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## ESSAY

# Ecocultural Equality in the Miwko? Waali?

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## ABSTRACT

California's water infrastructure relies heavily on the Sacramento–San Joaquin Delta (Delta) for supply and conveyance to a multitude of users. This reliance conflicts with the ecological importance of the Delta for critical functions and services it provides as the largest estuary on the west coast of North America. At risk are entire ecosystems, which provide habitat for a diversity of resident and migratory species, and includes culturally-significant endemic species such as the Delta Smelt (*Hypomesus transpacificus*). Furthermore, the Delta is situated within the Miwko? cultural landscape, which is founded on the relationship between the region's Indigenous people and the ecological system. This paper illustrates the ecocultural context and significance of this landscape, which has largely been overlooked in

addressing demands for water resources and influence on environmental policy and stewardship within the Delta. It provides some examples of how a more holistic view might achieve ecocultural equality based on Miwko? traditional cultural practice and law, as has been practiced and observed in this landscape for millennia.

## KEY WORDS

Miwko?, Indigenous, ecocultural, water, restoration, stewardship, conservation

## INTRODUCTION

Current stewardship and conservation within the Sacramento–San Joaquin Delta (Delta) tends to revolve around resource extraction and rare species, but there is no current directive to achieve an equitable resolution that is sustainable or ensures ecological resiliency. As an alternative, there is much to learn from Indigenous philosophy and practices as time-tested approaches to living in a given landscape. Globally, Indigenous people are under-represented, yet steward approximately 20% of the earth's surface, and an astounding amount of global biodiversity (Raygorodetsky 2017). Given the threats to biodiversity, Heise (2016, p. 199) discusses the concept of multi-species ethnographies as a mechanism to attain real and

meaningful conservation through multi-species justice. A multi-species ethnography demonstrates the interrelated and interdependent relationship among species – including people – within an area, and for many Indigenous people these relationships are established through kinship with species. Where these multi-species kinship relationships exist among Indigenous populations, ecological integrity is enhanced (Salmón 2000; Kimmerer 2011). In her work with Aboriginal Australians, Rose (2011, pp. 3–4) describes how kinship systems create accountability, and emphasizes that many Indigenous people can relate to declining species through kinship as a result of the genocide their own populations have faced.

