

# Values towards Moreton Bay and catchments

## Abstract

In environmental management, 'values' are often considered as inherent in the physical environment, rather than being recognised as human constructs: the most deeply held and stable of ways people think about environments. An understanding of how people value environments, beyond the well-recognised utilitarian and moralistic values on which most environmental management is founded, would offer greater opportunity to engage with the public and improve policy. A qualitative study of people's 'relational' values towards Moreton Bay and catchments shows the passion of people who are connected with waterways. We found that Traditional Custodians, and the non-Aboriginal residents of the upper catchments, and the lower catchments and Bay, share the same set of values, with some differences in foci and ways of combining them. Individuals hold several values each. The most commonly held are humanistic values, about emotional attachment to nature or landscapes; naturalistic values, about direct experience of nature; moralistic values, about ethical concerns to protect nature; and aesthetic values, focusing on beauty. Utilitarian values, about the practical use of natural resources, in this case waterways, were raised somewhat less frequently. Managers can explore how they can draw upon these values in designing and implementing management strategies, and in communication with the public. The passion towards the waterways highlights the importance of voluntary stewardship by Traditional Custodians, voluntary organisations and individuals, and suggests political support for managing waterways, a point important in making resourcing decisions.

**Keywords:** relational values, Kellert, south east Queensland, river

## Introduction

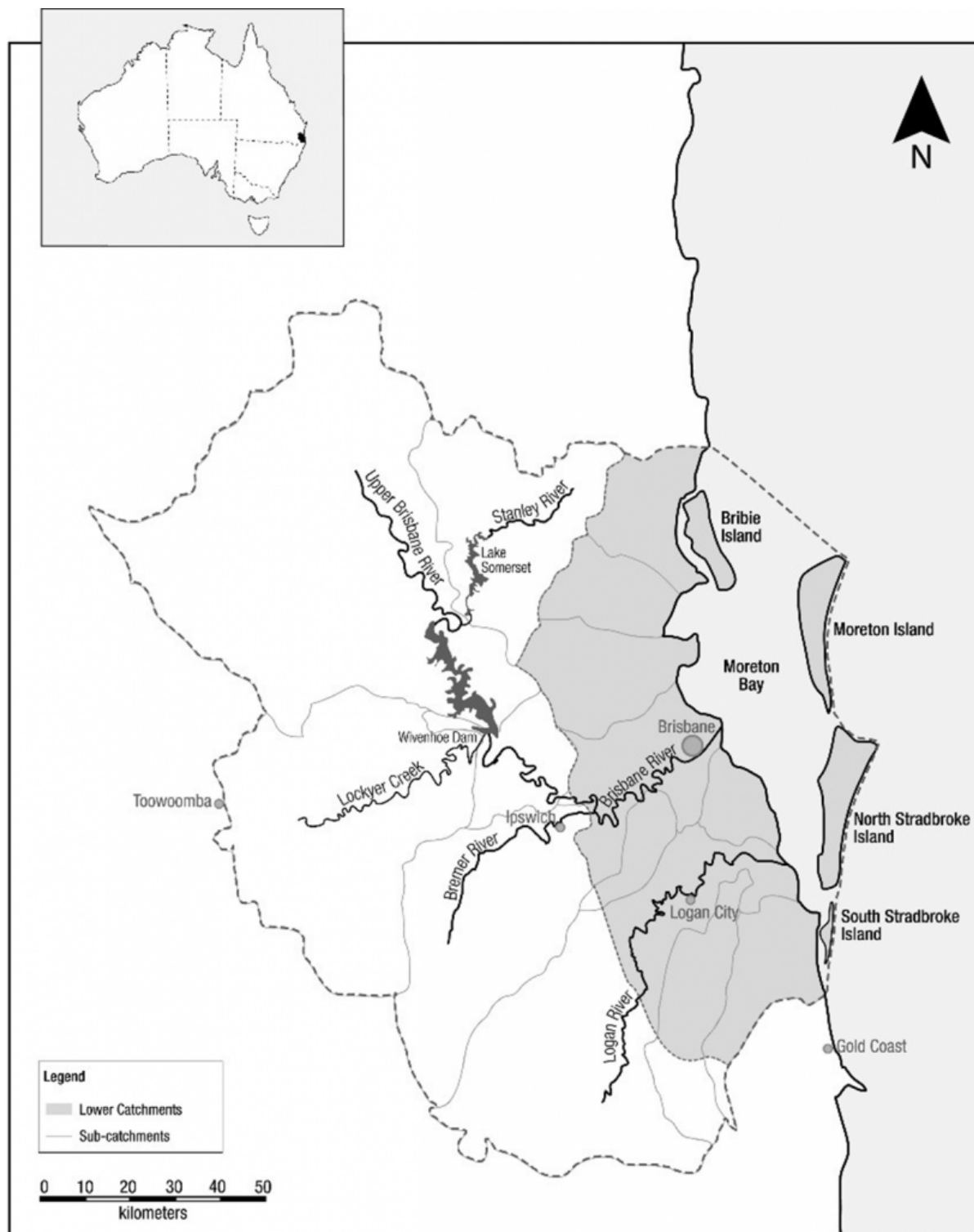
People's values towards the environment, and especially waterways, are insufficiently studied (1), and incorporating them in management is relatively rare. Indeed, the term 'environmental values' is more often associated with environmental features as though these are divorced from the people attributing the high value to certain ecosystems and species. Values, as the most fundamental type of human cognition that underpins

