

Validating the Comparative Network Framework in a Canada/United States Context

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ABSTRACT The comparative network framework (CNF) has been proposed to move network theory from discussions based largely on understanding local and national systems toward discussions of increasingly common cross-border relationships. Cross-border forms of public organization, such as the Canada/United States Pacific Salmon Commission (PSC), are increasingly utilized to help manage complex regional policy and implementation issues. This article presents the results of survey research designed to test the validity of the CNF within the PSC network structure. The main suggestion is that knowledge of existing subnational, regional and/or national networks (i.e., subnets) can help nations design less contentious cross-border networks (i.e., supranets).

In many ways the Pacific Salmon Commission (PSC) seeks to forge an unnatural alliance to help ensure the long term viability of the salmon fishing industry up and down the Pacific Coast. Two hundred years ago few fishermen in Oregon knew any fishermen in Washington, British Columbia or Alaska, and collectively they lacked the harvest technologies to challenge the survival of salmon stocks. In the late 1800s and early 1900s the industry became more commercial than subsistence in its orientation and technologies were created that allowed for excessive harvests (Cone and Ridlington 1996; Carlisle Packing Company 1920). At the same time people travelled only occasionally and communicated minimally up and down the coast. This meant that potentially devastating technologies were unleashed without coherent forms of social organization to control the impact on the resource.

Today's fishing technology can nearly wipe out any given salmon stock in one harvest cycle, yet forms of social organization have emerged to suppress the complete use of such technologies and to develop countervailing technologies such as marking hatchery fish to distinguish them from wild salmon runs and monitoring the salmon catch on a daily basis. This social organization, aided by advanced communications systems, extends up and down the west coast and inland as far as the capital cities of Ottawa, Ontario and Washington, DC. It is embodied in the PSC, the Pacific Fishery Management Council, various gear group and regional fishing associations, and other regional institutions. The pace of this change is

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evident when one sees the 13-fold increase in real terms in global trade of goods and services from 1950 to 1990 (Fry 1993). Communications and shipping costs are now between one-third and one-twentieth of 1950 levels, thus spurring a rapid increase in cross-border economic and governmental activity (Boeckelman 1996).

This cross-border case is used to help explain and test the comparative network framework (CNF) because it serves as a classic case where complex networks have developed – first locally, then regionally, and finally internationally – as communication technology and mobility have increased. Government may be at the core of this network today, but the network is a complex creature with numerous public and private participants, including dozens of tribal and intertribal organizations. To use my terms, this complex cross-border network structure is a “supranet” while the numerous within-border subnational, regional and national networks are “subnets”. Actors in the supranet are organizational actors, yet they are enmeshed in a series of smaller networks as well (i.e., their subnets). Figure 1 depicts this complex Pacific Salmon Commission supranet.¹

The PSC supranet is about managing a joint economic resource rather than about trade, because Salmon trade among these North American partners is minimal. The focus of this research is on the cross-border network structure – the inter-organizational relationships surrounding the PSC – that form the basis of modern social co-operation. While many individuals may argue that “co-operation” is not the essence of the PSC, they may be overlooking what is prevented (i.e., what could take place but does not) because of their understandably strong concern for what does take place. There are occasional fishing wars, as when Brian Tobin was Canadian fisheries minister (David Suzuki Foundation 1995; Wood 1995), yet this could be the approach every year rather than in aberrant years. Some salmon stocks are on the US endangered species list, yet other stocks remain healthy even though unrestrained fishing could rather easily wipe them all out (Mapes and Anderson 1999; National Marine Fisheries Service 1999). Lastly, harvest is only one cause of damage to the viability of salmon stocks and so the PSC is largely intended to focus on this one piece of an amazingly complex puzzle that involves hydroelectric dams, habitat protection, polluted rivers, poor ocean survival rates due to temperature fluctuations, and more (Hilborn 1990; Miller 1996).

Networks and the Comparative Network Framework

Amidst the far-reaching threats that salmon face, one could easily argue that the PSC supranet is doing its fair share to ensure species survival. This, however, is not to say that the PSC was designed to function in an optimal manner. I will argue that a greater understanding of the incompatibilities of the subnets could have facilitated a more functional treaty design. This argument first requires a brief examination of network theory and then an understanding of the CNF.

Network Theory

Laurence J. O’Toole, Jr. (1997: 45) states that: “Networks are structures of interdependence involving multiple organizations or parts thereof, where one unit is not merely the formal subordinate of the others in some larger hierarchical

