem approach to habitat management (CCFAM 2005b). But the *Strategy* contains no program to maintain IFNs and nor does the Council appear to have any ongoing or historic IFN-related programs (CCFAM 2004, 2005a).

The Canadian Council of Ministers of the Environment (CCME) is the analogous Council – for Canadian Environment Ministers. The CCME has been involved in many environmental initiatives but, to date, its focus has been mainly on implementing a 1998 Canada-wide *Accord on Environmental Harmonization*. This *Accord*, in turn, contains a general set of agreed upon environmental management principles and provides a broad partnership framework to promote the development of consistent management approaches, resolve intergovernmental disputes, and define clear, non-duplicating governmental roles (CCME 1998). The CCME's work has covered a wide range of topics, from the development of uniform air and water quality environmental guidelines, to bilateral agreements on environmental assessments, bulk water exports, and water conservation (especially economic instruments). Although it has a broad focus, and has already covered several aspects of water management, to date the Council has not addressed IFN-related aspects of river management (Casey 2006). Nor does it appear to intend to do so, at least, in the next few years (CCME 2005).

SUMMARY AND RECOMMENDATIONS

The methodology for determining IFNs is highly evolving and variable. Yet, at a basic level, processes for determining and maintaining IFNs are a necessary component of any river management framework that purports to sustain aquatic ecosystems.

The written, generic frameworks for federal and interjurisdictional involvement in Alberta river management all lack an express focus on IFNs. Nevertheless, the federal framework provides implied authority for federal efforts to maintain IFNs, especially for purposes of fish conservation, as do the broad charters for the interjurisdictional councils of Canadian environment and fisheries ministers. In contrast with these sources, the text of the agreements for transboundary river management likely preclude or at least substantially frustrate any efforts to maintain IFNs by the accompanying transboundary river management institutions.

Further research is necessary to determine the extent that IFNs have been considered in, and used as a target for, federal review of specific projects that may alter Alberta river flows and the federal government's exercise of other Alberta river-specific management functions. However, research to date suggests that this federal record is not consistent from geographic, historical, and programmatic standpoints.

Of course, these findings beg the questions of what role the federal government and the various inter-jurisdictional organizations *ought* to play maintaining IFNs on Alberta rivers and how those roles should relate to any similar role played by Alberta itself. These questions raise a whole host of political, legal, and practical issues that are beyond the scope of this paper. However, the lack of attention to IFNs in the federal and inter-jurisdictional frameworks, *as well as* the corresponding gap in the provincial framework (as shown in the accompanying paper by Kwasniak, Wenig, and Quinn), indicate that IFNs have fallen through the cracks in the overall generic, multi-jurisdictional framework for managing Alberta's rivers.

To begin to fill this gap, it would be useful for the federal government to compile and publicly release a complete record of federal IFN-related regulatory decisions. The government

should also undertake a generic policy making process, either targeted on Alberta rivers or for the broader prairie provinces or perhaps nation-wide, that goes beyond general commitments to aquatic ecosystem protection and specifically addresses the federal role in maintaining IFNs. Given the close link between water quantity and quality, this process should also address the federal role in regulating water pollution and in other river management components that affect the overall quantity-quality interface.

Either as part or independently of this policy making process, the federal government should also engage the other parties to the three transboundary river management agreements in a discussion of what role those agreements should play in maintaining transboundary IFNs and aquatic ecosystems in general. Perhaps the time has come for the jurisdictions to recognize, as a starting point for transboundary river management, their mutual obligation to maintain sufficient flows and other ecosystem components to protect aquatic biodiversity and other ecosystem values for the sake of society at large (if not also for the critters' own sake). This said, there are considerable issues as to how any such mutual obligation should be incorporated or reflected in inter-jurisdictional agreements and intrajurisdictional management frameworks (Wenig & Quinn: forthcoming).

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