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beliefs, attitudes, norms and behaviours (2), deserve far greater attention. The term 'values' is used and defined in many ways (3). In this paper, values 'represent important individual and collective judgements about what in this world and this life is truly important, worthwhile and meaningful' (4 p.128).

This paper is based on a study of people's values towards the waterways of south east Queensland (SEQ). It was conducted in partnership with the state government, the former Healthy Waterways and SEQ Catchments (both collaborations of government and non-government organisations working to improve water quality and the management of natural resources, respectively<sup>[1]</sup>), and the Traditional Custodians of the region. It was designed to (a) contribute to the monitoring and evaluation of Moreton Bay Marine Park, as part of a suite of studies following rezoning in 2009; (b) inform Healthy Waterways about social dimensions that could assist its management strategies and communication, including its annual report card; and (c) provide Traditional Custodians an opportunity to document and seek recognition for the values they hold towards waterways and aspirations towards greater involvement in formal management. Through the study, the Traditional Custodians and the other parties also sought to build mutual understanding, relationships and opportunities. The study had two stages: (i) content analyses of print and other media concerning Moreton Bay (5), and the rivers of the region; (ii) semi-structured interviews with Traditional Custodians (two focus group interviews in addition to individual interviews), residents of the upper catchments, and residents of the lower catchments and the Bay. Here we report on the results from interviews and focus groups.

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**Figure 1.** The study area, showing upper (white) and lower catchments, islands and Bay areas (shaded). Traditional Custodians' areas extended slightly north and south of the shaded areas. Fine lines show catchment boundaries. For the interviews, people from the upper catchments (n=30) to lower catchments, Moreton Bay coast and islands (n=30) were selected purposively to capture the widest possible range of relationships people have with waterways. This was done by creating a mind map of the uses of and interactions with the waterways of the upper and lower

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catchments, respectively. The categories included recreational users, working roles such as water transport, people who use river water in their enterprises (e.g. irrigators), and people in voluntary or formal management or advocacy roles. From these categories, typical organisations, businesses and community groups were identified. Individuals representing these organisations and groups were then recruited (1). In making these selections, we also aimed for geographical diversity throughout the catchments. Aboriginal Traditional Custodians participated in four workshops to coordinate their input as partners in the study, including design of their participation in the study and interpretation of the results. An Aboriginal team member conducted their interviews, and the Custodian groups were offered the choice of in-depth interviews (n=12) and/or focus groups (n=8 people, in two groups) (Pinner *et al.* (6), this volume). The Traditional Custodians were from throughout the catchments.