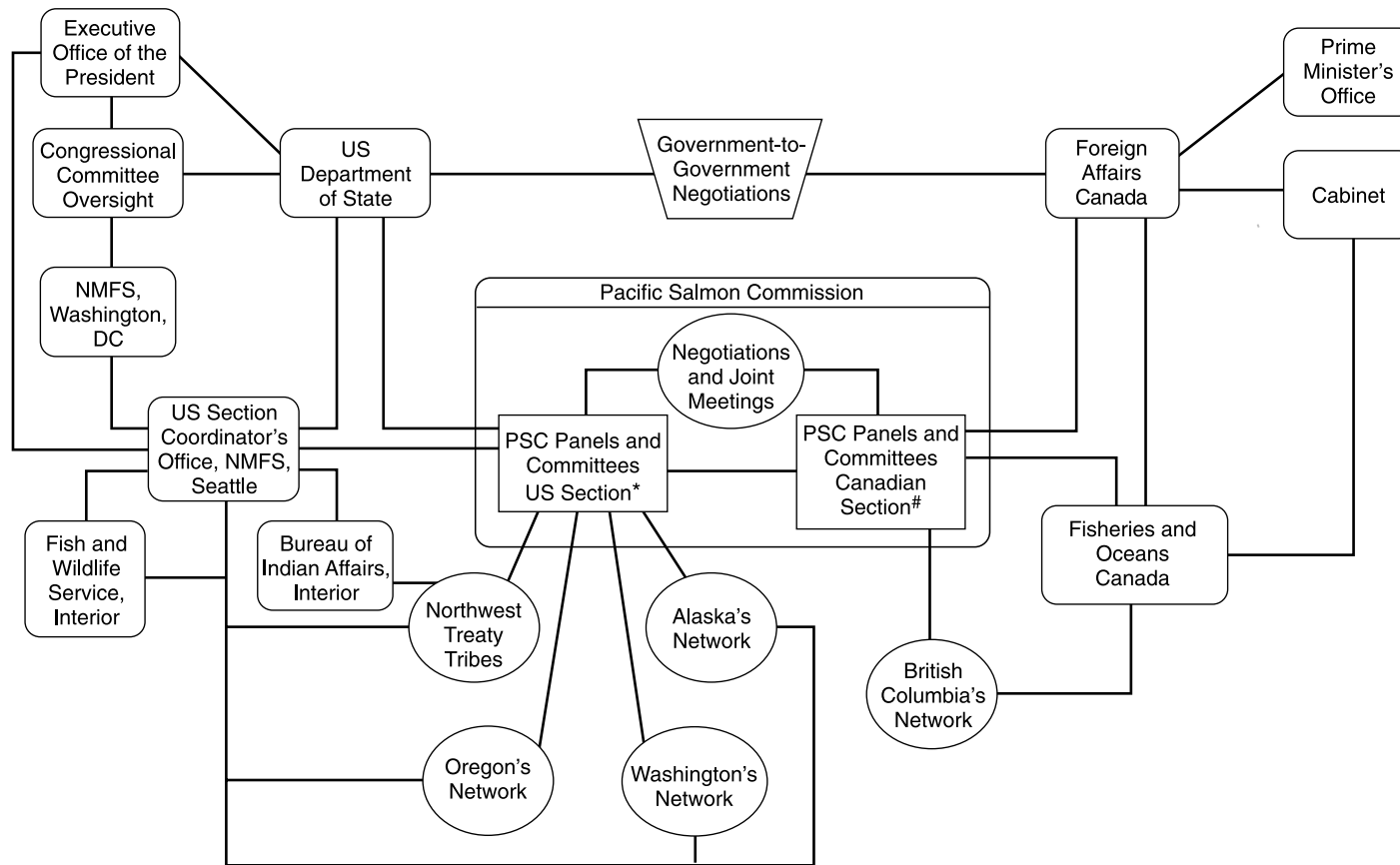


Figure 1. Pacific Salmon Commission Supranet. Note: *Coordinated by National Marine Fisheries Service in Seattle, WA; #Coordinated by Department of Fisheries and Oceans in Vancouver, BC.

arrangement". This definition is useful because it is general enough to incorporate the vast body of research since the 1970s.² Hugh Miller (1994: 379) described the focus of networks research as "away from the inner workings of the organization and toward the mosaic of interactions among the sometimes diverse, sometimes narrowly interested parties engaged in the struggle over the allocation of values". Nothing could be closer to the truth with the case in hand because the PSC has a small core staff and was designed as an institution that provides a forum for interested individuals, organizations and governments to interact (for a detailed description see Mingus 1999; Gould 1993). In other words, the PSC is less a traditional institution than an entity that staffs a supranet – without the supranet it loses its *raison d'être*.

Networks have frequently been used to understand and even explain how policy decisions are reached within different sectors of a given society, yet infrequently put to use in comparative research. A body of research is starting to make these international comparisons (Brinkerhoff 1999; Daugbjerg 1998; Marsh 1998; Mingus 1999, 2001). For example, Brinkerhoff's (1999) three case studies in the developing world highlight the weakness of using within-nation network typologies for comparative or international purposes because he proposes regime type, level of trust, legal and regulatory framework, and the nature of the policy to be implemented as potentially important variables. Each of these variables is largely missing from the once dominant Marsh and Rhodes typology (MRT) that was developed primarily for use within unitary states, particularly Great Britain. Ideas such as regime type and legal framework, however, seem vitally important as the network heuristic is pushed into comparative and international usage.

Similarly, my research on the Pacific Salmon Treaty (PST) suggests that the locus of power within government (i.e., political, diplomatic or administrative) is significant when comparing networks. For network theory to be useful in a comparative sense, I believe we must grapple with these network interactions across borders rather than just comparing and contrasting the within-border subnets. A framework is needed specifically for researching the cross-border aspects of this growing phenomenon of networks, and the framework presented in Table 1 was proposed for exactly this purpose (Mingus, 2001).

Logic of the Comparative Network Framework

The CNF stresses that compatibility on four elements is vital to successful interaction of subnets as they form a supranet. Incompatibility on any particular element will reduce the functionality of the supranet, although mediating institutions may serve to mitigate the actual damage. Two of these elements, the level of government with primary control (national or subnational) and the locus of power within government (political, diplomatic or agency), have to do with the formal power structure and thus are inherently related to the regime type and legal and regulatory framework concerns attributed earlier to Brinkerhoff's research. The other two elements, the range of participant interests (broad or similar) and the structural focus of the network (policy level, implementation level, or both), are about network symmetry. The logical advantages of compatibility in each of these elements is expanded upon in the following four paragraphs.

Table 1. CNF Concept^a

<i>Formal power structure</i>		
<i>Locus of power within government</i>	<i>Level with primary control</i>	
	<i>National control</i>	<i>Subnational control</i>
Political power	BC	—
Diplomatic power	—	—
Agency power	Canada	OR, WA, AK United States
<i>Network symmetry</i>		
<i>Structural focus of network</i>	<i>Participant interests</i>	
	<i>Broad range</i>	<i>Fairly similar</i>
Holistic approach	BC, Canada	WA
Policy issues	—	OR, AK, United States
Implementation issues	—	—

a. The placement of Alaska, British Columbia, Canada, Oregon, the United States and Washington within this table is with respect to the Pacific Salmon Treaty and is intended to help link the case to the framework. Specific placement is based on previous research (Mingus 1999).

Compatibility on the first element is essential because international treaties are, by definition, between nations. Existing research speaks to the difficulty of subnational governments pursuing their own interests rather than falling in line with the interests of the nation, and intergovernmental relations are increasingly taxed by the need to democratically support diverse local and regional interests while maintaining clear national policy positions. As such, the national level being in primary control among all relevant actors in a supranet would be the most compatible situation. If subnational units have primary control among all relevant actors, at least they will be in a position to understand that the treaty institution that is formed is only meaningful with support from all the subnational actors. When primary control is split, the worst case emerges because one set of subnational governments knows it is in control while across the border another set of subnational governments may believe they have a binding national-level treaty.

