

Chapter 4

The Legal Process and Fisheries Management

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4.1 INTRODUCTION

Ownership and management responsibility for fish and wildlife resources and the land and water on which they are dependent have been serious legal considerations as far back as the Roman era. As different forms of government evolved and became increasingly more complex, management responsibilities for fish, wildlife, and other natural resources were shared among different branches (i.e., executive, legislative, and judicial) and levels (e.g., national, state or provincial, county, and municipal) of government.

This evolution has created a labyrinth of seemingly overlapping and conflicting governmental authorities and agency goals. To chart a path through the maze, the initial issue to resolve is who “owns” or has management responsibility for a particular fishery. This question may be answered explicitly by national constitutions or implied from other governmental powers. Wild fish and wildlife are public resources that the government manages to ensure the resources’ persistence for future generations. Depending on the nation and, in some cases, the geographic area (e.g., international water bodies such as the Great Lakes) or specific fishery (e.g., salmon in the Pacific Northwest), management authority is shared among different levels of government (national, sub-national, and local). In addition, different branches of government have different roles in fisheries management.

Within this framework, fisheries professionals manage fisheries resources and are also charged to be fisheries advocates in other water and land management and development decisions. This chapter provides information that will enable fisheries managers to function more effectively in the legal realm of fisheries management and to enhance their effectiveness in representing and advocating for fisheries in issues of land and water management. The chapter begins with an overview of North American governmental organization and then provides some background on the historical basis for governmental management of natural resources. These two topics are then integrated to show the interrelationship of different levels of government in fisheries management. Opportunities to interject fisheries management concerns within broader watershed and ecosystem management efforts are also discussed. The specific information presented, except as noted, pertains to the United States (USA); in most cases Canada and the United Mexican States (Mexico) have somewhat similar concepts and principles with different terminology.

4.2 OVERVIEW OF NORTH AMERICAN GOVERNMENTS

National and sub-national governments have a pervasive role in fish and wildlife management and conservation both as management entities and by enacting a plethora of rules and regulations controlling private activities related to fish and wildlife, their habitats, and their uses. North America's three largest national governments all have constitutions that specify the details of both national and sub-national governments' structures. Despite some significant differences in procedures and terminology, Canada, Mexico, and the USA share three important characteristics: (1) a strong democratic foundation with elected representatives; (2) national and sub-national constitutions that allocate authority between executive (the Crown in Canada), legislative, and judicial branches of government; and (3) a system of "dual sovereignty," or shared powers, among the national (also known as federal or central) government and various sub-national (e.g., states, provinces, territories, and protectorates) and local (e.g., county and municipal) governments. In analyzing the political and legal aspects of inland fisheries management it is vital to understand (1) the roles of the different branches of government and the system of horizontal (at the same government level) checks and balances between branches of government and (2) the concept of dual sovereignty or vertically-shared powers between the different levels of government.

In each of the three largest North American nations, the national constitutional authority is the highest level of authority for all governmental action in a country. At the national level, treaties and land claim agreements between the national government and indigenous peoples can provide an additional level of legal authority and may grant indigenous people governmental powers that are different from that of states or provinces. In general, regardless of the level of government, legal authority flows from the constitution, to legislative laws, and then to agency regulations. As such, regulations are invalid if not authorized by a law, and laws are invalid if they conflict with the constitution. For example, a law creates an agency and specifies its purpose; the agency then promulgates regulations to carry out its legislated purpose. All legal authority can be changed to reflect new circumstances. Though difficult, constitutions can be amended or replaced. Similarly, legislatures regularly pass new laws and amend existing laws as part of their oversight of executive branch agencies. Finally, executive branch agencies routinely promulgate or amend regulations to implement their statutory authority. As a rule, it is more difficult to change national legal authority than sub-national authority. Likewise, it is more difficult to modify constitutions than laws (statutes), and laws are more difficult to enact or modify than regulations. As a simple rule, the legislative branch makes laws, the executive branch executes those laws, and the judicial branch interprets the laws.

4.2.1 The Legislative Branch

The legislative process is designed to allow broad agency and public participation in making laws and allocating funding to reflect policy priorities (Figure 4.1). Laws are made for the overall good of the people. In the case of fisheries resources, the "good of the people" usually means the conservation of the resource for the present and the future, but it may also mean to achieve benefits from the resource. In the USA, the Library of Congress has a complete and regularly updated web site to track pending legislation. The following discussion focuses on the national legislative process, but all legislatures follow a similar format.

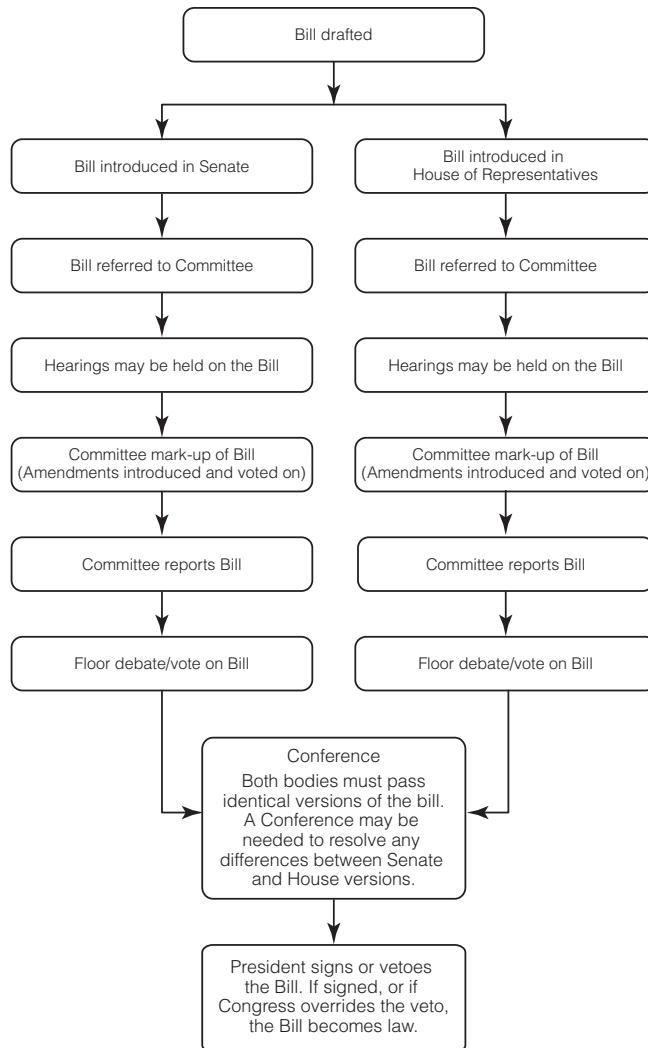


Figure 4.1. From idea to law: how federal laws are established in the USA. A similar process occurs for state laws.

Both Canada and the USA have bicameral legislatures. Laws must pass both chambers, and the executive branch has to assent to the legislation for it to become law. Laws are collected and published in the national code, called the U.S. Code (USC) in the USA. The USC is organized into 50 titles that cover the entire range of Congress' authority, and each title is further organized into numerous chapters. Conservation is addressed in Title 16, but many other titles also have a significant bearing on fisheries management. The Conservation Title has in excess of 87 chapters. The U.S. states and Canadian provinces use a similar structure for their laws. Tribal governments in the USA follow a similar structure, whereas Canada's First Nations and Inuit do not. The constitutions, laws, and regulations of most states, provinces, and tribes are available on-line and are regularly updated.

The USA uses a basic, two-part legislative process that distinguishes between (1) laws that establish federal agencies (organic acts) or programs (substantive acts) and (2) laws that

fund them (appropriation acts). Organic acts create agencies and governmental entities and prescribe their organizational structure and duties. The legislature can create additional departments (e.g., U.S. Department of the Interior or U.S. Department of Agriculture) and cabinet positions (the appointed head [secretary] of each department is a member of the cabinet), new agencies or bureaus under existing cabinet positions (e.g., the National Park Service Organic Act of August 15, 1916 created the National Park Service, and the Fish and Wildlife Act of 1956 created the U.S. Fish and Wildlife Service [USFWS] within the Department of the Interior), or new independent agencies (e.g., the Environmental Protection Agency [EPA]). Much like the U.S. legislature created the USFWS, sub-national-level legislatures create state, provincial, or tribal game and fish departments whose missions include conserving and managing the state's (or province's or tribe's) fisheries resources for current and future generations.