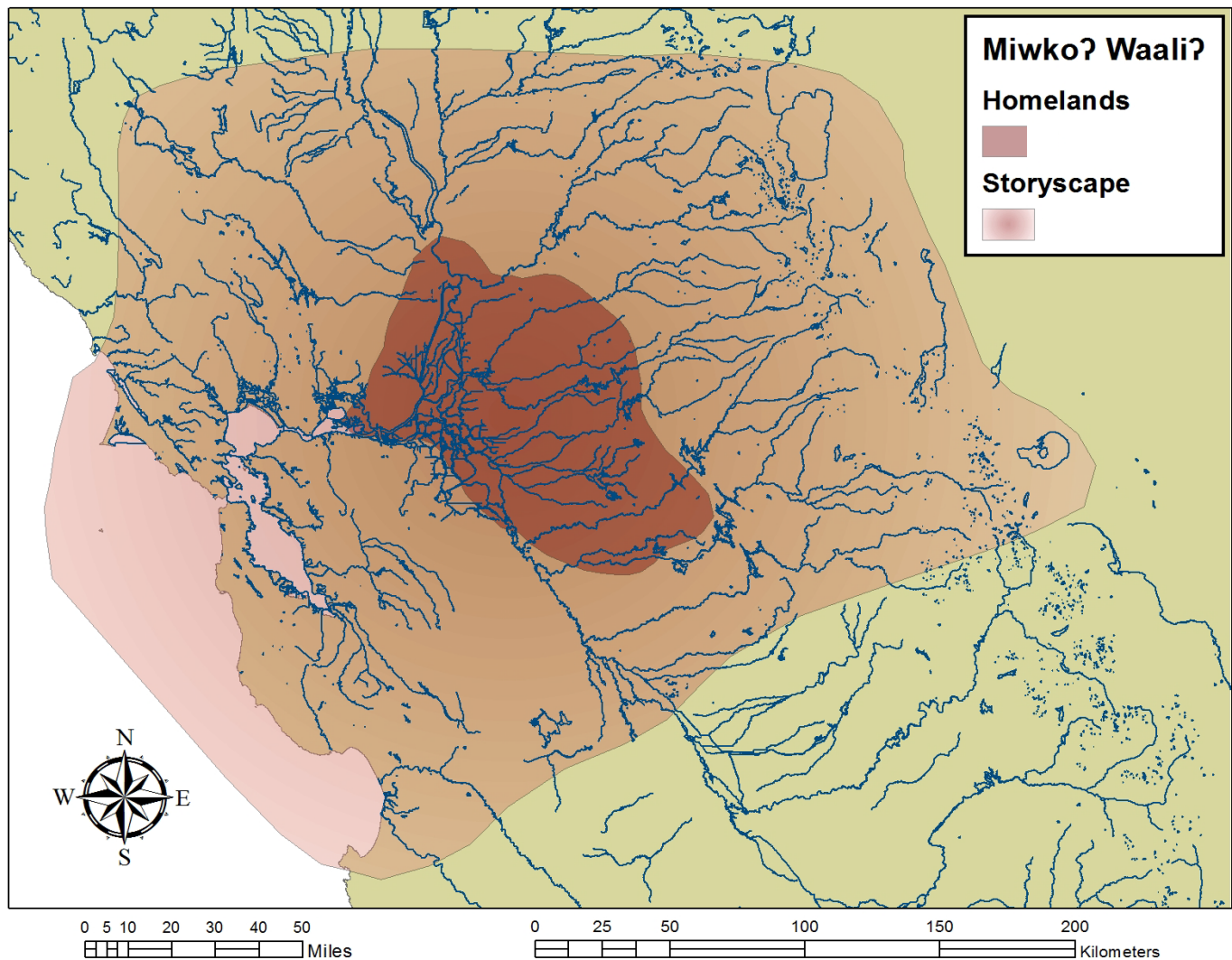
In the context of ethnic community interaction within the Delta, the discussion often focuses on environmental justice issues, but largely neglects Indigenous perspectives and needs. Milligan and Kraus–Polk (2017) suggest inclusion of social and cultural considerations, which are often neglected in restoration, to ensure a sustainable outcomes. The Delta is recognized as the largest estuary on the west coast of North America. The Delta falls within the Miwko? Waali? (Plains [Valley] Miwok ancestral homelands) (Figure 1). Miwko? have lived within this landscape since time immemorial, and thus have lived through rising seas along the tidal plains of the paleo Delta as it moved between the Farallon Islands to points east. This region has undergone tremendous change in geologic time, and in the process has provided a means for maintaining resilient and sustainable ecosystems and livelihoods for countless generations who mindfully considered their obligations to generations unborn. In the spirit of these obligations, it is understood that Miwko? bear a responsibility to ensure that future generations receive a world left in as good – if not better – condition than they received. For millennia, Miwko? have asserted the ancestral responsibility to ensure the balance and stewardship of land and water is maintained. Within this context, water is a sacred element of life, and this view is shared by many other Indigenous people around the world; it is a life-giving force to which all creation is connected.

Since colonization, Miwko? have systematically been denied their ancestral rights to transitory resources (i.e., water, air, fish and wildlife), which

were never surrendered by treaty or other means. However, local, state, and federal projects past and present have failed to implement actions to make these systems sustainable and resilient to social and environmental change as Miwko? tradition would have. Moreover, current planning maintains the status quo; short-sighted ideas that ensure operations for a water-delivery system that is inefficient and unsustainable. Clearly, at this point in time, the Delta is not resilient: the flora and fauna of the region are in decline, the landscape is threatened by poor land-use decisions, the water crucial to it all is being commodified by interests that lack the foresight to see beyond financial gain for themselves, and the foundation of Miwko? culture is compromised. Currently, efforts by Miwko? traditional cultural practitioners and ethnographers are underway to complete a map-based ethnography and paleoecology for the Miwko? Waali?. When complete, this resource could be used to guide future planning and dialog with others regarding this landscape. Here, I draw upon those efforts to frame the context for ecocultural equality as a balanced approach for stewardship within the Miwko? Waali?. Through ecocultural equality, the focus of the discussion becomes more inclusive of multi- and inter-species relationships.