The second element calls for harmony in terms of the locus of power within government. On most international issues politicians, diplomats and bureaucratic agencies more or less compete for power. Vertical relationships among governments within a nation and horizontal relationships across borders are usually between these groups rather than across these groups. In other words, politicians are more likely to establish relationships with politicians, diplomats with diplomats, and bureaucrats with bureaucrats. Therefore, the trust and working relationships that develop over years and decades of working together can best be utilized if the locus of power within subnets is similar when they reach out to interact in a cross-border supranet. If elected politicians have most of the power in one subnet while agency bureaucrats have it in another subnet, it is fairly predictable that the politicians will approach the

bureaucrats from a place of authority. That is how many politicians view agency personnel and it is one example of a weakness if incompatibility exists in this element.

The third element is present in most past attempts to consider the critical factors to the success of networks because if all participants have divergent interests it is best that they have broad interests. This is valid because it creates the likelihood that interests in one area can be traded off to achieve gains in another area (i.e., win/win solutions are more likely to exist). If each participant has only one interest, it will be extremely difficult to achieve agreement if their positions with regard to that interest are divergent. How could one gain without the other losing? Therefore, narrow, similar interests may lead to agreement and broad interests may lead to agreement. If some subnets have narrow interests while others have broad interests, then the ability to negotiate win/win agreements may require the inclusion of additional actors in the subnets with narrow interests (i.e., to broaden their interests).

The final element is the structural focus of the subnets. This is an extremely common distinction that has developed in the literature representing a tendency to examine either public policy or programme implementation. Much of the literature on policy networks focuses on broad policy at the lofty national and international level while literature on intergovernmental networks is more holistic and literature on organizational and community based networks usually focuses on the dirty details of implementation. The reason this would be relevant when examining the interaction of subnets across a border is that the half-life of a policy decision is generally longer than the half-life to make an implementation decision. Therefore, disagreement on policy issues may be long standing and may be used as an excuse to hinder progress on implementation or day-to-day management issues. Likewise, implementation problems may create tensions in the relationships that make the actors less willing to negotiate in good faith on policy concerns.

The CNF thus stresses the need to determine subnet compatibility on these four elements prior to designing a supranet. It is my hypothesis that similarity across subnets on these four components increases the likelihood of long term compatibility when they interact in a supranet. When incompatibilities exist I would hypothesize that they may be overcome through the use of mediating institutional design factors, which are not fully explored in this article. When an incompatibility is identified in advance then likely problems may be avoided through better planning and institutional design to accommodate or eliminate the known incompatibilities. Designing the supranet without aid from the CNF and an understanding of the relevant subnetworks would leave the design more open to these unknown incompatibilities.

The CNF is tested later in this article by seeking to identify specific causes of conflict within the PSC supranet to see if they are indicative of incompatibilities in these four elements. If this relationship holds, then identifying differences – potential incompatibilities between the subnets – when creating cross-border institutions could enable a pre-emptive search for solutions before completing the design of a supranet. An ounce of prevention may indeed be worth a pound of cure. The long term research agenda is to shift into a predictive mode by seeking to answer questions such as “How can we know that subnets are compatible before designing a supranet?” and “How can we design a specific supranet to account for incompatibilities in the existing subnets?”

More on the Formal Power Structure

Within the formal power structure the two issues are the locus of power within government (administrative, diplomatic or political) and the level of government with primary control (national or subnational). The locus of power within government has long been missing from network typologies. These typologies generally assume that a government is able to speak with one voice, and the increasing focus in the literature on intergovernmental networks may worsen this assumption by focusing on how one government relates to another government (rather than, for example, focusing on how the politicians at one level of government have common interests with the administrators at another level of government). The idea that politicians and administrators each have a purpose and a different role to play within the system of governance dates back at least to Woodrow Wilson, Leonard White and Frank Goodnow. Adding the international and comparative perspective requires that we recognize diplomats as a separate category as well (Swanson 1978). While the diplomatic core may be thought of as a mix of politicians and public administrators, they often have different professional perspectives and goals than administrators in line departments and they may have a long term perspective often thought to be missing among many politicians because of the election cycle.

In terms of the next component, the whole central/subcentral or intergovernmental aspect that was the basis for R. A. W. Rhodes's earlier research (e.g. 1981, 1991) is conspicuously absent from the MRT. This intergovernmental aspect, specifically central/subcentral relations, may be assumed by Marsh and Rhodes rather than being incorporated into their typology as a distinguishing element of various networks. The difficulty of assuming a particular division of powers within a nation becomes quite apparent when one seeks to apply their typology to compare networks across borders or to examine the interaction of networks across borders, especially when one or more of the nations involved are federal states rather than unitary states.

The significance of this concern is that comparisons of networks must be explicit about the national division of powers if networks are to be compared across international borders or if the goal is to determine the potential compatibility of cross-border networks and network structures. Leaving out this factor amounts to making an implicit assumption that subnational governments co-operate with one another and with their respective national governments, while subnational governments can actually be a force for either co-operation or competition (Boeckelman 1996).

John M. Kline (1993: 202) of Georgetown University explains this dynamic of intergovernmental interdependence quite well:

Global political and economic interdependence stimulates the negotiation of new international accords, but also requires the creation of societal adjustment and support mechanisms that are often best developed and implemented by subnational entities. In other words, national adaptation to international change can depend heavily on the responsiveness of subnational governments.

Connecting these components to basic organizational theory might be useful before moving along to the second half of the CNF. The locus of power within government is akin to thinking in terms of hierarchy within the bureaucracy while the jurisdiction with primary control is looking at the federalist structure. In Agranoff and McGuire's (2001) analysis of four competing models of managing within federalism, these two components fit into the "top-down model" that is prevalent in any discussion of bureaucracy. In addition, the "jurisdiction based model" is in full swing as national and subnational actors are bent on achieving their own goals and interest groups play them off against one another.