Substantive laws create new programs to be carried out by one or more existing agencies. The Endangered Species Act (ESA, Box 4.1) and the Clean Water Act (CWA) represent two of the many substantive laws that allocated new authority to the USFWS and the EPA, respectively. Frequently, substantive laws specify laws of authorized funding or appropriations for the program for a given number of years. When a program's authorized appropriation expires, traditionally every 5 years, the relevant congressional committees reevaluate the program and how it is administered and reauthorize or amend the substantive law. States often attach "sunset clauses" to legislation to accomplish this purpose. Legislatures periodically amend organic laws and amend or enact additional substantive laws granting agencies additional responsibilities. Alternatively, appropriations are required annually to fund agencies' programs.

4.2.2 The Executive Branch

Constitutions lay out a structure for the executive branch that identifies a chief executive (e.g., President or Governor General) as well as specifying certain minimal agencies or ministries. Chief executives commonly have some authority independent of the legislature to issue executive orders to implement or interpret the constitution, a treaty, or a law.

Executive branch agencies draw their authority from statutes and then promulgate rules to interpret or implement their organic or substantive statutory authority (Ballweber and Jackson 1996; Nylander 2006). The legislatures depend on agency rule making to refine laws based on more detailed scientific or economic information. For example, a statute authorizes a fisheries agency to manage inland fisheries and then the agency would use rule making to set seasons, creel limits, and other fisheries management rules and regulations (see section 4.4.2.1.). In Canada, regulations are made by the Cabinet through an Order of the Council. Much as legislatures codify and organize statutes, federal agencies also publish information about their actions in the *Canada Gazette* or the *Federal Register* (USA) and codify and organize their rules in the Statutory Instruments Act and Regulations in Canada or the Code of Federal Regulations in the USA. Most states, provinces, and tribes follow a similar pattern that can be found on their particular e-government site.

4.2.2.1 Promulgation of Regulations

Recognizing that an agency's organic or substantive laws may contain some procedural requirements, there is also a body of administrative laws that does not grant any specific new authority but specifies how agencies use their authority. As the name implies, the National Ad-

Box 4.1. The Endangered Species Act

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The purpose of the U.S. Endangered Species Act (ESA) is to conserve endangered and threatened species and the ecosystems upon which they depend. Conserve is defined in the ESA as “all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures [provided under the ESA] ... are no longer necessary.” Such measures include research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, transportation, and any other activity associated with scientific resources management. Conserve, or conservation of species listed under the ESA, therefore, includes both protection and recovery to the point at which the species no longer requires the protection of the ESA.

As of 2008, 74 fish species were listed as endangered and 65 fish species were listed as threatened in the USA and its territories. Endangered species are those that are likely to become extinct in the foreseeable future, and threatened species are those likely to become endangered. Plans outlining recovery objectives and tasks have been prepared for 101 of these fishes. All endangered and threatened fish species require high levels of research and management to be conserved, and the involvement of professional fisheries biologists is essential.

The ESA provides several avenues to achieve the conservation of species after they have been listed as endangered or threatened, and these avenues can present opportunities for involvement by research-oriented fisheries biologists. Section 4 of the ESA requires the U.S. Fish and Wildlife Service (USFWS) to develop and implement recovery plans for species listed under the ESA and specifically authorizes the USFWS to seek the assistance and services of appropriate public and private agencies and institutions and other qualified persons. Recovery plans contain objective and measurable criteria for recovery of the species and descriptions of site-specific management actions necessary for conservation. Development of a recovery plan for an endangered or threatened fish requires knowledge of the species' taxonomy, distribution, demographics, and life history, as well as threats to the species. Implementing recovery tasks may involve application of survey methods and techniques, statistics, genetics, and hatchery or habitat management.

Section 6 of the ESA requires the USFWS to cooperate with the states in achieving the conservation of listed species. This includes helping states establish conservation programs, acquiring land or aquatic habitat, and providing financial assistance to implement recovery actions. All states currently have cooperative agreements with the USFWS to conserve listed animal species. Under these “Section 6 agreements” the states are provided an annual budget based on the number of listed species that reside in their state. The states, in consultation with the appropriate USFWS field office and regional office, may allocate Section 6 funds to survey, monitor, implement specific research, or conduct other tasks related to the recovery of individual fish or other listed species. Proposals can usually be submitted through the nongame or endangered species branch of a state resource agency or to a state USFWS field office.

¹U.S. Fish and Wildlife Service, Jackson, Mississippi.

(Box continues)

Box 4.1.Continued.

Another avenue to recovery is through the provisions of Section 7 of the ESA. Section 7(a)(1) requires all federal agencies to use their authorities to carry out programs for the conservation (i.e., recovery) of endangered and threatened species. Section 7(a)(2) requires federal agencies to avoid jeopardizing the continued existence of any listed species by any action they may conduct, fund, or permit. Section 7 places responsibility on federal agencies whose actions affect listed species not only to avoid harming listed species but also to contribute to their recovery. The greater the impact of agency activities and programs on an endangered or threatened species, the greater their role in conservation of that species will be. Complying with the various components of Section 7 (e.g., surveys, biological assessments, avoidance, mitigation, and monitoring) requires knowledge of the distribution, demographics, life history, or contaminant sensitivity of listed species. This expertise is often lacking in federal agencies, and fisheries professionals can play an important role in filling these information gaps. Federal agencies highly involved with fish species listed under the ESA include the U.S. Army Corps of Engineers, Environmental Protection Agency, Federal Highway Agency, U.S. Department of Agriculture Forest Service, Natural Resources Conservation Service, and Bureau of Land Management.

Becoming familiar with regional fish species listed under the ESA, as well as with state and local federal agency activities and their relationship to those species, may help fisheries professionals identify research and management opportunities. Links to species lists, recovery plans, *Federal Register* publications, and the Threatened and Endangered Species Database System can be found at <http://www.fws.gov/endangered/>.

Administrative Procedure Act in the USA is a template (1) to require agencies to keep the public informed of their organizations, procedures, and rules; (2) to provide for public participation in informal rulemaking processes; and (3) to prescribe uniform standards for the conduct of formal rulemaking and agency adjudicative proceedings (Nylander 2006). State fisheries agencies generally follow the same three-step process to promulgate or change regulations.

There is a myriad of other administrative acts, but two are particularly relevant to fisheries management. The National Environmental Policy Act (NEPA) and the Fish and Wildlife Coordination Act (FWCA) in the USA ensure that all federal agencies explicitly consider the impacts of their proposed activities on natural resources, including fisheries. Similarly, Canada's Fisheries Act requires anyone who would destroy fish habitat or kill fish to have the Minister of Fisheries and Oceans' permission to do so. The Fisheries Act applies to government agencies and provides direction on how to go about "informing" the Minister to determine if a person needs "permission." These acts guarantee national and sub-national fisheries management agencies an opportunity to review and comment on actions proposed by others agencies (Ballweber and Jackson 1996). These procedural consultation and cooperation requirements provide formal mechanisms to interject fisheries management concerns into emerging inter-agency and federal-state watershed and ecosystem management efforts.

State fish and game agencies usually are overseen by a commission (or commissioner), so while the agency is responsible for the technical aspects of rule making, such as why a regula-

tion (a rule) is necessary and what it should be, the commission usually has the final authority to approve or disapprove any proposed rule. The rule-making process in most states is similar to the process described for Arizona in Box 4.2 and Figure 4.2. Additional information on rule making is provided in section 4.4.2.1, and Chapter 7 discusses the fisheries regulation process in more depth.

4.2.2.2 Fisheries Management Funding Mechanisms

National and sub-national game and fish agencies are fairly unique among governmental agencies in that they often have a variety of different funding mechanisms and sources. Most, but not all, states receive at least some legislative appropriations from the general revenue generated by state taxes. All state fisheries agencies are supported by license sales, entry fees at public fishing areas, and specially-designated funds generated from national excise taxes on the sale of fishing-related equipment (Box 4.3). Use of funds provided by anglers for conservation of nongame fishes and other aquatic biota has historically been contested. Special funds are now available for conservation of nongame species (Box 4.4).