## ECOCULTURAL CONTEXT

Miwko? culture is derived from the ancestral landscape; the language and worldview are interconnected with the ecology of the lands and waters that flow through it. To understand the breadth and depth of Miwko? worldview, it is imperative to understand what defines the waali? (i.e., world and land) through various facets of geographic knowledge. In its elemental form, Miwko? “storyscape” (i.e., sacred geography of creation landscape) is centered on Mt. Diablo and roughly bounded by the Pacific Ocean beyond the Farallon Islands to the west, the Sutter Buttes to the north, the peaks surrounding Tahoe to the east, and Yosemite Valley to the south, as areas pertinent to Miwko? creation. Within this geographic context, many sacred sites and traditional cultural properties are known, but have not been recorded. Miwko? Waali? represents the combined storyscape, along with the traditional territories that surround the villages.



**Figure 1** Map depicting approximate location of Miwko? homelands within the storyscape

Miwko? are estuarine/river people, and recognize the dynamic and resilient nature of a functional landscape. The fabric of Miwko? traditional society is framed within the context of one's affiliation with their "moiety" (social division connecting to either land or water) through lineage, and associated responsibilities of reciprocity thereto. Each moiety bears certain responsibilities to land or water care, including traditional restrictions to certain activities associated with aspects of their moiety. Furthermore, it is through language that the sense of place is acquired. Embedded within language are basic terms for water-related things and phenomena occurring within this region.

Story is the foundation of Indigenous law, and includes accounts of creation and observations by ancestors established through oral accounts. Through law one learns to be responsible and protect what is not only vital to humans but to every living thing. Within the understanding of place and stories of place is law. These laws address various issues, including those pertaining to access to country, rights to material goods from that country, and exclusion zones (e.g., places where no fishing could occur for conservation purposes).

Indigenous legal scholars Austin (2009) and Black (2011) summarize common threads of Indigenous jurisprudence. Indigenous philosophy and pedagogy

is steeped in knowledge of language, laws, ecology, philosophy, ceremony, and storyscape of their own and their neighbors. Indigenous law is rooted in the cosmology, which demonstrates the interrelated and interdependent nature of everything from the individual to the universe. Every natural element of the landscape is understood to serve a purpose, and there is order to that purpose. Furthermore, the interrelated and interdependent relationship exists across spatial, temporal, and environmental scales. Thus, the removal or disturbance of attributes disrupts the balance among physical, cultural, and metaphysical properties at multiple scales (e.g., site-specific to beyond regional). For traditional cultural practitioners (e.g., traditional hunters, fishers, plant gatherers), this understanding is fundamental to existence; yet ironic when posited with the actions of the dominant society.

For instance, placing Los Vaqueros Reservoir, Clifton Court Forebay, and other infrastructure within the heart of Miwko? storyscape conflicts with the law those features represent and has degraded or destroyed the functional systems; a sacred landscape containing culturally-significant species frequently identified in story, ceremonial places, gathering sites, and much more. Such features are often places of importance for other regional cultures and biodiversity hotspots, and may be significant for conservation (Gorenflo et al. 2012).

This disregard for traditional law, landscape, and relations has created discontent among Miwko? traditional cultural practitioners for generations. Cunsolo and Ellis (2018) describe the psychological impacts of such loss and disruption, including that exacerbated by climate change, as “ecological grief.” The cumulative effects of such actions amidst other historical traumas associated with settlement, land loss, etc. can have far-reaching intergenerational effects among Indigenous communities (Whitbeck et al. 2009).

To achieve a more equitable and respectful relationship with landscape and Indigenous people, Black (2011, p. 27-33) notes, if one understands the relationships of all things within the land, they will gain the ability to feel/read the needs of the landscape. Kimmerer (2011) describes this as becoming “[I]ndigenous to place,” but cautions

against cultural appropriation. Here, I suggest that by working with Miwko? traditional cultural practitioners, learning to respectfully engage with the waali? becomes possible, and, as Black (2011) notes, if one understands the relationships of all things within the land they will “feel the law flowing through them” (e.g., will feel the ability to read the needs of the landscape).