More on Network Symmetry

The second part of the CNF considers the actual networks rather than the broader system of governance in which these networks are enmeshed. With regard to network symmetry the two issues are the structural focus of the network (implementation issues, policy issues or a holistic approach) and the participant interests (broad range of interests or fairly similar interests to one another). Cross-border network structures such as the complex supranet organized around the 1985 Canada/US Pacific Salmon Treaty are used every day to help manage increasingly complex public policy and implementation issues.

In *Managing Complex Networks*, Kickert, Klijn and Koppenjan equate public management directly with network management, as they state: "One of the major challenges with which public management as a form of governance is confronted, is to deal with network-like situations, that is, situations of interdependencies. Public management should therefore be seen as network management" (1997: 2–3). Put in a different way, "The role of management in the network model is one of problem resolution by facilitating and furthering interaction, as well as creating and changing network arrangements for better coordination" (Agranoff and McGuire 2001: 676). Specifying the design of a supranet within a treaty structure may therefore be problematic because "changing network arrangements" is quite difficult once international treaty language is ratified.

Implementation versus policy ought to be a meaningful component of the CNF because literatures have developed around each as if two different phenomena are being studied.³ For the purposes of the CNF, it may be possible to differentiate between the two by thinking of the likelihood of co-ordinated action being initiated by the supranet in the short term. Such short term actions may create both positive and negative feedback loops that impact the ability of the supranet to achieve longer term policy co-ordination. For example, if implementation and policy are both relevant, poor implementation can cause deterioration of the relationships that "are the network". This deterioration can lead to a hostile or dishonest climate that makes further policy discussions unfruitful. It might be optimal, therefore, if a supranet focuses exclusively on policy or implementation rather than holistically incorporating both. The worst case would probably be when some subnets focus on both while others focus just on policy or implementation because this would enter factors into negotiations that are irrelevant and confusing from the perspective of some subnets.

The final component recognizes the range of participant interests. This factor is in the Wilks and Wright (1987) and Marsh and Rhodes typologies and in numerous

other discussions of networks. The reason is simple: network participants with divergent interests may each be working in quite separate directions, while narrow, agreed-upon interests are more likely to facilitate meaningful collaboration within a reasonable time horizon. At the lofty level of discussing cross-border supranets, the question is whether or not the subnets have a broad range of interests or fairly similar interests. This will inevitably be a gross generalization given that we cannot even assume the interests of all the participants within any given subnet are homogeneous.

Taken as a whole, these four components are intended to start the discussion of how subnets relate together when they reach across borders to form supranets. Stimulating this discussion is critical because supranets increasingly drive international policy making.

The CNF and the Pacific Salmon Treaty

Linking the CNF and the Case

There is broad agreement on both sides of the Canada/US border that networks are essential to modern governance. A Canadian minister of the Department of Foreign Affairs and International Trade signalled this view by saying that the old hierarchy of government-to-government relationships has been replaced by a web of networks reaching across the border (Handelman 2000: 26). While comparative network theory is unlikely to be able to explain away all the problems related to the PST, such as salmon biology (McRae 1999; Shelton and Koenings 1995), climatology (Miller 1996), electoral politics (Emery 1996; Munro *et al.* 1998), and the 100 plus year history of binational agreements regarding Pacific salmon, the CNF highlights four key areas for potential fundamental incompatibilities among the subnets. One key problem appears to have been that state governments have primary control in the United States while the federal government has primary control in Canada. Complicating this further, power within the state governments is concentrated within the fishery management agencies while power within the British Columbia government has been at the political level, especially under former Premier Glen Clark.

Other key issues for a comparative network discussion include the common strength of user groups (i.e., commercial and recreational fishermen and their associations) in the state and provincial subnets involved in the PST supranet, and the overall power imbalance that currently appears to tilt toward Alaska as the subnets relate with one another, in part because the return migration for most Pacific salmon is through Alaskan waters. Likewise, British Columbia has the first chance to catch numerous salmon stocks from Oregon and Washington. (Idaho, Montana and the Yukon are only minimally involved in the PSC and so they are left out of this analysis for pragmatic reasons.) Previous research demonstrates where the states, provinces and national governments fit into the CNF components, as indicated in Table 1.

The level of government that has primary jurisdiction for a particular policy is an important – if not overriding – factor. In the three relevant states, the state governments assert primary control with regard to salmon, while in Canada the federal government has primary jurisdiction. It took decades of interaction on this issue and 13 years with a binational treaty in force for the Canadian minister of fisheries to start negotiating directly with state governors (e.g., see Anderson 1998).

Such interaction is clearly outside of the binational treaty structure and yet it was viewed as necessary to reach agreement within the supranet because of this difference between the subnets in each nation. This dynamic is one example suggesting that a mediating institution or design element may offset an incompatibility, yet a decade of disruption came first because the treaty design did not account for this incompatibility.

If both Canada and the United States were unitary states, this concern might take on the appearance of integrating local needs into national policy making, and thus might avoid cross-border interaction between different levels of government. It should be noted, however, that US/Canadian governmental interaction is extremely informal, frequently occurring between subnational units of government or between federal departments rather than between federal diplomats and/or politicians (Swanson 1978; Watts 1993). This is meaningful because it highlights the likelihood that these observations regarding the PST are not limited to salmon policy or fisheries management.

Some of this subnational competition in the case of the PST has played out in US federal courtrooms (*Confederated Tribes and Bands of the Yakima Indian Nation v. Baldrige* 1996; *United States v. Washington* 1974). While the existence of the Treaty Tribes as subnational units of government in the southern US is not the focus of this research, it clearly complicates this discussion because the tribes have rights above and beyond those of state governments. Furthermore, subnational/national competition is the very essence of the relationship between Canada and British Columbia, with provincial politicians distancing themselves from the binding binational agreement reached in 1999 (Office of the Premier 1999) and both state departments giving immediate credit for the agreement to everyone except the British Columbia government (Albright and Axworthy 1999). For a short time these dynamics even combined as British Columbia filed a lawsuit in the US District Court and the Canadian federal government in Ottawa decided not to support the lawsuit (Staff Reporter 1998; Cavanagh 1997).