Participants were presented with a map of the study area and asked to mark on it the waterways that they considered particularly relevant to them. Using a semi-structured interview technique, each participant was then asked why that waterway was important or meaningful to them and to explain their interactions with it, such as how often they visit the waterway and what they do there. They were also asked for comments on management (not reported here). Participants were encouraged to talk freely, with the interviewers probing as required to bring out depth. The analysis was guided by Kellert's (7-9) framework of 'relational' values between people and nature (3). This type of value contrasts with 'held' values, matters of principle, and 'assigned' values, where people attribute value to objects, such as particular species and locations (3).

The waterways considered in this study incorporate all catchments draining to Moreton Bay, from the upper catchments close to the Great Dividing Range, through creeks and rivers to Moreton Bay and its islands (Fig. 1). The coasts included Caloundra to the Gold Coast. This is a complex and rapidly developing region, incorporating rural, agricultural and forested areas, small rural towns, and the densely populated and growing urban areas of Ipswich, Brisbane, Logan, the Gold Coast and the southern part of the Sunshine Coast.

## Values

This section compares the values expressed by Traditional Custodians (n=20) across the whole region, and non-Aboriginal people's values towards the upper catchments (n=30) and the lower catchments and Bay (n=30), respectively. More detail is provided in [Pinner \*et al.\* \(6\)](#), this volume; [Witt \*et al.\* \(10\)](#), and [Jones \*et al.\* \(1\)](#).

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Most of those interviewed expressed a passion for and deep sense of connection with the rivers, creeks and Bay. Table 1 explains Kellert’s nature-based values, and summarises how they were expressed in relation to the waterways of SEQ. The values are widely shared. The Traditional Custodians and non-Aboriginal people held the types of values identified by Kellert in his extensive body of work, though with some minor variations (see below). Only one value was missing: the Custodians did not raise the dominionistic value as it contradicts their culture with respect to relationships with environments. Kellert, in developing the framework, does not appear to have worked with Indigenous peoples, and some of the values he lists reflect the extent of his work on people’s relationships with animals. Traditional Custodians, upper catchment and lower catchment people, expressed some of the values a little differently (see below).

People hold several values each, and a number of them are held by over half of those interviewed. In Table 1, the values are listed in descending order, starting with those expressed by the most participants<sup>[2]</sup> to those expressed by the fewest (the counts exclude Traditional Custodians, since their interviews were not quantified).

**Table 1.** Summary of values expressed by non-Aboriginal people. Because of the mix of focus groups and individual interviews with Traditional Custodians, frequencies cannot be calculated for those interviews.

Values definition	Percent	How values are expressed in relation to Moreton Bay and its catchment
<b>Humanistic: emotional attachment</b>	88%	People feel a deep emotional attachment—a ‘love’, ‘bond’ or an ‘affinity’—to the waterways. These emotional connections are developed through family heritage; living, working or socialising along a given waterway; or associating it with a significant or memorable life experience. <i>... a personal experience and closeness...</i>
<b>Naturalistic: direct experience of nature</b>	83%	Waterways are places where people can connect with nature and explore the natural world. This is particularly important for those living in a highly urbanised environment. <i>...it’s just bursting with life, everywhere you go...</i>
<b>Moralistic: ethical concern for nature</b>	75%	People expressed a need to protect the environment, which they acknowledge is under threat from urbanisation and development. <i>...Don’t you look after something you find precious?...</i>
<b>Aesthetic: physical appeal and beauty</b>	71%	An appreciation for the beauty of the waterways is valued by many. <i>...This is paradise, absolute paradise...</i>
<b>Utilitarian: practical and material use of nature</b>	68%	The waterways are valued for many practical and material purposes. For example, in the upper catchments, water from creeks is used for farming and in households. In the lower catchments, the deep channels within waterways are important to the boating and shipping industries. <i>...I think the water itself is a life blood for towns...</i>
<b>Ecologistic: scientific appreciation for ecological functions</b>	61%	People appreciate that the waterways in south east Queensland have important ecological functions. Some of the habitats and species found in the region are of international significance. <i>...there’s all sorts of habitats, all sorts of diversity so we get groups, not just local ones but international ones that come to understand these areas and value them...</i>
<b>Negativistic: fear and aversion from nature</b>	42%	Participants talked about aspects of the waterways that need to be treated with caution and respect, particularly in times of flood in the upper catchments. <i>...understand the potentiality for it to completely envelop you and overpower you...</i>
<b>Spiritual: feelings of transcendence; reverence for nature</b>	25%	Waterways can invoke a sense of connection to life and the world around them, and feelings of transcendence. <i>...that feeling of belonging to a larger thing than just me...</i>
<b>Dominionistic: mastery and control of nature</b>	22%	Some people assert a need to control and manage water flows to mitigate the impacts of flooding. For others, waterways provide many physical and mental challenges, often in recreational pursuits, such as ‘outwitting a fish’ in upper catchments, and kayaking or boating on the Bay.. <i>...it can be quite intense at times, and then there’s the mental aspect of planning tactics, picking wind shifts...</i>
<b>Symbolic: use of nature for language and thought</b>	19%	Waterways symbolise important and meaningful aspects of life for people. An arts community on one of the Bay islands draws inspiration from the waterways in their artwork, which serves to heighten others’ appreciation and love for the Bay. <i>...to use that island as their next muse...</i>