A great diversity of species is known from the region, all of which share an integral piece to the functioning of the ecocultural system. Each species bears a link within the larger web of relationships. Miwko? have traditionally understood the interactions of species within this web (e.g., where they are found, and what their associations are, etc.). Miwko? village and place names reflect this regional diversity, and, more specifically, note from where some of these species are known: either through knowledge of story places, or as an indication of localized abundance. As noted by Nabhan (2000) and Kimmerer (2011), this is a common occurrence in Indigenous cultures. Examples of familiar place names include Miwko? village names Cosumnes (derived from Kosomne [place of the toyon] and Mokelumne [place of the fish net] as known by speakers of the language. Today, that relationship is compromised by land – and water – use policies and changes, which have altered many of these traditional relationships. An accounting of this knowledge and culturally significant species is relevant to regional conservation planning and implementation efforts, yet it is largely not accounted for. For instance, of 56 species addressed in the Bay Delta Conservation Plan/California Water Fix (CNRA 2015), at least 24 are noted as being culturally significant (see [Table 1](#)). However, this list is not as comprehensive as it should be, given traditional knowledge. Miwko? would expand this list to include marine and upland species beyond the legal Delta. Some of these additional species would include wajeena? gray whale (*Eschrichtius robustus*) and humpback whale (*Megaptera novaeangliae*), hoopa? (bald eagle [*Haliaeetus leucocephalus*]), wekwek (peregrine falcon [*Falco peregrinus anatum*]), and other organisms, which are known from story and traditional knowledge to occur within this region. Traditional knowledge also recognizes the connection of these species to the region; thus, when environmental

**Table 1** List of species derived from the Bay Delta Conservation Plan (CNRA 2015). Ecocultural species are denoted by asterisk.

Common name	Scientific name	Status (federal/state/ CNPS)
<b>Fish</b>		
Delta Smelt*	<i>Hypomesus transpacificus</i>	T/E/-
Longfin Smelt*	<i>Spirinchus thaleichthys</i>	C/T/-
Winter-run Chinook Salmon*	<i>Onchorhynchus tshawytscha</i>	E/E/-
Spring-run Chinook Salmon*	<i>Onchorhynchus tshawytscha</i>	T/T/-
Fall and late fall-run Chinook Salmon*	<i>Onchorhynchus tshawytscha</i>	-/ssc/-
Steelhead*	<i>Onchorhynchus mykiss</i>	T/-/-
Sacramento Splittail*	<i>Pogonichthys macrolepidotus</i>	-/ssc/-
Green Sturgeon*	<i>Acipenser medirostris</i>	T/ssc/-
White Sturgeon*	<i>Acipenser transmontanus</i>	-/-/-
Pacific Lamprey*	<i>Entosphenus tridentatus</i>	-/-/-
River Lamprey*	<i>Lampetra ayresii</i>	-/-/-
<b>Mammals</b>		
riparian brush rabbit*	<i>Sylvagus bachmani riparius</i>	E/E/-
riparian woodrat	<i>Neotoma fuscipes riparia</i>	E/ssc/-
salt marsh harvest mouse	<i>Reithrodontomys raviventris</i>	E/E, FP/-
San Joaquin kit fox*	<i>Vulpes macrotis mutica</i>	E/T/-
Suisun shrew	<i>Sorex ornatus sinuosus</i>	-/ssc/-
<b>Birds</b>		
California Black Rail*	<i>Laterallus jamaicensis coturniculus</i>	-/T, FP/-
California Clapper Rail*	<i>Rallus longirostris obsoletus</i>	E/E, FP/-
Greater Sandhill Crane*	<i>Grus Canadensis tabida</i>	-/T, FP/-
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	E/E/-
Suisun Song Sparrow	<i>Melospiza melodia maxillaries</i>	-/ssc/-
Swainson's Hawk*	<i>Buteo swainsoni</i>	-/T/-
Tricolored Blackbird*	<i>Agelatus tricolor</i>	-/ssc/-
Western Burrowing Owl*	<i>Athene cucularia hypugaea</i>	-/ssc/-
Western Yellow-billed Cuckoo	<i>Coccyzus americanus occidentalis</i>	C/E/-
White-tailed Kite	<i>Elanus leucurus</i>	-/FP/-
Yellow-breasted Chat*	<i>Icteria virens</i>	-/ssc/-
<b>Reptiles</b>		
Giant garter snake	<i>Thamnophis gigas</i>	T/T/-
Western pond turtle*	<i>Actinemys marmorata</i>	-/ssc/-