Another compatibility concern evident in Table 1 is that the interests of network participants in the states are primarily the interests of the fishers while the range of interests is broader in Canada, specifically with environmental groups being active within the British Columbia network. Environmental groups have been increasingly active on the PST in the past 6 or 8 years on both sides of the border, but face a tougher road in the United States to establish themselves as legitimate actors. Evidence of this is that former Canadian Fisheries Minister David Anderson wrote to US conservation groups urging them to get involved in salmon issues (Canada Department of Fisheries and Oceans 1998).

Finally, British Columbia and Washington are concerned about implementation and policy because the Fraser River Panel of the Pacific Salmon Commission actually manages the fishery along both sides of the border area. Alaska and Oregon, on the other hand, are mostly concerned with policy because the Northern, Southern and Transboundary Panels do not have fishery management responsibilities. The potential for policy disputes to create day-to-day management problems during the salmon fishing seasons, and vice versa, is thus greater for two of the subnets than for the others. The Treaty Tribe subnet would also be concerned with both policy and implementation because they are active participants in the Fraser River fishery. The

occasional, intense “fish wars” that have stalled discussions regarding longer term policy concerns serve as ample evidence that this phenomenon is not just theoretical (Egan 1997; Wood 1995; Huppert 1996; Dye 1996).

The dynamics of these four incompatibilities (i.e., misaligned federal jurisdictions, misaligned internal locus of power, differing range of active interest groups, and policy versus implementation focus) appear to capture the nature of the most serious problems with the PST. These four factors are each represented in the CNF, and three of the four concepts might apply to unitary systems or confederations as well because only the “level of government with primary control” is a federal-specific concept. In addition, whether power within government is predominantly political, diplomatic, or administrative gets to the heart of regime type so long as military dictatorships are not considered (Konig 1998; Heady 1984).

The Pacific Salmon Treaty in Hindsight

Significantly, two of these problem areas could have been identified before the PST was signed in 1985 – the differing level of government with primary control and the fact that two states would not be invested in the PSC supranet with regard to implementation issues. A different model might have emerged with some or all of the following three elements.

First, the PST could have legitimized direct Canada/Oregon, Canada/Washington and Canada/Alaska negotiation processes to help reach two-party agreements, as stand alone agreements and as preludes to overall agreement. Former Fisheries Minister Anderson used this approach and did so in an extraconstitutional manner rather than with clear legitimacy. This would not have eliminated the fundamental incompatibility in the level of government with primary control, but could have legitimized a mediating institution from the start rather than letting it emerge after 15 years and having it tied to one particular political actor who is no longer in the same position.

This approach also fits with policy advice that two-party games and side payments must be considered to rescue the treaty from the edges of insignificance (Munro *et al.* 1998). Likewise, Alaska/Washington, Alaska/Oregon and Oregon/Washington components (and similar links with the southern US tribal governments) might have been incorporated to increase clarity and legitimacy instead of whitewashing the true complexity of the negotiations.

Second, the PST might have included a means for incorporating the interests of British Columbia within the system of federal management that has plagued the Canada/British Columbia relationship more often than not over the past decade (e.g., see Culbert and Beatty 1998; Beatty 1998; Reuters 1997; Staff Reporter 1998; Office of the Premier 1999; Canada Department of Fisheries and Oceans 1999). For example, a Canada-only side agreement to wholeheartedly include the British Columbia voice could have been developed. The locus of power within the government in British Columbia shifted from the agency to the political level under Premier Clark precisely because of a growing frustration at the stifled regional representation.

In this instance it appears that the incompatibility in the level of government with primary control generated a shift in the locus of power within government, and it is

conceivable that a mediating institution in the form of a side agreement could have prevented the creation of this new incompatibility. The Strangway/Ruckleshaus report (1998) and a Suzuki Foundation report (Glavin 1998) highlight this rift that was also apparent in my personal interviews with members of the negotiation teams.

Third, separate panels for managing the Fraser River fishery and for developing sharing arrangements for this fishery might have been incorporated in the PST. Such a system might have better protected the salmon resource from the negotiation directed fish wars that have occasionally occurred (Egan 1997; Wood 1995) by creating separate subnets to assume the implementation issues so that all the other subnets could maintain a focus on long term resource management policy. Instead, the mission of the International Pacific Salmon Fisheries Commission to manage the Fraser River fishery on a limited scale was directly folded into the role of the Pacific Salmon Commission's Fraser River Panel for convenience. Little forethought was given to the policy versus implementation dynamic this created.

While this analysis has the advantage of hindsight and it may not be possible to retrofit the PST, the first two of these issues have received attention in recent policy recommendations. The CNF provides some theoretical justification for seriously considering such innovative approaches to help these two federal nations co-operate more effectively. Up to this point the CNF has been untested; however, the remainder of this article reports on a survey that tested this model with regard to the case of the PSC.

Network Analysis Survey Methodology

In order to test the validity of the CNF a network analysis survey of the Pacific Salmon Commission was mailed to all individuals represented within the PSC committee structure, including the commissioners, the four regional panels, the working groups and technical committees, and other miscellaneous committees. This is the core of the supranet as depicted in Figure 1. The research question was: "Do members of the Pacific Salmon Commission supranet identify long term causes of conflict that correspond with the four elements in the Comparative Network Framework?"

As such, the focus was on connecting perceived causes of conflict within the PSC with the individual elements of the CNF rather than testing the CNF as a coherent model. The network survey was designed to take 30 minutes to complete and included sections on background information, organizational contacts and potential causes of conflict. The final section of this survey asked the respondent to rate eight statements in terms of the extent that each has been an underlying cause of conflict within the PST negotiations over the past ten years, and to list (and rate) two other factors that contribute to the underlying conflict. This page of the survey is included as Appendix A.