The ways in which people expressed these values, and the similarities and differences between non-Aboriginal people and Traditional Custodians, are expanded below.

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### Humanistic values: Emotional attachment

A significant majority of participants from throughout the study area, the Traditional Custodians and non-Aboriginal alike, espoused deep emotional attachment to the waterways, expressed as a love, a bond, or an affinity.

Traditional Custodians have a unique relationship with water places in that these relationships are deeply embedded in their cultural identities. They explained how their cultural identity is embedded in ancestral links to waterways. Traditional Custodians felt grief where their relationship to particular places was threatened or had been affected by development processes:

*That's very close to me, that country there - they ripped my childhood out, part of my childhood, you'll never see that again there, it's gone forever. It bugs me.*

The other participants' connections with waterways also developed over time, through people having personal experience with a given waterway. These are highly personalised and include social relationships, developed through family heritage; living, working or socialising along a given waterway, or associating it with a significant life experience.

*I value [these waterways] because I have such a longstanding and intrinsic relationship with this area...For me, I don't really care if I never leave this place, I am so happy here and in one sense I feel like an unofficial custodian...I get withdrawal symptoms if I don't access the water, even if it's to stand ankle deep, at Oyster Point. (Moreton Bay participant)*

Waterways convey cultural, community and personal identity. One participant speaking about the [Sandgate](#) area stated: 'it's our way of life down here, we're absolutely connected to the Bay'. She described the strong collective attachment her community has to the Shorncliffe Pier, an iconic feature of the built environment in the area. This pier is historically important and provides a unique and accessible means to interact with the Bay, to fish, go walking, ride bikes and take wedding photos. An important aspect of the humanistic values is the extent to which they have a socially shared aspect. Many participants talked of developing their attachments to particular waterways through going there with others, particularly family and loved ones, and of enjoying those places with their significant others:

*I think the first time that my wife took me to her little secret swimming hole was pretty special. I still remember that with a great deal of fondness. But as I say, there's just so many different memories that are tied to that particular waterway. (upper catchment participant)*

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### Naturalistic values: Direct experience of nature

The waterways are widely valued as important places for people to directly experience and interact with nature. Over 80% of the non-Aboriginal people interviewed immerse themselves in nature through activities such as swimming, diving, fishing, hiking or boating. Many described how they derive mental benefits—feeling relaxed, calm and peaceful—when being on and near the water. As a lower catchment participant stated:

*You just feel relaxed, you need that escape. A connection to nature helps you deal with stress. I feel like spending all weekend out in nature.*

While the waterways provide many mental benefits on an individual level, they also provide important social benefits. Waterways are popular places where people choose to socialise with others. When people spoke about enjoying the natural qualities of the waterways, they often spoke of sharing those experiences with others. Waterway environments thus provide important backdrops for people to engage both with the natural world and with other people.