Common name	Scientific name	Status (federal/state/ CNPS)
<b>Amphibians</b>		
California red-legged frog*	<i>Rana draytonii</i>	T/ssc/-
California tiger salamander*	<i>Ambystoma californiense</i>	T/T/-
<b>Invertebrates</b>		
California linderiella*	<i>Linderiella occidentalis</i>	-/-/-
Conservancy fairy shrimp*	<i>Branchinecta conservatio</i>	E/-/-
Longhorn fairy shrimp*	<i>Branchinecta longiantenna</i>	E/-/-
Midvalley fairy shrimp*	<i>Branchinecta mesovallensis</i>	-/-/-
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	T/-/-
Vernal pool fairy shrimp*	<i>Branchinecta lynchi</i>	T/-/-
Vernal pool tadpole shrimp*	<i>Lepidurus packardii</i>	E/-/-
<b>Plants</b>		
Alkali milk-vetch	<i>Astragalus tener</i> var. <i>tener</i>	-/-/1B
Boggs Lake hedge-hyssop	<i>Gratiola herterosepala</i>	-/E/1B
brittscale*	<i>Atriplex depressa</i>	-/-/1B
Carquinez goldenbush	<i>Isocoma argute</i>	-/-/1B
Delta button celery	<i>Eryngium racemosum</i>	-/E/1B
Delta mudwort	<i>Limosella subulata</i>	-/-/2
Delta tule pea	<i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	-/-/1B
Dwarf downingia	<i>Downingia pusilla</i>	-/-/2
Heartscale	<i>Atriplex cordulara</i> *	-/-/1B
Heckard's peppergrass	<i>Lepidium latipes</i> var. <i>heckardii</i>	-/-/1B
Legenere	<i>Legenere limosa</i>	-/-/1B
Mason's lilaeopsis	<i>Lilaeopsis masonii</i>	-/R/1B
San Joaquin spearscale*	<i>Atriplex joaquiniana</i>	-/-/1B
Side-flowering skullcap	<i>Scutularia lateriflora</i>	-/-/2
Slough thistle	<i>Cirsium crassicaule</i>	-/-/1B
Soft bird's-beak	<i>Cordylanthus mollis</i> spp. <i>Mollis</i>	E/R/1B
Suisun Marsh aster	<i>Symphotrichum lentum</i>	-/-/1B
Suisun thistle	<i>Cirsium hydrophilum</i> var. <i>hydrophilum</i>	E/-/1B

impacts for such regions are analyzed, impacts to such species should also be analyzed and impacts analysis for such species should be considered when environmental impacts are being evaluated. Miwko? recognize these species as part of a system that is interrelated and interdependent within a landscape inclusive of the surrounding mountains and the sea. Thus, the fate of the Cokuupu? (Delta Smelt [*Hypomesus transpacificus*]) and tukun (Chinook Salmon [*Oncorhynchus tshawytscha*]), for instance, is ultimately linked to upland species like the fisher (*Martes pennanti*), and marine species like the orca (*Orcinus orca*). Local, state, and federal entities must ensure Tribal Trust responsibilities are upheld, and ensure impacts to these species are addressed, because these species are likely to be affected.