4.2.3 The Judicial Branch

Unlike the other two branches of government, the judicial branch is largely immune from public influence and political pressures. Furthermore, at the national level, the judicial branch's direct authority is, except for criminal trials, largely limited to resolving disputes between the other two branches of government, national and sub-national levels of government, and individuals and the government. The amorphous and changing relationships between different branches of governments and levels of governments related to fisheries and other natural resources are increasingly litigated in federal courts. In general the judicial branch is the final arbiter of disputes between the legislative and executive branches of government, between national and sub-national governments, and between different sub-national governments.

4.3 HISTORICAL BASIS OF GOVERNMENTS' INLAND FISHERIES MANAGEMENT AUTHORITY

Many of North America's laws regarding wild animals, including fishes, and use of river-banks and the edge of the sea (riparian and littoral law) are inherited from the ancient Roman era. The USA and Canada largely follow those tenets as they were modified by early English "common law." Common law is not based on any express legislative enactment but is composed of prerevolutionary, or preindependence, statutory and English case law (judicial rulings) applicable to the protection of people and property from the government. Alternatively, the Mexican government is based more directly on the ancient Roman system of codified law known as the "civil law" system. Even today, courts cite ancient Roman legal treatises as a precedent and basis for their rulings (Adams 1993).

The ancient Roman legal tradition of the "law of things" (*res*) is the foundation of fisheries management authority in North American legal systems. The Romans recognized two categories of things: private property (*res in patrimonio*) and public property (*res extra patrimonium*). Public property had several additional categories, such as highways, rivers, and

Box 4.2. The Legal Process of the Arizona Game and Fish Commission

We provide a single state's fisheries management framework to help better understand how the legal system and process works. Not all states are the same, but this example is offered as a representative example. Arizona's constitution does not specifically address fisheries management, but the legislature claimed Arizona's fish and wildlife as state property. Fish and wildlife are managed by the five-member Game and Fish Commission (AGFC). Commissioners are appointed by the Governor, subject to approval by Arizona's senate, to serve staggered five-year terms. The AGFC directs the activities of the Arizona Game and Fish Department and hires the department's director. The Game and Fish Act requires the AGFC to undertake certain activities that include the following.

1. Make rules it deems necessary to carry out the Game and Fish Act.
2. Establish broad policies and long-range programs to manage, preserve, and harvest fish and wildlife.
3. Establish fishing rules and prescribe the manner and methods that may be used to take wildlife.
4. Enforce wildlife protection laws.
5. Publish and distribute public information on wildlife and the department's activities.
6. Prescribe rules for the expenditure of all funds arising from appropriations, licenses, gifts or other sources.
7. Exercise powers and duties necessary to carry out fully the act and in general exercise powers and duties related to adopting and carrying out the department's policies and control of its financial affairs.
8. Cooperate with the Arizona–Mexico Commission in the Governor's office and with researchers at universities in this state to collect data and conduct projects in the USA and Mexico on issues within the scope of the department's duties that relate to quality of life, trade, and economic development in Arizona.

On fisheries issues outside the AGFC's direct control, the legislature requires the AGFC to confer and coordinate with the director of Arizona Water Resources on (1) restoration projects where water development and use are involved, (2) the abatement of pollution injurious to wildlife, and (3) the development of fish and wildlife aspects of the director of Arizona Water Resources' plans. Furthermore, the AGFC has jurisdiction over fish and wildlife resources and activities on projects constructed under or pursuant to the director of Arizona Water Resources' jurisdiction.

In addition to the mandatory responsibilities described above the act also gives the AGFC discretionary authority to undertake the following.

1. Conduct investigations, inquiries, or hearings.
2. Establish game management units or refuges to preserve or manage wildlife.
3. Construct and operate fish hatcheries, fishing lakes, or other facilities relating to fish and wildlife preservation or propagation.

(Box continues)

Box 4.2. Continued.

4. Remove or permit to be removed from public or private waters fish that hinder or prevent propagation of sport or food fish.
5. Purchase, sell, or barter wildlife to stock public or private lands and waters and take wildlife for research, propagation and restocking purposes or for use at a fish hatchery and declare wildlife salable when in the public interest or the interest of conservation.
6. Enter into agreements with the federal government, other states or political subdivisions of the state, and private organizations to construct and operate facilities; to produce management studies, measures, or procedures for or relating to wildlife preservation and propagation; and to expend funds for carrying out such agreements.
7. Prescribe rules for the sale, trade, importation, exportation, or possession of wildlife.
8. Consider the adverse and beneficial short-term and long-term economic impacts on resource-dependent communities, small businesses, and the state of Arizona of policies and programs for wildlife management, preservation, and harvest by holding a public hearing to receive and consider written comments and public testimony from interested persons.

The AGFC may also enter into agreements with a multi-county water conservation district and other parties to participate in the lower Colorado River multispecies conservation program, including the collection and payment of any monies authorized by law for the program. With the Governor's approval the AGFC may acquire land or water for fish hatcheries, game farms, firing ranges, reservoir sites, or access to fishing waters. Reflecting the system of checks and balances between branches of government, the AGFC must obtain prior legislative approval before using eminent domain to acquire more than 65 ha (160 acres) of land for these purposes. In addition, any money derived from the sale or lease of departmental property is deposited in the game and fish fund.

Furthermore, statutory authority reflects intergovernmental relations between the AGFC and the U.S. Fish and Wildlife Service (USFWS). Specifically, with the AGFC's approval, the USFWS can conduct fish hatching, fish culture, and related operations, including acquiring land. However, Arizona's legislature also clearly asserts its sovereignty by ensuring that this cooperation does not give the USFWS any right to interfere with the department's activities or facilities, nor does this cooperation contravene any Arizona law relating to public health or water rights.

Arizona's Administrative Procedures Act defines the roles and responsibilities for both the AGFC and the department and mandates the process for implementing the Game and Fish Act's substantive authority. In addition, the Governor's Regulatory Rules Commission requires an impact assessment for proposed AGFC rules. Similar to the U.S. Code of Federal Regulations, Arizona rules are organized and codified in the Arizona Administrative Code (AAC). Under Arizona's notice and comment rule-making process, the AGFC issues the rules. Procedures to set season types (such as catch and release, artificial fly, and lure

(Box continues)

Box 4.2. Continued.

only) and special methods of take (such as archery) are all established in the AAC. The AGFC rules codified in the AAC include:

- lawful methods of taking aquatic wildlife;
- possession of live fish;
- possession, transportation, or importation of live baitfish, crayfish, or waterdogs;
- seasons for lawfully taking fish, mollusks, crustaceans, amphibians, and aquatic reptiles;
- aquatic wildlife stocking permit;
- live bait dealer's license; and
- white amur (grass carp) stocking and holding licenses.

The AGFC must use a less rigorous procedure to promulgate AGFC orders that open and close seasons and set bag and possession limits on an annual or biennial basis.

harbors (*res publicae*), and theaters, universities, and other public institutions (*res institutiones*). The Romans also recognized that certain property, such as air and water, was owned by everyone and open to all (*res nullius*). Similarly, fish and nondomesticated wildlife were classified as wild (*ferae naturae*) and owned by no one. The central government held some types of public property such as highways and public buildings much like a private owner and could sell those assets. However, the government held resources such as seashores and navigable rivers (*jus publicum*) in trust for the public good and these resources could not be transferred to private ownership. Fish and wildlife seem to fall under the public trust (Etling 1973; Adams 1993). These traditions were established by the Emperor Justinian and his successors in a body of work commonly cited as the *Corpus Juris Civilis* and are the foundation of civil law legal systems.