Many participants spoke of their joy in seeing wildlife within and around the waterways; experiences they described as incredible, stunning and amazing. In particular, people are excited by seeing the abundance and variety of marine life within Moreton Bay or a platypus in a stream in the upper catchments. One described the waters off North Stradbroke Island:

*The amount of marine life that we have out here is so special and unique. A lot of South East Queensland just take it for granted that we have Moreton Bay on our doorstep here. We've got dugongs and six of the world's seven species of turtles. It's just a really special place. (lower catchment participant)*

Other sensory pleasures—the sounds and smells associated with waterway—were also appreciated: the sounds of a running creek, or cicadas.

People around the lower catchments and Bay explained that the opportunities the waterways provide for experiencing nature were particularly important when living in a highly urbanised area. Many appreciate that they can access beautiful, natural environments whilst still being in close proximity to a major city. They can feel a sense of remoteness away from people, as one participant described when on his houseboat on [Pumicestone Passage](#):

*We're the only people there and you can't believe that you can be so close to human population yet so far.*

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For some Traditional Custodians, naturalistic values surfaced in memories, as they described how the natural qualities of certain waterways have diminished over time. Other Custodians expressed how they continue to enjoy nature within the waterways, particularly those that are teeming with life.

### Moralistic values: Ethical concern for nature

Three-quarters of participants express a sense of ethical responsibility for habitats and species, especially species described as fragile and delicate ecosystems, under threat from population growth and development in the region. There is thus a strong desire to educate the public on the ecological significance of waterways and promote environmental awareness:

*If the community doesn't know about it and understand the beauty and how it can be enjoyed for recreation, then should it ever be threatened, why should they fight to preserve it? (lower catchment participant)*

In the upper and mid catchments, moralistic values were aligned with utilitarian values and the need to look after the waterways to maintain a sustainable water resource: 'It's our lifeblood'. In the lower catchments and around the Bay, moral concern was associated with ecologistic-scientific values (see below) and the recognition that waterways are unique ecosystems. For Traditional Custodians, moral concern was driven by cultural responsibility to look after the waterways: a custodial ethic.

### Aesthetic values: Physical appeal and beauty

An appreciation of the beauty of the waterways, present or past, is widely shared among all participants (70% of the non-Aboriginal people). Non-Aboriginal participants throughout the study area value the beauty of the rivers and creeks and Bay including the scenic quality of the wider landscapes and seascapes of which they form part. The fundamental difference between non-Aboriginal participants and the Traditional Custodians is that the non-Aboriginal people see and appreciate current beauty, whereas the Traditional Custodians, while holding this value, recall the past beauty of waterways and regret the long-term deterioration.

Many aesthetic qualities are valued, such as the colours of waterway environments: the blues and beiges of the Bay, the flora and fauna, the unique perspective when looking back at land when out on the water, as well as the clarity of the water. One participant described Hays Inlet in the northern Bay:

*When you look out from the bridge, depending of the tide, you might see the channels of sand. If the sun is setting, it will be all pink and silver and really*



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*beautiful. It's also green, you look out further and you see all the trees and mangroves, and no one's built there, so it's this natural patch of beauty.* (Moreton Bay area participant)

In the upper and mid catchments, aesthetic values pertain, often but not always, to what are seen as more 'pristine' areas. One participant described their appreciation for creeks in the upper catchments, stating: 'its scenic value, I think it counts for a lot. I think it's part and parcel of rural scenes, and there's some beautiful waterways around'.

Traditional Custodians feel despondent about the beauty that has been lost over time. Traditional Custodians expressed aesthetic values in contrast to their childhood memories of places; something of the past. They lamented how waterway environments in South East Queensland have been significantly degraded as a result of ongoing development, urbanisation and population growth within the region: 'it was beautiful country, fair dinkum'. Traditional Custodians used the aesthetic qualities of the waterways as indicators of ecosystem health, relating them to their ecologicistic values.

These differences in aesthetic appreciation reflect different temporal relationships with waterways. The Traditional Custodians spoke about their ongoing ancestral connections to waterways and the significance of water places to their dreaming stories, enhancing their rich social memory of the waterways. Non-Aboriginal participants spoke about their own experiences with the rivers, creeks and Bay—what they could personally remember from the past and how they see the waterways today.

