

Establishment of an Integrated Instream Flow Program in Hawai'i Consistent with Public Trust Doctrine

WILLIAM S. DEVICK

94-374 Makalu Loop, Mililani Town, Hawai'i 96789, USA; e-mail: billdevick@hawaii.rr.com

Introduction

Hawai'i is the water state, renowned for its spectacular waterfalls and surrounding blue sea. Our hundreds of freshwater streams by contrast barely register. To the callously uninformed, streams are at best environmental annoyances that catch waste from the land, pollute the ocean, kill coral reefs, and at times inconveniently inundate structures built on flood plains. Unless these waters are captured or diverted for beneficial uses such as irrigation, the water flowing out to the sea is wasted. Streams flowing through urbanized areas must of course be bulldozed, reconfigured, and filled with concrete to move water through more rapidly and contain storm flows within artificial banks.

The select but small group attending the Symposium on the Biology of Hawaiian Streams and Estuaries knows better. In biological reality, Hawaii's streams are *mauka-makai* lifelines that inextricably tie the land and sea in a unified system that sustains a native biota unique to the islands. Properly managed streams literally feed the sea, not just with water. They replenish groundwater and wetlands. They form estuaries, green-blue bridges, where fresh and salt waters mix. These transition zones serve as nurseries for a wide variety of marine organisms and are especially susceptible to upset from human interference with naturally functioning ecosystems.

The original Polynesian immigrants to Hawai'i developed a complex society inseparably linked with stream resources and formed deep emotional attachment to stream biota. Postlarval 'o'opu, known collectively as *hinana*, were harvested *en masse* and considered a delicacy. Certain of the inland 'o'opu were reserved as food for the *ali'i*. Streams, their watersheds, their biota, diversions for taro with return of water to the streams, fishponds, and fronting waters of the ocean were intelligently managed with a unit known as an *ahupua'a*. Some present-day local communities have retained an intense appreciation of these resources and understand their contribution to the cultural heritage of native Hawaiians.

The ascendance of westernized customs in Hawai'i highlighted exploitation of resources and transformed local practices definable as sustainable management to maximization of economic gain. The *ahupua'a* ideal, which was roughly analogous to ecosystem-based management, was subverted by many actions but most dramatically by diversion of water from streams for industrial scale agriculture, especially sugar cane cultivation. With the loss of stream water, the native stream biota were devastated, taro culture declined, fishponds deteriorated, and biological productivity of nearshore marine waters was likely reduced. By the 1980s, it became blatantly apparent that unless positive action was taken, the native stream biota would inevitably dip to threatened or endangered status.

Discussion

Creation of a State Water Code in 1987 and formation of the State Commission on Water Resource Management (CWRM), reinforced by a growing appreciation of streams in the conservation community, provided a vehicle for halting the slide. For the first time there was an assertion of State authority over surface waters, which previously had been viewed as privately owned and therefore beyond the scope of state regulation. With the new assertion of authority came an unavoidable responsibility to protect the surviving biological resources despite the increasing demands of the ever-growing human population. Although far from perfect, the resultant process has tended to meet an implicit objective of "no net loss of habitat" occupied by native biotic populations recognized as

significant and has encouraged rapid improvement in understanding fundamental elements of the occurrence, distribution, behavior, habitat requirements, and other components of endemic and indigenous species and of non-human threats which persist, in particular invasions by non-native species.

There is an inherent presumption that the State Water Codes should accommodate the requirements of Public Trust Doctrine (PTD), which legal authorities have emphasized is expressed in the State Constitution. PTD seems to be an expression of the original meaning of “conservation” in which natural resources should be managed in a manner that ensures their perpetuation for use and enjoyment by future generations. Government is supposed to manage these resources in a responsible manner, weighing human needs or wants against the ability of the environment to accommodate those demands.

That can lead to a conflict between perceived “public interest” and the expectations of PTD. They should be identical. But given economic and political pressures, combined with a lack of understanding at all levels of the consequences of decisions that are made, short term interests that maximized use have historically prevailed in the decision-making process at the expense of long term sustainability of not only the targeted resource but also of the natural system to which they are indivisibly linked. Ideally, recognition of the priority that should be given to PTD will in the future shift the fulcrum in balancing those decisions from the side of exploitation to protection.

The past half century has seen a dramatic shift in attitudes towards how living natural resources should be managed. Originally these living resources were presumed to be renewable, with appropriate management, and the highest good was to increase their availability to man. Accordingly, habitats were being altered for human convenience. If we build on a flood plain, channelize the stream to prevent flooding. As we produce more and more waste, just dump it in a stream or in the ocean. While we are at it bring in lots of alien species that intentionally or accidentally become permanent residents, reducing native species biodiversity in the process. Virtually all of living resource problems we are facing—from declining fish populations, loss of native species and habitats to alien species invasions and ultimately global warming—have as their root cause excessive human exploitation.