The amorphous boundary between land and water has always been a complicated interweaving of private and public interests. Access to rivers, especially those that could be used for navigation and commerce, were held in trust (*res communes*) as a public right (*jus publicum*) and could not be transferred to private ownership. In general, the shore (*littus*) extended inland to the point reached by a river's highest floods and were *res communes*, generally open to all and not available for private ownership (Adams 1993). However, private structures could be built on the shore in the floodplain if they were in the public interest and had proper governmental approval. Many of these types of restrictions are still being refined and debated today regarding wetlands regulations and building in the 100-year floodplain. Another increasingly controversial issue is the concept of public waters, which may allow the general public access to private property when that land is temporarily inundated by water from a nearby river or stream or when a body of water otherwise separated by land from navigable waters becomes connected to the navigable water during a high-water event.

From the decline of the Roman Empire until the advent of the Magna Carta in 1215, the Roman traditions were transformed across Europe into a sovereign's right. Wild animals were no longer *res nullius* but became the property of the landowner who had properly received title to the land from the sovereign. As sovereigns were forced to cede political power to

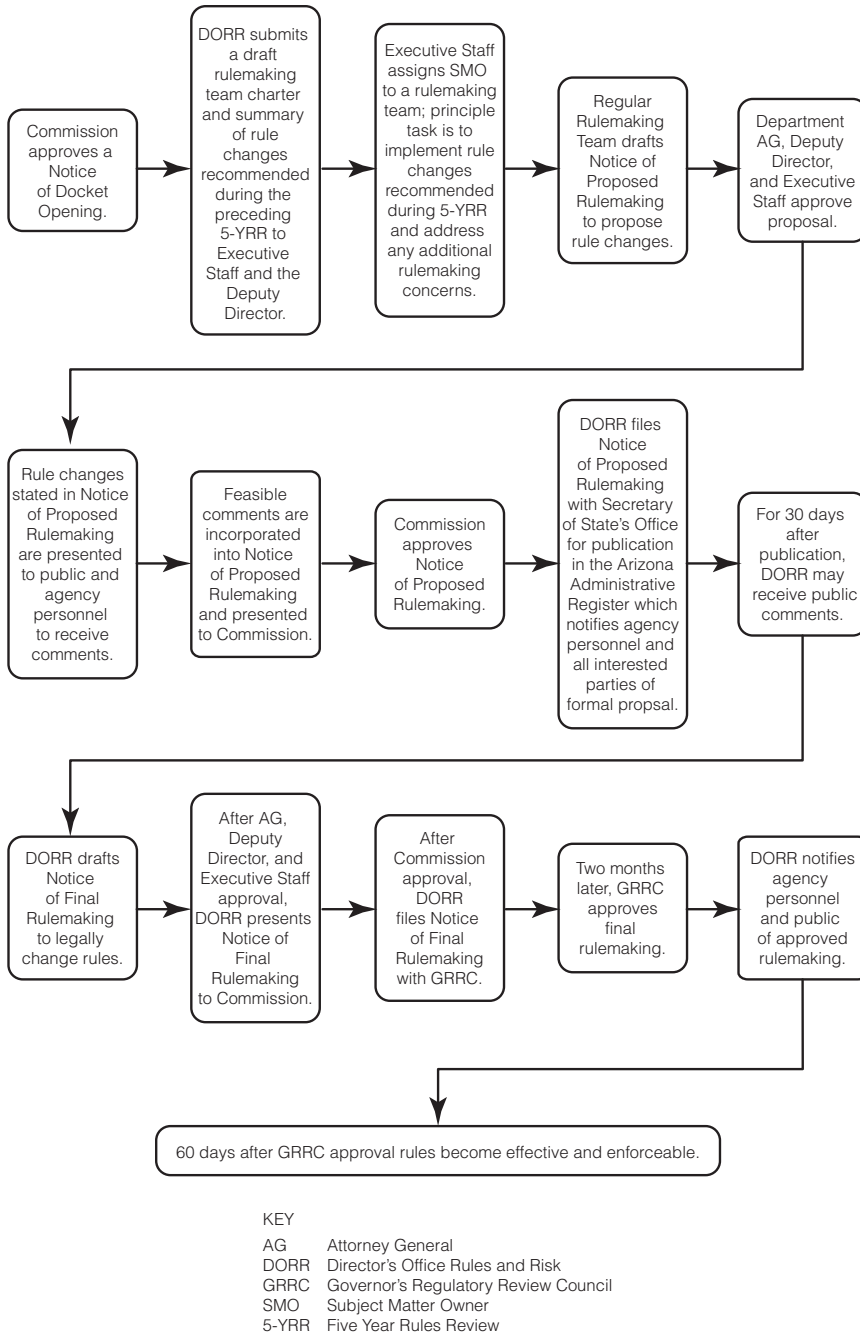


Figure 4.2. The rule-making process used by the Arizona Game and Fish Department. Similar processes are used in other states.

Box 4.3. Sport Fish Restoration

Revenues from fishing license sales provide a substantial portion of the funding for fisheries management by the states in the USA, but money provided by the Federal Aid in Sport Fish Restoration Program (SFRP) significantly augments state funds. The SFRP is a good example of a user pay–user benefit tax and creates a strong partnership among anglers, fisheries management, and the sportfishing industry.

Modeled after a similar program directed at wildlife management, the SFRP was created in 1950 through the Federal Aid in Sport Fish Restoration Act, also known as the Dingell–Johnson Act after the congressman and senator who championed the legislation. The original act imposed a 10% excise tax on rods, reels, creels, lures, and related fishing tackle. The revenue was deposited in a dedicated account and apportioned to the states by a formula based on number of anglers and land and water area. Very importantly, the act had a provision to ensure that no state fishing license revenues were diverted to other, non-fisheries uses.

The act has been modified four times since its initial enactment. In 1984, the Wallop–Breaux amendment created the Aquatic Resources Trust Fund. The fund contains two accounts, the Boat Safety Account and the Sport Fish Restoration Account. The amendment increased revenues into the fund by expanding the original excise tax to include (1) nearly all items of fishing tackle and equipment; (2) a portion of the federal fuel taxes paid on fuel used in motorboats; and (3) import duties on fishing tackle and boats. The SFRP funds available for fisheries jumped from US\$38 million in 1985 to \$122 million in 1986, the first year after the Wallop–Breaux amendment. In addition to the obvious benefit of more funds to state fisheries management efforts, the amendment required funding for boating access facilities, allowed funding for aquatic resources education, and required equitable division of funds between freshwater and saltwater fisheries management. With trust fund status, the two accounts also accrue substantial income.

Amendments in 1990 transferred federal fuel taxes on small gasoline engines (e.g., lawn mowers, snow blowers, and string trimmers) from the Highway Trust Fund to the Sport Fish Restoration Account. Legislation dedicated funds from the Sport Fish Restoration Account to the National Wetlands Program; the amount of funds to the National Wetlands Program was expected to approximate the amount of funds received from the small-engine tax.

An amendment in 1992 created a more equitable distribution of SFRP funds, provided funds for marine pump-out facilities to handle sewage from boats equipped with marine sanitation devices, increased funding for boating access and facilities from 10% to 12.5% of available funds, and added the word “outreach” to the aquatic education component of the SFRP.

Amendments in 1998 increased the monies received from the motorboat and small engines fuel tax, and new funds were allocated for outreach and communications and for boating facilities for non-trailerable recreational vessels.

In 2008, almost \$400 million were available to assist freshwater and coastal marine fisheries management. These funds are distributed to states and territories based on land and water area (including coastal and Great Lakes waters) in proportion to total land

(Box continues)

Box 4.3. Sport Fish Restoration (Continued)

and water area of the USA (40% of total funds) and the number of paid fishing-license holders (60% of total funds). No state may receive more than 5% or less than 1% of the total apportionment. Further, Puerto Rico receives 1%, and the District of Columbia and U.S. territories (American Samoa, Guam, the Northern Mariana Islands, and the U.S. Virgin Islands) each receive one-third of 1%. These funds can be used to pay for up to 75% of fisheries management and other allowed activities but must be matched with 25% of funds, including “in kind” contributions, from nonfederal sources. There is a substantial volume of rules for the proper expenditure of these funds.

The SFRP forms the funding backbone for fisheries management in the USA. The SFRP has grown in fiscal magnitude, in supporting partners, and in agencies and interests that receive funds. This growth helps ensure longevity of the funds.

governments, the public trust or common ownership reemerged in the common law to protect general rights of access for fishing, trading, and other uses claimed and used by all subjects (Sax 1970).