Seven of the eight statements were carefully worded to operationalize each of the CNF components as indicated in column 2 of Table 2, and this operationalization was based on my previous research on this case. The fourth statement was designed to check the extent that the basic geography and biology of the Pacific salmon was a perceived cause of conflict. The order of the eight statements on the survey was randomized. It was anticipated that the open ended portion would be a source of

Table 2. Extent that eight statements (intended to operationalize the CNF for this particular case) were perceived as underlying causes of conflict within the PST negotiations

<i>Survey statement^a of potential cause</i>	<i>Relevant CNF component</i>	<i>Percentage of respondents indicating:</i>		
		<i>“not a cause”</i>	<i>“minor or moderate cause”</i>	<i>“major or paralyzing cause”</i>
1. State governments have more autonomy than provincial governments	Level with primary control	21.5	44.9	33.6
2. Elected officials have stronger role than fisheries managers	Locus of power within government	20.2	50.0	29.8
3. BC disagrees with Canada’s fisheries management	Level with primary control	11.5	62.5	26.0
4. Alaskan fishers have the first chance to catch most species of salmon	None (represents natural power)	8.3 all from Alaska	22.3	69.4
5. National governments lack authority and/or willingness to take charge	Level with primary control	15.6 80% from Alaska	34.9	49.5
6. PSC handles both policy and implementation	Structural focus of network	29.0	55.1	15.9
7. Agencies have more control over decisions than diplomats or elected officials	Locus of power within government	31.4	59.1	9.5
8. PST participants have a broad range of interests	Participant interests	14.8	43.5	41.7

a. See Appendix A for complete wording of each survey statement.

many ideas too specific to the salmon issue to impact cross-border networks in other policy arenas.

The official PSC mailing list included 208 unduplicated individuals officially serving within this network structure and they constituted the population for this cross-sectional survey. Individuals frequently serve in multiple positions, technical committees form most of this network structure, and alternate representatives within each group were treated as members for all purposes. Thirteen surveys were “returned to sender” or “not involved with the PSC at the present time”, thus reducing the number of delivered survey instruments to 195 individuals that represented the core of the PSC supranet. A follow-up mailing containing an identical copy of the survey instrument was sent to all non-responders one month after the initial mailing.

Completed surveys included 83 from the first wave and 28 from the second wave, totalling 111 completed surveys for a 56.9 per cent response rate. These respondents were well representative of the supranet in terms of geographical representation and in terms of their assignments within the PSC structure. Six responders were on the PSC itself and 33 were on the four key panels – Southern Panel, Fraser River Panel, Northern Panel and Transboundary Panel.

Findings and Discussion

For each statement the respondents were asked to rate the statement as a cause of conflict over the past ten years on a nine point scale from “not a cause” through “moderate cause” up to “paralyzing cause”. Table 2 aggregates the survey responses into “not a cause”, “minor or moderate cause” and “major or paralyzing cause”. At least two thirds of the respondents indicated that each statement was at least a minor cause of the conflict, while indications of major or paralyzing cause ranged widely from 9.5 per cent to 69.4 per cent of respondents.

The research identified expected results for each of the eight causes of conflict suggested by the CNF, with particular emphasis on anticipated differences between the various subnets (i.e., by jurisdictional affiliation). Each component is discussed individually in the next four subsections. Keep in mind that the survey really does not test the combined power of the CNF, but rather it tests each component as a cause of conflict within the PSC supranet.

Level with Primary Control

Items 1, 3 and 5 operationalize this CNF element and these items averaged 36.4 per cent as a major or paralyzing cause of conflict, 47.4 per cent as a minor or moderate cause, and 16.2 per cent as not a cause. State government autonomy in this policy field was strongly viewed by British Columbia as an underlying source of conflict, and those from Canada were more than twice as likely to see this as a source of the conflict. This difference across nations was clearly anticipated because Canada and British Columbia feel they entered into a binational agreement rather than individual agreements with three states and numerous treaty tribes. Thus the “level with primary control” component received strong support, especially from the Canadian side.

British Columbia disagreement with Canadian Department of Fisheries and Oceans management practices (statement 3) was clearly viewed as a source of conflict in British Columbia. Though only 30 per cent rated it as a major or paralyzing cause of conflict, another 40 per cent rated it a moderate cause of conflict. Respondents associated with the state of Washington were much more likely to rate this as a major or paralyzing cause of conflict than those associated with any other jurisdiction.

A majority of respondents associated with the southern US, British Columbia, and both national governments indicated that “national governments lack the authority and/or willingness to take charge of negotiations” was a major or paralyzing underlying cause of conflict – leaving Alaska as a clear outlier. It was anticipated that British Columbia respondents would rate this lower. Perhaps British Columbia respondents rated this highly because they were thinking of the US national government rather than their own national government, which has been quite decisive on numerous occasions.

Locus of Power within Government

Items 2 and 7 operationalize this CNF element and these items averaged 19.6 per cent as a major or paralyzing cause of conflict, 54.5 per cent as a minor or moderate

cause and 25.8 per cent as not a cause. British Columbia, Washington and Oregon strongly perceived the power among elected officials as a source of the conflict. This was expected because of the immense power and seniority of Alaska's congressional delegation (see Mingus 1999). While those who affiliate with the US national government were expected to be less likely to see this as a source of conflict and lived up to that expectation, it is unclear why those who affiliate with the Canadian national government also rated this low. Perhaps this is because administrators play a stronger role in the Canadian parliamentary system (Manuel and Cammisa 1999).

Low support was anticipated with regard to "government agencies have more control over decisions than diplomats or elected officials" as an underlying cause of conflict because three quarters of those within the PSC supranet work for a government agency. Many negotiators feel they could solve the conflicts better if fisheries managers were left alone to solve the conflicts (see Mingus 1999). Indeed, Table 2 does show stronger support for statement 2 than for statement 7. In view of the low support that was anticipated, the results indicate surprisingly strong support for this element of the CNF as a cause of conflict. This is particularly true in Washington State where 40 per cent rated statement 7 as a major or paralyzing cause of the conflict while less than 12 per cent of all the other groups rated this as highly.

Structural Focus of Network

Relatively low support was received for the idea that PSC involvement in both policy and implementation issues was an underlying cause of conflict. This element was operationalized in statement 6, which averaged 15.9 per cent as a major or paralyzing cause of conflict, 55.1 per cent as a minor or moderate cause, and 29.0 per cent as not a cause. It was anticipated that respondents from British Columbia and Washington would rate this as a major cause more frequently than other jurisdictions because of their interests in the Fraser River Panel. While British Columbia respondents were the most likely to rate this as a major or paralyzing cause of conflict, the overall support was relatively low even from those who actually serve on the Fraser River Panel.