While the Delta Smelt, Sacramento Splittail (nattah [*Pogonichthys macrolepidotus*]), Chinook Salmon, and Green Sturgeon (hoolommajy [*Acipenser medirostris*]) are examples of species in peril because of poor water management – they are also culturally significant as food, featured within Miwko? traditional stories and law, and recognized within the kinship system (Hankins 2018a, unreferenced, see “Notes”). Many of these species are the basis of a traditional subsistence economy, which underpins the functioning of traditional activities (e.g., catching salmon to provide for the community or collecting fibers for personal use or trade). Many locations for such activities are handed down through families or among individuals, although others may utilize those sites by invitation or permission. Aside from the traditional economic aspects of hunting, fishing, and collecting are the interactions of inter-species relationships. From a Miwko? perspective, taking an individual of a species is a reciprocal action of the relationship with that species. Thus, by not taking those individuals, Miwko? will cease to have a relationship with those species, and the species are more likely to go extinct. Miwko? philosophy recognizes that for a species to thrive it needs to be respectfully harvested (in some cases with ceremony involved). Unfortunately, concerns for the presence of environmental pollutants (e.g., methyl mercury) has led to decreased harvest activity for many aquatic species, including fish, waterfowl, and edible plants within the Delta. Additionally, some sites where traditional harvest occurs are affected by non-Miwko?, who may be

accessing the sites for similar resources, recreation, or other purposes.

It is imperative to address habitat needs for all species within the estuary as a means of closing the loop for species recovery and stewardship, and ecocultural species are good indicators of ecological health. Currently, much of the Delta lacks floodplain connectivity; there is little suitable floodplain-emergent vegetation to provide functions needed by the Delta and its inhabitants. It is not a surprise that fish such as Chinook Salmon fare better with access to floodplain habitat (Sommer et al. 2001; Henery et al. 2010). Similarly, the seasonal fluctuation of salinity within the Delta is an ecological process that Delta species have evolved with (e.g., Delta Smelt), and their place within the Delta is noted by place names (e.g., Cukumne? the place of the minnow [sic Delta Smelt]) and among the archaeological middens of the region. Seasonal fluctuations of salinity were historically more variable (Hyatt 1931; Andrews et al. 2017), and provided a nutrient-rich environment that enabled biota to flourish (Moyle et al. 2010). Current water quality standards typically limit the variability of salinity throughout the Delta. As such, the loss of connected floodplain habitat and limitation of processes further impairs the ecocultural interactions (e.g., harvest, ceremony, and other relationships) connected to these species.

The fate of the Delta has been on a downward spiral since the arrival of European colonists, beginning with the Spanish in 1772 (although a wave of impacts may have arrived before their physical presence in the region). Some of the early impacts during this period came with the onslaught of disease and acts of depopulation, which initiated the breakdown of the ecological interaction of the Delta ecosystems. Despite the common assumption that the Delta was a vast tule marsh, there is much complexity to this system that lends to the richness for which this region is known. To temper this, it is important to recognize that California, and particularly the Delta, supported one of the highest human population densities in pre-Columbian North America (north of Mexico) (Merriam 1905; Baumhoff 1963). These populations were supported by their relationship to grasslands, oak woodlands, vernal pools, riparian woodlands, scrub, and other ecosystems that were the matrix of

the Delta. Keystone processes inclusive of fires set by Indigenous people maintained productivity and heterogeneity within these ecosystems (Hankins 2009, 2013, 2015). Anderson (2005, p. 252) and others have stated these relationships are beyond haphazard hunting and gathering, but such enhancement of productivity is within the continuum of agricultural development. However, early European settlers did not appreciate this form of stewardship. Colonial notions of agriculture and landscape relationships led to the reclamation of the productive floodplains of the region via the Swamp Lands Act of 1850. This parallels the historic acts carried out by Californians against Miwko? via the 18 Unratified Treaties, Scalp Act, and California Act for the Government and Protection of Indians. California lacks treaties ceding the lands, waters, and resources to the local, state, and federal governments. It lacks a legitimate Native Title, established by its traditional Indigenous inhabitants for their own lands. From a Miwko? perspective, these lands, waters, and resources are all within tribal jurisdiction.