These ancient precepts came to North America as a “public trust” that applies to certain resources (fish, fowl, and game) in certain locations (the transitory boundary between water bodies and land). The New Jersey Supreme Court gave perhaps the most succinct statement of the public trust in a case decided in 1821; “the ports, the bays, the coasts of the sea, including both the water and the land under the water, for purposes of [access], navigation, fishing, fowling, sustenance and all the other uses of the water and its products according to their pleasure, subject only to the laws which regulate that use” (*Arnold v. Mundy*, 6 N.J.L. 1 [1821]). That use is subject to the government’s regulation or management of those resources for current and future generations.

In brief, the public trust has two elements: (1) a geographic limit associated with oceans and navigable rivers and their beds (for coastal shores, areas subject to the ebb and flow of the tide; for upland rivers, up to the ordinary high water line); and (2) uses (commerce, fishing, and fowling were the traditional uses). Over time, courts and legislatures have significantly expanded the geographic reach and permissible uses of the public trust (Sax 1970; Lazarus 1986). In addition to the public trust, the concept of a public right of navigation on international and interstate rivers and lakes (*jus publicum*) has had tremendous repercussions in the U.S. legal system. The national government has a preeminent “navigation servitude” to regulate the waters in those rivers and lakes to promote and protect navigation for commerce. Alternatively, states have sovereign ownership of those same water bodies’ submerged beds (Lazarus 1986). Much of the longstanding wetlands controversy stems from efforts to define the geographic reach of waters of the USA that are *jus publicum*. In Canada, the public right to fish exists only in tidal waters; otherwise the right is vested with the owner of the bed of the water. In most cases, the bed of the water is owned by the Crown (usually a province), and most provincial legislatures have passed acts that treat Crown lands as if they were held in the public trust.

Box 4.4. State Wildlife Grants

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A long-standing concern in fisheries management has been the sometimes competing demands of conservation and management. This does not seem like much of an issue if you define fisheries management as “the wise use of fisheries resources as compatible with conservation of the species,” but conservation versus management becomes significant in terms of fiscal accountability. Although the issue can be stated from different perspectives, fisheries administrators can be hard-pressed to justify expenditure of funds generated by recreational fishing (see Box 4.3) to conserve sensitive or imperiled species or their habitats.

To address the need for funding for fish and wildlife conservation issues, the U.S. Congress created the State Wildlife Grants Program (SWGP) in 2002 and mandated each state to develop a conservation strategy for wildlife and fish species having the greatest conservation need. Approved state strategies, known as wildlife action plans, were required by 2005 for states to participate in SWGP funding. Only animals are eligible for SWGP funds; however, conservation efforts on key habitats of these animals are also eligible for funding.

Wildlife action plans, by design in the SWGP, required many partners and perspectives for a broad conservation vision. Specific guidance provided to the states directed that their plans provide (1) information on species distribution and abundance; (2) descriptions of key habitats; (3) priority research and survey needs; (4) implementation priorities for conservation actions; (5) evaluations for the effectiveness of conservation actions; (6) periodic plan reviews; (7) coordination among various agencies and organizations; and (8) broad public participation. These planning guidelines, based across broad geographies and various professional disciplines, were a desirable approach for aquatic species because threats and impacts affecting them are often at the watershed or basin scale.

Partnerships also have helped funding requirements of SWGP grants. Grants for developing wildlife management plans required a nonfederal match of 25%. Much of the real effort of state wildlife plans was intended to be implementation, and implementation has required a 50% nonfederal match. Sharing labor forces and financial resources between more organizations has helped facilitate creative cost sharing as well as more meaningful, productive, and effective projects.

¹National Audubon Society, Holly Springs, Mississippi.

4.4 PRIMARY INLAND FISHERIES MANAGEMENT STRUCTURES IN NORTH AMERICA

From a legal perspective, the fishery manager's job is primarily to manipulate human beings, their institutions, and aspects of habitat to conserve and enhance fish populations and assemblages (Coggins and Ward 1981). Having discussed the basic structures of North American governments and the historical basis for governmental responsibilities for fisheries management, this section analyzes how fisheries management is coordinated and allocated among different levels of government.

National constitutions are the supreme law of the land, but that does not mean that the national government always has supremacy. Regardless of the apparent hierarchy between national and sub-national governments, national constitutions grant each level of government some degree of primacy over different issues related to managing fisheries or fish habitats. Accordingly, under constitutional systems in place in North America, natural resources and environmental authority can be broadly categorized as exclusive national authority, exclusive sub-national authority, or shared national and sub-national authority.

4.4.1. National Inland Fisheries Management Authority

Both Mexico's 1927 Constitution (Article 27) and Canada's Constitution Act, 1867 (Section 91 § 12) directly address the allocation of fisheries management authority between the national and sub-national governments. Conversely, the U.S. Constitution does not mention fish or wildlife. Notwithstanding this omission, the USA has considerable "implied" fisheries management authority under some of U.S. Congress' express constitutional powers. Specifically, Congress has asserted national fisheries management authority under its express rights (1) to regulate international and interstate commerce; (2) to make treaties with other nations and aboriginal tribes; and (3) to manage and protect property belonging to the USA.

International relations are exclusively a national government function. Fish and fish migrations frequently occur in interjurisdictional waters and are often the subject of international treaties and interstate management compacts. Canada, Mexico, and the USA have a history of formally cooperating on various issues of mutual concern including fisheries management. This is reflected in the many bilateral and multi-lateral agreements North America's nations are parties to, including those listed below:

1. Canada and the USA ratified the bilateral Great Lakes Fisheries Convention in 1954 to establish a Great Lakes Fishery Commission and determine the need for and establish appropriate measures to control sea lamprey in the Great Lakes. This treaty subsequently has been used to coordinate other state and provincial fisheries management activities.
2. Mexico and the USA entered into the Treaty Relating to the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande on February 3, 1944 (also known as the 1944 Water Utilization Treaty).
3. Canada, Mexico, and the USA have also ratified the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere (1940), also known as the Western Hemisphere Convention.

4. Canada, Mexico, and the USA entered into the North American Free Trade Agreement (NAFTA) on December 17, 1992. The North American Agreement on Environmental Cooperation (NAAEC or the NAFTA Environmental Supplemental Agreement), September 13, 1993, established a mechanism to encourage and monitor environmental enforcement in the three NAFTA countries and established a tripartite Commission for Environmental Cooperation.

Again, although some national and many state constitutions specifically address fish and wildlife, such is not the case with the U.S. Constitution; thus, any federal role in managing fish and wildlife or their habitats is implied or derived from one of the expressed constitutional powers (Coggins and Ward 1981; Adams 1993). For example, the commerce clause was the justification for the Lacey Act of 1900, which prohibits the import, export, sale, or purchase of fish, wildlife, or plants taken, possessed, transported, or sold in violation of national, tribal, or state law. The Lacey Act remains an important criminal statute to enforce international, national, tribal, and state fish and game laws. Canada meets this international obligation through the Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act. The U.S. Congress has used its property power to authorize the acquisition of lands for fish and wildlife habitat (e.g., National Wildlife Refuge System Administration Act and Migratory Bird Conservation Act). Similarly in Canada, the Migratory Birds Convention Act of 1917 allows the Canadian government to pass and enforce regulations to protect migratory birds included in the convention. Finally, the U.S. Congress has established various dedicated revenue streams that can be shared with states to fund the acquisition of fish and wildlife habitat (e.g., Land and Water Conservation Fund). Knowledge of the lengthy list of laws that affect fish and fisheries management is why all fisheries management agencies have attorneys.

4.4.2. Sub-National Inland Fisheries Management Authority

The seemingly clear legal divisions of fisheries management authority between national and sub-national governments' roles and responsibilities often become blurred in practice. The bulk of fisheries management and regulations take place at the province, state, or tribe level. All provinces and states and many tribal governments have comprehensive Web sites that provide ready access to statutes and agency rules.