One potential explanation may be that members from each of the subnets are actively involved in day-to-day fishing and fisheries management within their own jurisdictions, even though this is outside the scope of their PSC responsibilities. In other words, many of the respondents must handle both policy and implementation as part of their daily jobs and so the split in the CNF might appear artificial or unrealistic.

Range of Participant Interests

Statement 8 operationalized this element and averaged 41.7 per cent as a major or paralyzing cause of conflict, 43.5 per cent as a minor or moderate cause and 14.8 per cent as not a cause. This demonstrated strong support for this element. Over 40 per cent of respondents from Alaska, British Columbia, Washington, Oregon and the Treaty Tribes saw the broad range of participant interests as a major or paralyzing cause of conflict while 25 per cent and 56 per cent of those associated with the US and Canadian governments, respectively, ranked this as highly. This national

difference is greatly reduced, however, if the “moderate cause” category is added to the calculations, because they become 58 per cent and 67 per cent respectively. The perception is that negotiations would be less conflicted if participants had similar interests rather than a broad range of interests.

Natural Power of Migration Patterns

Item four, which is not intended to measure the validity of a CNF component, indicates that the basic biology and geography of the situation is most strongly perceived as a major or paralyzing cause of conflict (69.4 per cent). The geographical factors involved in this case (essentially the migratory nature of the Pacific salmon) made it essential to ask about this statement as an underlying cause of conflict. This potential cause received high marks as a major or paralyzing cause of conflict from everywhere except Alaska, as predicted, because the statement may sound anti-Alaskan.⁴

All respondents indicating that this was not a cause of the conflict were affiliated with Alaska, which is the jurisdiction with the natural advantage given salmon migration patterns. In fact, British Columbia and Washington respondents were unanimous (100 per cent) that this is a major or paralyzing cause of conflict and a majority of those associated with both national governments also agreed this was a major or paralyzing cause of the conflict.

Open-Ended Suggestions for Causes of Conflict

The survey asked each respondent to list two additional underlying causes of conflict over the past 10 years. Table 3 indicates that numerous responses listed as causes of conflicts in this open ended portion of the survey provide support for the CNF. Most of the open ended responses either (1) supported one of the CNF elements or (2) indicated issues too specific to this particular case to be meaningfully used in a general model like the CNF (see “micro compatibility issues” in Mingus 1999: 166–175).

Six key themes emerged from the open ended responses as described in Table 3. The “Relevance to CNF” column of this table highlights links to the CNF components. In summary, the open ended comments appear to lend additional support to the CNF, particularly the level of government with primary control and the range of participant interests, with one exception. The exception is that some sentiment that the PSC supranet is a highly charged political environment is evident, even at the level of comments about the technical committees. Politics and demands from user groups pervade the agency-driven process (Miller 1996), hence the common expression that habitat protection is lost in the struggle.

A “strong role for elected officials” and “government agencies have more control” appear to be incompatible propositions, but in fact may exist simultaneously. In the language of public administration, this means that the notion of the politics/administration dichotomy established by the likes of Woodrow Wilson (1887) and Leonard White (1926) is of little use as the complex environment of the PST enmeshes and intertwines these two worlds. This is, however, the theme that emerged least frequently in this open ended portion of the survey.

Table 3. Themes emerging from open-ended request for “other causes of conflict”

<i>Nature of the cause of conflict</i>	<i>Relevance to CNF</i>
<i>Theme 1 (35 responses)</i> – states and Tribes have veto power within the US section and thus the US does not speak with one voice (or only needs one voice to speak) . . . Alaska refusal to alter intercepting fisheries or to be fully cognizant of their preferential geography.	Level with primary control – confirms that subnational control is problematic for a national treaty.
<i>Theme 2 (27 responses)</i> – unwillingness to address habitat loss and rebuild stocks because economics and user groups dominate over conservation and biological science.	Participant interests – suggests the need for a broader range of legitimate participant interests.
<i>Theme 3 (23 responses)</i> – fundamental conflict between the three principles of conservation, equity, and maintenance of existing fisheries, including differing interpretations of “equity” and “river of origin” principles.	None – highlights disagreement on founding principles.
<i>Theme 4 (23 responses)</i> – nationalism/ national pride/entrenched positions, unequal consequences of negotiating failures among jurisdictions, participants ignore technical data/ advice or will not discuss data around core conflicts.	None – history and biology limit open, “fair” negotiations.
<i>Theme 5 (18 responses)</i> – shifts and declines in the abundance of salmon.	None – biology and climate are largely uncontrollable factors.
<i>Theme 6 (10 responses)</i> – PSC appointments are politicized. PST issues may leave or “be pulled out of” the PSC when they are politicized.	Locus of power – demonstrates some sentiment that political power controls the process.

Conclusion

Overall, the survey results suggest strong support for the CNF elements “level of government with primary control” and “participant interests”, moderate support for the “locus of power within government” and the weakest support for the “structural focus of the network”. This later finding warrants further study and possibly the removal of this as a CNF component. This case suggests the “structural focus of the network” is less valid than the other CNF components, that there may be a drawback when network participants all have similar interests (i.e., ask “Who’s left out?”), and that the locus of power within government is relevant but complex.

Support for the level of government with primary control within the formal power structure was particularly strong. This is unnerving with regard to the PST case because the constitutional jurisdictional issues are not likely to be revisited in either nation and attempts since 1996 to more fully involve British Columbia within the Canadian national decision-making process have met with only minimal success. This only serves to strengthen the position that examining these issues before designing a supranet might prove to be a worthwhile venture.

Thinking in terms of networks and especially supranets runs the risk of devaluing the status of governments. Governments are responsible for making decisions in the

public interest – broadly defined – and networks may conceivably narrow the definition of public interest if such public/private networks become the primary sources of input for administrators or if administrators become an equal element in a system where the network is making the decisions. Recent criticisms of the PST structure and operations suggest this is the case with regard to Pacific salmon and that fishing industry voices, especially commercial fishers, drive both the agreements and disagreements within the existing process, often to the detriment of the salmon, the environment and even the local fishing communities (Bergman and Haw 1998; Glavin 1998). This view is supported by this survey research (see theme 2 in Table 3) as well as my personal interviews with PST negotiators from both sides of the border. Kathleen A. Miller summed this up nicely when she said: “However, perhaps the best description of management within each jurisdiction still is that it represents an effort to prevent the worst excesses of over harvesting while appeasing a vociferous collection of competing user groups” (1996: 117).