Issues pertaining to the region draw much contention, with environmental health often at odds with the political and economic considerations of water purveyors, who fail to recognize the significance of a healthy ecosystem that can adapt to the uncertainty of environmental change which will occur. By understanding traditional knowledge obtained through traditional stories, intergenerational knowledge passed through families, and other means of assessing environmental change—and supported by scientific understanding, including paleoecology, decoupled human-natural systems, and novel ecosystems—it is evident that the Delta is a place that continues to evolve. The Delta has experienced sea-level rise since the last glacial maximum, and will continue to evolve if processes such as natural flow regimes and fire are allowed to occur. This is not to say that restoration of the pre-contact landscape can be achieved, but that such processes occurring across this landscape which are achievable could facilitate an ecoculturally rich, self-sustaining, dynamic, and resilient system. Hobbs et al. (2011) suggest intervention that includes Indigenous stewardship-as-process might offer the best solution to natural ecosystem enhancement. In the context of the Delta, such Indigenous stewardship could be key to enable

ecosystem and species recovery, and put the Delta on a track to being more resilient to environmental change, including projected sea-level rise.

## **POLICY AND REGULATORY CONTEXT**

From a Miwko? perspective, environmental stewardship by local, state, and federal agencies have failed to meaningfully address the ecocultural needs of the Delta. There is a disconnect from recognizing the interrelatedness of the Delta within a landscape context that extends from source to sink. While the acknowledgement of this interrelatedness has been a point of discussion for restoration (e.g., TBI 1998; Kimmerer et al. 2005), the stewardship focus is dominated by concerns for hydrologic yield and conveyance. In the policy and regulatory context, the consideration of holistic landscape feedbacks from the crest of the mountains to the sea inclusive of ecohydrology and trophic interactions are generally limited. Miwko? have understood these relationships, but recognition of these relations lags within scientific literature and policy development. The Delta is part of a system that is not linear with one direction of inputs and outputs, but circular and multi-directional with inputs and outputs; simplistically, water, salmon, and nutrients are cycled throughout the Delta to connect the uplands to the marine environment. This recognition is fairly well established for anadromous fish such as Chinook Salmon that play an important role in bridging the terrestrial and marine environments (Merz and Moyle 2005; Wipfli and Baxter 2010). The connectivity of the system as a whole underscores the importance of landscape-scale contributions. For instance, forest land cover could be manipulated with fire and other processes to enhance water yields (Goulden and Bales 2014). Although some entities might seek to capitalize on this sort of knowledge strictly to meet the demands of human populations, it is important not to lose sight of the finite benefits of incorporating such concepts into land and water management. In a similar vein, the importance of the value of natural landscape features should be recognized, including meadows, basins, and sinks that exist throughout the Central Valley from the Colusa Basin to Tulare Lake, which could be restored to provide water storage and other functions to meet water needs—instead of building new reservoirs.



In the context of water planning and stewardship, local, state, and federal entities have largely failed to include regional tribal experts as stakeholders in the development and implementation of stewardship plans. Typically, consultation with tribes revolves around cultural resources under National Environmental Policy Act or California Environmental Quality Act requirements, but here too there is a failure to recognize the environment as a whole as a cultural resource. As alluded to above, impacts analysis for projects in the region often focus on a narrow view of the Delta; the direct, indirect, and cumulative effects of a given project may be much further reaching than is typically analyzed.

To understand the Delta, the environmental setting begins at the top of the contributing watersheds and extends through the ocean. Furthermore, some aspects of the environment—such as spiritual or metaphysical parameters, to which the Miwko? would assess impacts—are not currently assessed in any Environmental Impact Review. Morgan (2008) developed a heuristic model to assess the “mauri” (life force or metaphysical properties) of environmental, cultural, social, and economic well-being (see Mauri-o-meter <http://mauriometer.com>). Although based on Maori concepts, the model has been applied by Indigenous and non-Indigenous people to further understand environmental impacts (see Fa’au and Morgan 2014 and Wambrauw and Morgan 2015).

The use of this model offers a way to conduct environmental impact analysis in a culturally-appropriate way. Miwko? traditional cultural practitioners and the California Indian Water Commission have recommended that local, state, and federal entities work with tribes and traditional cultural practitioners to utilize this tool (including for assessment of the California Water Fix) (Hankins 2018b, unreferenced, see “Notes”).