Under the Canadian Constitution, federal and provincial governments share authority to protect and manage fisheries. The national government has authority over the sea coast and inland fisheries, while provincial governments have authority over property and civil rights and the management of public lands in the province. The judiciary's interpretation of the federal government's responsibilities does not extend to dealing with the ownership of fishing rights but charges the national government to manage or control how the rights can be exercised for the conservation and the general benefit of Canadians. Fisheries and Oceans Canada (the national fisheries management agency) determines the allowable harvest and the provinces are responsible for deciding who can fish and how the allowable harvest is allocated. The provincial Crowns also have an ownership or stewardship interest in the fish resource. In practice, governments delegate some responsibilities to the other government levels.

Fisheries and Oceans Canada regulates the harvest of fishes and other ocean-dwelling species of wildlife. Provincial ministries of environment and wildlife have authority over all other wildlife, including endangered species, and provincial wildlife acts often include the

power to designate wildlife areas to preserve important wildlife populations. The federal government, through the Canadian Wildlife Service of Environment Canada, manages migratory birds and other migratory species, as well as threatened species of national significance.

In the USA, the states traditionally have had broad authority to regulate and manage their fish and wildlife resources. All states and most tribes in the USA have departments of fish and game or some analogous agency responsible for regulating hunting and fishing and managing state wildlife conservation areas within their borders. Although fisheries management remains largely a state and tribal activity, the formal balance of power between national and sub-national governments is flexible and depends on specific issues and geographic areas (Coggins 1980). For example, state efforts to stock fish in wilderness areas for anglers may be in conflict with ecological or social values in federal wilderness areas. The federal agency may strongly prefer only native fish be stocked in such areas, whereas a state may wish to stock desirable, nonnative sport fish. Federal agency regulations recognize state authority for fish stocking, but judicial opinions allow federal agencies authority of direct involvement pertaining to fish stocking in wilderness areas (Landres et al. 2001).

4.4.2.1. State and Provincial Authority

The U.S. Supreme Court has ruled that states have the authority to manage inland fisheries subject to some national constitutional limitations (*Manchester v. Massachusetts*, 139 U.S. 240 [1890]). Much as at the national level, state laws create an agency in the executive branch of government to manage fish and wildlife resources for the use of its citizens now and into the future. To accomplish this goal, fisheries agencies are empowered to promulgate rules or regulations in the context of state statutes (laws). For example, legislation states a fisher may “take” fish; an agency will promulgate rules to prescribe how an angler may take them. The scope of regulatory authority allocated to agencies varies considerably among states, but many fisheries agencies can set license requirements and harvest restrictions (e.g., bag limits, length limits, and seasons). Legislative bodies retain oversight of agency decisions and in extreme cases may enact legislation to override agency management decisions (e.g., remove or add size limits, or revise methods of take [legal fishing methods]). Fisheries managers must become familiar with the authority the legislature delegates to the fishery agency in the state where they are working, which in turn determines the legal process of fisheries management. An example of the legal process in one state is provided in Box 4.2.

In the USA, state fisheries agencies operate under the guidance of a commission. Commissions vary among states in their size and the duration of commissioners’ tenure. Commissioners are appointed from a cross section of citizens with a general interest in the outdoors to terms defined by statute, except in Missouri where the commissioners are elected. Commissioners are responsible for setting the management agency’s policy, assisting the agency in implementing that policy, and acting as the intermediary between the agency and the political decision makers. The commissioners interact with fishery agency administrators, and occasionally biologists, at regularly scheduled meetings and serve to guide the fishery agency’s actions.

4.4.2.2. Tribal and Indigenous Peoples’ Authority

The interactions of tribes and indigenous peoples with state, provincial, and national governments are increasingly complicated. Both Canada and the USA realize a trust relationship

with tribal governments. Fish and wildlife management responsibilities are often contentious as they may be of significant cultural and religious importance to indigenous peoples, and fulfilling those cultural or religious needs may conflict with state fish and wildlife management regulations.

In the USA, the Constitution and numerous treaties grant Native Americans significant rights of self-government. Tribal governments usually have powers very similar to states. The U.S. Department of the Interior Bureau of Indian Affairs is the primary federal agency responsible for carrying out the USA's trust responsibility to Native American tribes. This trust includes the protection and enhancement of Native American lands and the conservation and development of natural resources including fish and wildlife, outdoor recreation, and water, range, and forest resources. Native American tribes usually are exempt from state law except under limited circumstances (*Cabazon Band of Mission Indians v. California*, 480 U.S.202 [1987]).

In Canada, the Crown, whether federal or provincial, has a duty to uphold and protect aboriginal rights. In essence, aboriginal people are accorded first access to fish and wildlife resources. Governments can only restrict aboriginal uses for conservation reasons. Further, many of the provincial laws and permits do not apply on First Nations' lands because the reserves are federal property. As of 2008, Canada was developing modern treaties or land claims with aboriginal groups to create fish and wildlife management authorities.

In Mexico, some municipalities are mainly populated by indigenous peoples with distinct laws, religions, languages, and customs. Mexican law grants these indigenous groups special protection as minorities, but generally they are subject to all applicable federal and state laws and provisions. In August 2001, the Mexican Constitution underwent an "indigenous reform" in which some articles were amended to include special provisions for indigenous groups. One of the key reforms recognizes Mexico's pluri-cultural makeup and acknowledges and guarantees the rights and autonomy of indigenous peoples and communities to decide the form of their social, economic, political, and cultural organization.

4.5. INLAND FISHERIES MANAGEMENT WITHIN A WATERSHED OR ECOSYSTEM MANAGEMENT FRAMEWORK

In Canada, the Fisheries Act, which requires ministerial permission or authorization to alter fish habitat or kill fish, creates an opportunity for cooperation among agencies to conserve fisheries resources. Ecosystem-based management is considerably more challenging in the USA. Fisheries managers have direct and preeminent authority to manage aquatic and terrestrial fisheries habitat within the boundaries of the lands that they manage (e.g., National Wildlife Refuges, federal lands surrounding U.S. Army Corps of Engineers or U.S. Bureau of Reclamation reservoirs, and state lands managed by game and fish agencies). Outside those geographic boundaries, fisheries managers and management agencies must build formal or informal partnerships with other federal, state, and local agencies and private landowners and strongly represent the fisheries resource in other agencies' decision-making processes. In short, outside the boundaries of the public land they directly manage, fisheries managers and management agencies are limited to indirect authority such as NEPA and the FWCA to influence other agencies' regulatory and management decisions that impact fisheries (Ballweber and Jackson 1996). As discussed in Chapter 3, there is a growing recognition of the need to

integrate water, land, and living-resource management along natural watershed or ecosystem boundaries. While these efforts are not, and should not be, fishery-centric, they do offer fisheries managers an opportunity to interject fisheries needs into the process to influence the management of critical fishery habitat outside the boundaries of lands owned by state and federal governments for fisheries benefits.

4.6 WATER

Water quality and quantity are essential to fish and valuable commercial and recreational fisheries. Impacts on fisheries are one of many considerations relevant to water quality and quantity decisions, but they seldom are a seminal or paramount factor. In Canada, the Fisheries Act grants control of water quality and quantity to the federal fisheries agency. In the USA, authority over water quality and quantity is allocated to different levels of government and different agencies at the federal, tribal, and state levels. Subject to some notable exceptions, such as the ESA discussed in Box 4.1, fisheries agencies have no legal authority to set water quality or quantity criteria. Nonetheless, fisheries managers should be prepared to provide guidance and, when possible, be strong advocates to ensure that fisheries impacts of proposed actions that influence water quality or quantity are fully documented and fairly presented to other decision-makers in federal or state agencies or courts.

4.6.1. Water Quality

A spectrum of potential water quality impairments ranging from contaminants (e.g., toxins, silt, pathogens, and nutrients) to thermal enrichment (discharge of heated but otherwise clean or safe water) challenge fisheries management. Water quality pollutants commonly are categorized by their source. Point-source pollutants, as the name implies, are those that enter a water body from a clearly identifiable source such as a pipe or ditch that can be traced back to a responsible party. Nonpoint sources, on the other hand, are essentially all pollutants that come from anywhere else. Point-source pollution is relatively easy to monitor and regulate, but nonpoint pollution is more difficult to ascribe to sources and is difficult to regulate.