Rather than devaluing government, developing clear descriptions of network dynamics may be a useful application of the network approach as a heuristic device to identify specific potential problems in democratic administration. If all relevant interests are not included in the networks of public administrators and elected officials, then democratic administration may be derailed by the power of selected interests. How those working on a particular issue define “relevant” may be an important clue.

For example, in spite of persistent conflicts, the PSC subnets on both sides of the border tend to value (1) the role of scientists in providing information to make resource utilization decisions; (2) the application of analytical techniques to identify problems and prepare useful plans; (3) the use of the political process for reaching decisions in specific situations (often choosing both means and ends); and (4) the rights of groups, particularly those with vested economic interests, to be involved in the decision-making process (hence the Stakeholders Process in 1998). Numerous individuals from British Columbia and the southern US question Alaska’s commitment to the first two of these values because of Alaska’s preferred geographic positioning vis-à-vis salmon migration routes and Alaska’s powerful congressional delegation. These congressional representatives change infrequently and salmon migration routes change slowly and gradually.

Finally, the CNF deserves continued research within other policy arenas because this evidence related to the PST suggests this framework could be useful to those who design cross-border network institutions (i.e., supranets). The evidence at this stage, however, is based in part on the power of hindsight and extensively on the case at hand. Further discussion and research should involve other attempts at cross-border governance and should examine in more detail the possible role of mediating institutions in overcoming incompatibilities.

Acknowledgements

I am indebted to the Canadian Embassy in Washington, DC, for providing research funding through the Canadian Studies Faculty Research Grant Program and to Richard J. Stillman, II, at the University of Colorado at Denver’s Graduate School

of Public Affairs for guiding the early development of the comparative network framework. I would also like to thank the three blind reviewers of an earlier manuscript for going the extra mile to make this a useful addition to the JCPA.

Notes

1. Figure 1 was developed through archival research and extensive qualitative interviews with treaty negotiation team members from all jurisdictions in 1998. This qualitative process was iterative so that after I developed narrative and visual descriptions of the PSC supranet, I sent them back to the interviewees for additional comments and a further round of revisions. Figures and descriptions of the subnets were developed in this same manner, only ceasing the iterative process once I was comfortable that the descriptions were reasonably complete and accurate.
2. The extensive maze of existing terms and models used in the network theory literature represents a problem for developing a field of comparative network theory. Policy networks, network management, intergovernmental networks, inter-organizational networks and network structures, and issue networks are the five leading network models, although they frequently cross paths in the literature (Mingus 2001). Identical terms are frequently used to describe different concepts and the same concepts are described in different ways because of the interdisciplinary nature of this work. This, in and of itself, is part of the justification for work on potentially useful typologies in this field of study. These approaches in the literature represent the field of inter-organizational theory (Hanf and Scharpf 1978; Mandell 1988), evolved interest group theories (Hecl 1978; Jordan and Maloney 1997; McFarland 1987), and an expanded view of the actors in policy development (Blom-Hansen 1997; Klijn 1997; Marsh 1998; Peters 1998).
3. Much of the literature on network management (Agranoff and McGuire 1999; Klijn *et al.* 1995; Kickert *et al.* 1997), intergovernmental networks (Gage and Mandell 1990; Agranoff and McGuire 1998; Mandell 1988), and inter-organizational networks (Chisholm 1998; Hanf and Scharpf 1978) has a focus on administrative issues or implementation. Policy networks (Peters 1998; Marsh 1998; Miller 1994), policy issue networks (Skok 1995) and the MRT, on the other hand, tend to focus at a much higher level of abstraction (i.e., the policy-making process).
4. In hindsight, corollary questions should have been asked about British Columbia having the first chance to catch numerous salmon stocks from Oregon and Washington, and Washington having the first chance to catch some British Columbia and Oregon salmon stocks.

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Appendix A.

Relevant page from PSC survey (size reduced)

Instructions: Based on your background and experience related to Pacific salmon issues, please rate each of the following issues as underlying causes of conflict within Pacific Salmon Treaty negotiations over the past 10 years.

Potential Cause of Underlying Conflict regarding Pacific Salmon Treaty Negotiations	(circle one number for each potential cause)				
	Not a Cause	Minor Cause	Moderate Cause	Major Cause	Paralyzing Cause
1. State governments have more autonomy than Provincial governments with regard to the PST.	1 --	2 --	3 --	4 --	5 -- 6 -- 7 -- 8 -- 9
2. Elected officials generally have a stronger role in the PST negotiations than fisheries managers.	1 --	2 --	3 --	4 --	5 -- 6 -- 7 -- 8 -- 9
3. British Columbia fundamentally disagrees with Canadian fisheries management practices.	1 --	2 --	3 --	4 --	5 -- 6 -- 7 -- 8 -- 9
4. Alaskan fishers have the first chance to catch most species of salmon on their return migration.	1 --	2 --	3 --	4 --	5 -- 6 -- 7 -- 8 -- 9
5. National governments lack the authority and/or willingness to take charge of the negotiations.	1 --	2 --	3 --	4 --	5 -- 6 -- 7 -- 8 -- 9
6. Pacific Salmon Commission handles both broad policy and detailed implementation issues.	1 --	2 --	3 --	4 --	5 -- 6 -- 7 -- 8 -- 9
7. Government agencies have more control over decisions than diplomats or elected officials.	1 --	2 --	3 --	4 --	5 -- 6 -- 7 -- 8 -- 9
8. Participants in the PST negotiations have a broad range of interests.	1 --	2 --	3 --	4 --	5 -- 6 -- 7 -- 8 -- 9
Please list two other factors contributing to the underlying conflict and rate the extent each has been an underlying cause of conflict within Pacific Salmon Treaty negotiations over the past 10 years?	(circle one number for each potential cause)				
	Not a Cause	Minor Cause	Moderate Cause	Major Cause	Paralyzing Cause
	1 --	2 --	3 --	4 --	5 -- 6 -- 7 -- 8 -- 9
	1 --	2 --	3 --	4 --	5 -- 6 -- 7 -- 8 -- 9