Furthermore, coordination with tribes and tribal organizations must go beyond the minimalist attempt that such agencies typically offer to solicit input from tribes. Agencies should allocate funds to engage tribes and tribal organizations in meaningful consultation, because much of this work occurs without financial support or dedicated staffing.

Meaningful consultation would include use of more participatory methodologies (Hankins and Ross 2008, p. 240), and include engagement in planning, decision-making, implementation, and monitoring. In some cases, the tribes most engaged in Delta issues are not from the region, but have a stake in water or other resources linked to the region (e.g., Winnemem Wintu), and/or have staff and funding to devote to engaging in these issues (e.g., Hoopa Valley Tribe).

Beyond impact assessment, the shortcomings of agencies upholding Tribal Trust responsibilities—which are often not upheld satisfactorily—must also be addressed. For instance, regulatory agencies such as the National Marine Fisheries Service and U.S. Fish and Wildlife Service have issued biological opinions for culturally important species for which they have trust responsibilities to tribes—yet have not consulted with tribes to ensure their cultural obligations are upheld. Overall, tribal law, which is critical for federal—and, to a lesser extent, state—entities to uphold, is neglected. Congress established PL 93-638 Tribal Self Determination policies to ensure that the Sovereign interests of tribes and tribal organizations were upheld. Likewise, California Department of Fish and Wildlife Code 16000 supports tribal interests in trust resources. Therefore, entities that permit, fund, and authorize activities in the Delta must act in the interest of tribes and tribal organizations. Further, mitigation and stewardship are missed opportunities to engage with tribes. Given that California lacks Tribal treaties, local, state, and federal entities should use their authority to deed title or conservation easements to tribe(s) and tribal organizations that have ancestral territorial ties or agreements for those places.

## CONCLUSION

Although many groups are interested in stewardship of the Delta, Indigenous inclusion—a vital link to attaining ecocultural outcomes—is largely lacking. The one thing that sets Indigenous people apart from other populations—including water purveyors, regulators, and managers—is that Indigenous people maintain a relationship with the lands, waters, and organisms through kinship that is a lifetime responsibility passed down through

generations. By contrast, some water purveyors, regulators, and managers, as a result of their non-Indigenous assumptions may reflect or act only from career-related obligations rather than through multi-generational perspectives. We need a shift toward assertion of self-determination and shared responsibility inclusive of all members of society, and with greater recognition of traditional tribal relationships and authority. Ecocultural equality should be a guiding principle in Delta stewardship. Miwko? insight into regional planning and implementation can provide valuable input not offered by non-Indigenous knowledge (see Berkes 2004 and Hobbs et al. 2011). Furthermore, Indigenous engagement in restoration can be beneficial to the landscape—by restoring kinship relationships, and also alleviating ecological grief and intergenerational trauma (see Hobson Haggerty et al. 2018).

As California's population continues to grow, so too do water demands. Water is a finite "resource." We cannot create more water by diverting it, storing it, etc. We can work to be better stewards of water by managing the uplands to enhance water quality and yields. Gains for water can be achieved by restoring natural features in the landscape (e.g., restore the Tulare Basin, manage conifer encroachment in meadows, etc.). We must not sell short the opportunities for a real solution to balancing environmental and cultural heritage in the Delta, nor rob future generations of their right to inherit a world in as good—or better—condition than we have inherited. Short-term profit should not come at long-term cost to the ecosystem, sustainable economics, resiliency of the land/seascape, or Miwko? culture. The Delta is part of a landscape from summit to sea, and problems within the Delta are not exclusive to its legal boundary.

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care for unknown generations, and those individuals striving to return the region to a state that is resilient and better than exists today for future generations to inherit.

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## NOTES

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Hankins DL. 2018a. The indigenous word for green sturgeon, hoolommajy, as used in this essay is borrowed from the Central Sierra Miwok language, as the specific word in Miwko? is not remembered at the time of publication.

Hankins DL. 2018b. Personal records, including: California Indian Water Commission's letter on the Water Fix draft supplemental EIR/EIS dated September 16, 2018, comments to U.S. Bureau of Reclamation and Sites Project Authority dated 1 January 5, 2018, and my letter for the BDCP/WaterFix dated October 29, 2015. Available from:  
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