In Canada, the Fisheries Act can be used to guard against discharge of pollutants that injure fisheries, and the provinces have similar laws to prevent pollution. In the USA, the CWA was enacted in 1972 to restore and maintain the chemical, physical, and biological integrity of the nation's surface waters. Simply put, the CWA was intended to establish water quality standards that would result in "drinkable, fishable, and swimmable" waters. To accomplish this, the CWA prohibits the discharge of any pollutant into the "waters of the United States" without a permit. The two most prevalent permits are (1) EPA's National Pollutant Discharge Elimination System (NPDES), which is generally delegated to state agencies to regulate point-source discharges and (2) the U.S. Army Corps of Engineer's wetlands permit program to control the discharge of dredge and fill materials into "waters of the United States."

The CWA has made significant progress in restoring water quality in the USA by controlling point-source pollution through the NPDES program. Unfortunately, many water quality issues that adversely impact productive fisheries, such as sedimentation and cultural eutrophication, are from nonpoint sources and, therefore, outside the CWA's regulatory structure.

Continued water quality improvements will require vigorous efforts to address these non-point sources of water pollution. The most effective mechanisms to address nonpoint sources of pollution are land-use best management practices, planning, zoning, and building codes. However, these activities are usually implemented and enforced by county or municipal governments or agencies. Whether due to point-source or nonpoint-source pollutants, water quality is a watershed issue and often beyond the sole authority of a single agency to regulate holistically. Civil and criminal penalties can help ensure compliance with individual water quality permits, but institutionally fisheries managers are expected to represent fish and fisheries issues aggressively in inter-agency consultations related to fish water quality and habitat concerns. In Canada, natural resource agencies can actually override water quality and quantity decisions when necessary to address fisheries issues.

4.6.2 Water Quantity

The quantity of water is the other part of the foundation for healthy fisheries. Increasingly, fish and fisheries habitat are competing with agricultural, municipal, and industrial interests, so competition among users can be expected. Predicted changes in precipitation patterns resulting from global climate change are likely to increase competition for water resources. Allocation of water is not a new issue. Water allocation is largely a matter of state, provincial, or tribal law; in the case of interstate waters in the USA, multi-state compacts are negotiated between the various states and then, in the USA, validated by Congress. As competition for water increases, water rights in the USA have become increasingly contentious and complicated, with new and often competing demands being pursued by federal mandates, interstate water compacts, and within tribal and state water law regimes (Tarlock et al. 2002). For example, because water rights in the Oregon portion of the Klamath Basin were not adjudicated, the U.S. Bureau of Reclamation's Klamath Project could not legally prevent junior water rights holders from exercising their right to divert water for out-of-stream beneficial uses. As a result, when the U.S. Bureau of Reclamation needed to meet ESA requirements and provide a minimum instream flow and lake elevation for federally-listed threatened and endangered species in California and Oregon, the Bureau had to obtain water through groundwater pumping and land idling to provide instream flow and meet ESA requirements. The Federal Energy Regulatory Commission has also been important in ensuring consideration of water needs for fisheries when hydroelectric facilities affect aquatic resources (Box 4.5).

Water law in the USA has evolved from one of two different foundations that diverge roughly in the middle of the country along the 98th meridian. Historically, states east of that line have enjoyed a fairly abundant water supply, whereas states to the west of that line have frequently endured a scarcity of water. Recognizing these drastically different climates and, hence, water-availability conditions, two distinct types of state water law were established to govern private water rights.

Riparian, or eastern, water law is largely common law doctrine that connects the right to use surface water with ownership of the contiguous land. Riparian water rights cannot be sold or transferred separately from the land. The allocation of water between riparian owners is governed by one of two legal approaches: (1) natural flow, which prohibits any riparian owner from using water that would diminish the natural flow downstream to other riparian lands, and (2) reasonable use, which gives riparian owners the right to alter the flow if the use is deemed reasonable when balanced against the rights of downstream riparian owners.

Box 4.5. Water Rights and the Federal Energy Regulatory Commission

CINDY WILLIAMS¹

The Federal Energy Regulatory Commission is the interstate regulatory authority for electric power, natural gas, oil pipelines, and the hydroelectric industry in the USA. The Office of Energy Projects (formerly the Office of Hydropower Licensing) administers the production and operation of the non-federal hydropower program. The Federal Water Power Act of 1920 provided the initial legislation and authority from Congress for the Federal Power Commission, which was placed under the direction of the Secretaries of War, Agriculture, and Interior. In 1930, the Federal Power Commission was reorganized into an independent commission with five appointed commissioners, and the Department of Energy Organization Act of 1977 created the Federal Energy Regulatory Commission (herein the Commission).

The Commission plays a significant role in inland fisheries management in its decisions to approve development and operation of hydroelectric facilities. In licensing a hydroelectric facility, the Commission is required to give “equal consideration” to power and development; energy conservation; protection of, mitigation of damage to, and enhancement of fish and wildlife (including spawning grounds and habitat); protection of recreational opportunities; and preservation of other aspects of environmental quality. Each license includes conditions to protect, mitigate, and enhance fish and wildlife affected by the project. These conditions are to be based on recommendations received pursuant to the Fish and Wildlife Coordination Act from the USFWS, the National Marine Fisheries Service, and state fish and wildlife agencies. The Commission is empowered to resolve any instances in which such recommendations are viewed as inconsistent while according “due weight to the recommendations, expertise, and statutory responsibilities” of the resource agencies. The Commission is also required to mandate the construction, maintenance, and operation of fish passage facilities as prescribed by the Secretary of Commerce or the Secretary of the Interior.

Hydropower licenses are issued by the Commission to private parties and municipalities for a period of 30 to 50 years based on the license application. The Commission conducts an independent analysis of the license application and the resources the project will affect through the National Environmental Policy Act (NEPA) process. Through NEPA, the Commission must ensure the project minimizes environmental impacts and is in compliance with applicable state and federal laws, such as the Clean Water Act, Endangered Species Act, National Historic Preservation Act, Coastal Zone Management Act, and the Wild and Scenic Rivers Act, while it produces an economically-feasible hydroelectric generation of power. Fisheries and water quality and quantity are generally the resources most affected by hydropower construction and operation. The Commission depends on the initial review and comments from state and federal fish, wildlife, and water management agencies throughout the licensing process. The license applicant’s response to these comments and concerns influences licensing decisions. The Commission determines whether or not the applicant has provided sufficient information in the license

¹U.S. Fish and Wildlife Service, Atlanta, Georgia.

(Box continues)

Box 4.5. Water Rights and the Federal Energy Regulatory Commission (Continued)

application for the Commission to conduct its analysis and produce a NEPA document, which recommends whether or not the Commission will issue a license. The applicant must also request and obtain a CWA § 401 Water Quality Certification from the responsible state agency. The state has 12 months from the date of the request to issue the certificate. If the state does not act within this time frame, the Commission considers the water quality certificate waived and can proceed with licensing. In addition, hydroelectric projects require state water rights to divert and store water. Without a water right, the hydroelectric project has no protection against subsequent appropriators. Existing water rights do not excuse compliance with water quality laws as part of relicensing. It is not uncommon for the Commission staff to impose licensing requirements based on their independent NEPA analysis that were not part of the license application or comments from concerned agencies to address operation issues and impacts to natural resources.

The amount of water flow needed to support the natural aquatic system is an essential but unresolved issue. In 1995, many federal and state fish and game agencies in the USA participated in the National Instream Flow Program Assessment Project funded by the U.S. Fish and Wildlife Service. This assessment compared state instream flow provisions and evaluated existing and emerging instream flow criteria. In 1998, this project resulted in the creation of the Instream Flow Council (IFC), a nonprofit organization that includes state and provincial fish and wildlife agencies. The IFC's mission is to improve the effectiveness of current instream flow policies and programs to conserve aquatic resources (IFC 2002).

Prior appropriation, or western, water law developed in the western USA to separate water rights from land ownership so water could be “claimed” from a source to be used for a beneficial use somewhere possibly far removed from that water source. Under the prior appropriation doctrine, the first person (regardless of land ownership) to divert water from its source and put it to a *beneficial use* (the “senior” appropriator) has a superior right over all subsequent “junior” appropriators. This is commonly referred to as “first in time, first in right.” Under this system, water rights can be sold, leased, or contracted to other parties. The system may be administered by special water courts or an administrative agency. Also the water must be regularly applied to the use for which it was appropriated or the appropriation may be forfeited, a provision referred to as “use it or lose it.” In times of water shortage, available water is allocated in order of priority with no balancing of harm or need between appropriators.