That is hardly a revelation. But only recently has it been generally recognized that living resource management can not be done in isolation from what is happening in the rest of the world. The mantra now is “ecosystem-based management”, which can be quite elusive in practice. Although in practice we still tend to be mired in single-species mindsets, it is imperative that we strive to develop the tools to construct an effective management framework that approaches an ecosystem-based ideal.

At the heart of successful ecosystem-based management must be good science. At the biological level we must do our best to understand the requirements of species, their relationships to other species, and the impact of perturbations associated with landscape changes and other impacts of human activity. This is open-ended and can not be done cheaply, but as understanding increases so will better identification of key questions that need to be addressed. If good science is set aside as an economic expedient, it is certain that the messes accumulated in the last half century will continue to pile up.

The group represented in the symposium has made enormous progress in developing the good, hard science needed to support the stream-related decision-making process under the Water Code in Hawai‘i. But we are far from knowing all that needs to be understood, and what is known must be integrated in a strong administrative structure to be meaningful. The Instream Flow Council in an exceptionally high quality publication (Annear *et al.*, 2004) on instream flow issues, programs and methodologies recognizes the following:

“Managing instream flows to protect public natural resources within the legal and institutional bounds of water allocation is a highly complex job. It is a daunting and potentially confusing maze that state and provincial managers must negotiate to fulfill their responsibilities. Few, if any, fishery biologists possess the skill to integrate their own biological knowledge with knowledge of hydrologic and geomorphologic concepts, legal and administrative processes, and public involvement. Clearly,

agency managers need to expand their horizons. To fulfill fishery and wildlife management responsibilities for present and future generations, state and provincial fishery and wildlife agencies must make water management a top priority, hire and retain qualified and trained staff, and participate fully in water management decisions. Although Hawai'i has a nascent structure to meet these expectations, it has to be formalized and strengthened to meet the constitutional imperatives of PTD."

At present, stream management and regulation in Hawai'i ostensibly falls under the Department of Land and Natural Resources (DLNR), which has basic regulatory authority through CWRM and the Division of Aquatic Resources (DAR), which serves as an informal information source to CWRM about stream biota and has some related rule-making authority. Peculiarly, water quality regulation falls under the Department of Health (DOH), although there is a connection in that the DOH Director is a CWRM member. Given the many pressures, differing mandates, and limited funding available to agencies, this system is too diffuse and dependent upon the personal predilections of staff or higher authority at any point in time. A system that unifies these responsibilities within a single institutional authority is needed.

This can be done by formalizing the presently *de facto* operations and integrating them into a genuine instream flow program. There is a proposal for establishment of a stream, estuarine, and alien species center in Hilo, taking advantage of facilities that already exist. There is already an informal agreement to link the center with the Hawai'i Institute of Marine Biology. The center would have to be recognized within the DLNR organization as a bridge between DAR and CWRM. Because the center would be primarily a science-based operation, it could incorporate water quality considerations in its contributions to CWRM.

To reiterate, the Hawaii State Constitution, Article X, Section 1 states the following:

"For the benefit of present and future generations, the state and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources, including land, water, air, minerals and energy sources, and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the state. All public natural resources are held in trust by the state for the benefit of the people."

This is a clear directive that in combination with the Water Code should impel the state to establish a focused and comprehensive instream flow program. More than the foundation, PTD provides the glue to bond the pieces of the program together permanently. In the broader sense it mandates all government entities to look further into the future, and account for their actions accordingly, to ensure perpetuation of the resources for which they are responsible. And their actions should not be taken in isolation. Much greater emphasis on public outreach and education will be needed. PTD may be a step ahead of much of our political leadership, but that too may change as more people realize that it is not just an unattainable ideal, but it instead provides a realistic framework for effective resource management.

The Instream Flow Council (IFC) was formed in 1998 following the conclusion of a federally-supported National Instream Flow Program Assessment in 1995 that brought together instream flow coordinators or their equivalents from each of the 50 states and the federal instream flow coordinator from each of the seven regions of the U.S. Fish and Wildlife Service. Now comprised of state and Canadian fish and wildlife agencies (Hawai'i is a charter member), the IFC is a nonprofit organization whose mission is to improve the effectiveness of instream flow programs for conserving aquatic resources. It has issued 46 policy statements, of which their statement on Public Trust Doctrine warrants special notice here:

"Laws, regulations, and/or policies affecting fishery and wildlife resources and the habitats upon which they depend should be based on the state or province's legal stewardship responsibilities to manage those resources for the benefit and enjoyment of present and future generations."

Literature Cited

Annear, T., I. Chisholm, H. Beecher, A. Locke, P. Aarestad, C. Coomer, C. Estes, J. Hunt, R. Jacobson, G. Jobsis, J. Kauffman, J. Marshall, K. Mayes, G. Smith, C. Stylnaker & R. Wentworth. 2004. *Instream Flows for Riverine Resource Stewardship*. Revised edition. In-stream Flow Council, Cheyenne, Wyoming. 268 p.