A third system, commonly called “regulated riparianism,” blends pure riparian and prior appropriation doctrines by instituting some type of water use permit that follows the reasonable use requirement. This system is also known as the California Doctrine after the California Water Code initially adopted the system and is the system generally used in Canada.

In times of shortage, the riparian system (eastern doctrine) spreads the limitation among all riparian users equitably, whereas the prior-appropriation system shuts down junior ap-

propriators to protect the rights of senior appropriators regardless of the consequences. Both systems have key phrases, such as *reasonable use* and *beneficial use*, that are subjective and regularly reviewed, modified, and amended by legislatures and the courts. Initially, beneficial uses were limited and required diversions to take water out of rivers and lakes for mining, agriculture, manufacturing, and water supply. Over time, state legislatures and courts have expanded beneficial uses and recognized that some such uses (e.g. providing recreation, maintaining in-stream flow, and sustaining fish and wildlife) actually require the water to stay in the river or lake.

Despite the predominance of state water law, the U.S. Supreme Court has found that the Constitution implies that water rights may be owed to the federal government; this is called the doctrine of implied federal reserved water rights. In many western, prior-appropriation states, rivers and streams are increasingly becoming over-appropriated, so that even in years of normal precipitation, insufficient water is available to satisfy the rights of all appropriators. The doctrine of implied federal water rights allows the federal government to file a law suit in federal court to argue for an appropriation of water necessary for a specific type of federal property necessary to satisfy its intended purpose. This concept is perhaps best understood in the context of Native American water rights. Basically, the creation of a reservation by the federal government implicitly reserved a water right to the tribe or tribes occupying the reservation as necessary to carry out the purpose for which the land was set aside (*Winters v. United States*, 207 U.S. 564 [1908]; Royster 1994). Federally-reserved water rights have been pursued for a variety of other federal lands, such as national parks and wilderness areas, to allow the managing agency to achieve specific purposes for which the land was designated. The Devils Hole case is one such example. In 1972, a suit was filed by the U.S. Department of the Interior to keep the level of spring water high enough in the Devils Hole portion of Death Valley National Park, Nevada, to assure the continued existence of the Devils Hole pupfish. In 1976, the U.S. Supreme Court unanimously upheld the federally reserved water rights, thereby facilitating the continued existence of the Devils Hole pupfish (*Cappaert v. United States* [426 U.S. 128 1976]; Minckley and Deacon 1991).

4.7 LAND

Land is important to fisheries because the land directly and indirectly affects the water. Land ownership (public, private) and that land's designated use (e.g., forest, recreation, or residential) or location (urban, suburban, or rural) significantly impacts the quality and quantity of aquatic and riparian habitat as well as limits who has access to any fisheries that may be found in waters on or flowing through that land. The various public land and resource management agencies use their discretionary authority and the numerous administrative procedures for interagency "cooperation and coordination" to implement watershed or ecosystem management on an *ad hoc* basis. A working knowledge of these administrative mechanisms will prepare fisheries managers to be effective advocates for fishery resources in this process. For this discussion, land is broadly categorized as being either (1) public and managed by a particular public agency to achieve some goal specified by law or (2) private property not managed by the government but still subject to varying degrees of public regulation.

4.7.1 Public or Crown Land

A variety of national, sub-national, and local public lands are referred to as Crown land in Canada. The provincial governments “own” the public lands in the 10 provinces, and the federal government owns the public land in the three territories. The national government is the largest landowner in the USA and owns approximately one-third of the nation’s lands (Adams 1993; Mansfield 1993). The amount of national public lands varies among states and is greatest in western states. Congress, as the steward of those lands, has allocated management authority or use of that land among several agencies. Although federal lands are often managed for multiple compatible uses, a law usually specifies a primary designated use (e.g., wildlife or national park). This designation usually dictates which agency has management responsibility for the land. In addition specific laws may designate management priorities and goals specific to that property. Many public lands, such as fish and wildlife refuges and national parks, are generally open to the public and actively managed to provide fishing opportunities. Some lands, such as those set aside for national defense, may have restricted public access and limited active fisheries management.

The U.S. Bureau of Land Management (BLM) and its land management practices defined by the Federal Land Policy and Management Act of 1976 (FLPMA) provide a good example of the complexity of achieving multiple use and sustained yield in land management. Under FLPMA, the BLM must inventory all of its lands and develop land-use plans that, among other things (1) reflect multiple-use and sustained-yield principles; (2) take a multidisciplinary approach that includes physical, biological, economical, and other sciences; (3) consider present and potential future uses; and (4) generally conform with state, local, and tribal land use policies. In addition to FLPMA, the Multiple-Use Sustained-Yield Act of 1960 provides another statutory overlay on the management activities of both the BLM and the U.S. Forest Service. Generally the practices of the BLM are consistent with provincial and federal Crown land management in Canada.

Multiple-use management tries to balance uses of the different surface resources available on public lands, including outdoor recreation, grazing, mining, logging, watershed protection, and fish and wildlife conservation. Multiple use does not necessarily give priority to the combination of uses that will give the greatest economic return or the greatest unit output. However, sustained yield is achieving and maintaining a high level of annual or regular output of various renewable resources on public lands consistent with perpetual multiple use. The challenge is for multiple federal and state agencies, as well as the public, to function within these statutory labyrinths to reach a consensus on how to implement new interdisciplinary management regimes that can exceed single-resource management expectations.

Sub-national governments have patterns of public lands that may include open space and other classifications. Every state has a system of protected areas, which can provide a diversity of conservation benefits and recreational opportunities. In addition, local and county parks and playgrounds often protect small natural areas or open spaces. Still, despite the fragmentation of public land management across myriad agencies, the basic decision-making processes are much the same.

4.7.2 Private Land

Private property is not totally immune from government regulation. As a general rule, local and municipal governments have the most direct authority to “manage” activities on pri-

vate property through land use planning, accomplished by enforceable zoning regulations in Canadian provinces and many U.S. states. Some states have adopted statewide land use plans that include urban-growth boundaries. In more rural areas, state soil and water conservation agencies or their equivalent may also have the authority to adopt and enforce land use plans for soil and water conservation needs. Although hotly contested, the federal government has certain regulatory mechanisms to restrict activities on private property. For example, the ESA prohibits “the taking” (removal) of plants or animals listed as endangered. Thus, a habitat alteration that harms a plant or animal listed under the ESA as threatened or endangered is a violation of the ESA. The USFWS, which enforces the ESA, therefore can influence activities on private land if they threaten the habitat of listed species (*Babbitt v. Sweethome Chapter of Communities for a Greater Oregon*, 515 U.S. 687 [1995]). Similarly, Canada’s Fisheries Act and other laws also apply on private property.

4.8 CONCLUSIONS

The governmental side of fisheries management may seem daunting, but laws and regulations are necessary elements of fisheries management. It is impossible to understand fully the fisheries management process solely from reading statutes, rules, and regulations, but it is essential to know the roles different parties (e.g., federal or state legislators, judges, presidents and governors, mayors, agency staff, commissions, and the public) have in the process.

The subject of fisheries management legislation is ripe for discussions and role-playing in which a student or student teams assume different roles (e.g. legislative, agency, user group, and environmental group) in discussing fisheries issues. The press and news media are reporting on national and local resource controversies almost daily and should provide timely and undecided fisheries issues for discussion. Emotions flair and battle lines are drawn.

Current fisheries management processes are a blend of legislative and administrative authorities that have been and are being reviewed and refined by the federal courts; in most cases, long-term solutions to fisheries management concerns will require a cooperative blending of these same parties’ authority. Relationships and trust are critical to keep the process running smoothly. Legislators must trust that they are getting the best advice possible from agencies and professional societies. Likewise, the angler must also trust that regulations are in the best interest of the fishery. A key element of this trust is understanding who has what role and authority in the fisheries management process.

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