### Utilitarian values: Practical and material use of nature

Just over two-thirds of the non-Aboriginal participants interviewed derive utilitarian benefit from natural resources found in and around the waterways. In the upper and mid catchments, people depend on rural waterways for local irrigation, stock, domestic and town water use. As one participant stated: 'We can't live without it'. In the saltwater lower catchments and Bay, people spoke about the value they derive from aquatic species (fish, crabs, oysters) which are used for recreational enjoyment, commercial purposes and consumption. The naturally deep channels of Moreton Bay and the mouth of the [Brisbane River](#) are also valued for their uses. They are important to boat-building enterprises and support a shipping industry that transports people, goods and resources in and around South East Queensland. Physical features of all the waterways are also used in creative expression by artists and musicians, particularly on the Bay islands.

Traditional Custodians expressed utilitarian value of water by acknowledging its necessity in sustaining all life:

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*It's probably the most important ingredient on the planet, aside from sunlight. So in that regard, water is very important, salt water or fresh water, because we know that it gives life. So that's the immediate basis, that it's a life force, it gives life, and it sustains life.*

Traditional Custodians also spoke of their family's use of water resources in the past for day-to-day living (e.g. cooking and washing) and small-scale commercial activities. For Traditional Custodians, waterway resources also hold cultural significance and are important for continuity of cultural lifestyles and traditional knowledge, for example the use of these resources for traditional medicine.

### Ecologistic-scientific values: Appreciation of ecological functions

Ecologistic-scientific<sup>[3]</sup> values, held by around 60% of the non-Aboriginal participants, were expressed through people's recognition of the important ecological functions the waterways support, and through an appreciation of the varied and unique species and ecosystems found within the region, which provide important educational and research opportunities. For participants in the lower catchments and Bay, ecologistic-scientific values were often linked to moralistic values and a need to protect and effectively manage the waterways, particularly those under threat from development pressures. The unique species and ecosystems of Moreton Bay were recognised as providing important opportunities for scientific research and education:

*There's so many habitats in Moreton Bay because Moreton Bay's an overlap of the tropical and the temperate regions and it's sheltered. It's fairly lagoonal, there's all sorts of habitats, all sorts of diversity so we get groups, not just local ones but international ones that come to understand these areas and value them. They come to understand the habitats, the importance of the habitats. (Moreton Bay participant)*

Traditional Custodians also linked ecologistic-scientific values to moralistic values. They highlighted the benefit of enhancing knowledge of how local ecosystems function so that they can be cared for better. In the upper and mid catchments, the desire to understand ecological processes was linked to achieving management goals, and to achieving personal goals, such as improving one's fishing ability.

### Negativistic values: Fear of and aversion to nature

Though this value was mentioned infrequently (by fewer than half of the people interviewed, more in the upper than lower catchments), certain aspects of the waterways are avoided or may be feared, including the wildlife that live in and around

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the waterways (sharks and snakes). Traditional Custodians and those living in the lower catchments and around the Bay avoid interacting with water of poor quality, which could be harmful to one's health:

*If they clean this area up, I'd enjoy it much more. But it's disgusting. When you get wet, if you've got an open cut, you then have to go home and put alcohol on it... there's a much higher risk of bacterial infection and things like that. (Traditional Custodian)*

When boating out on the Bay, people treat the treacherous conditions that can occur with caution and respect.

*When people don't grow up having that kind of relationship with a place like Moreton Bay that they don't understand, the potentiality for it to completely envelop you and overpower you. (Moreton Bay participant)*

Similarly the power and strength of the waterways in times of flood are met with fear and awe, particularly by those living in the upper and mid catchments whose livelihoods depend on water and who are susceptible to the impacts of extreme weather events.

Traditional Custodians avoid certain waterways as a sign of respect to water spirits and ancestors. They also spoke sadly about avoiding much loved waterways which have significantly changed over time through development and environmental degradation: *I don't go out to the river anymore because I don't want to see what's out there... I just want to remember it the way it was. (Traditional Custodian)*

### Spiritual values: Feelings of transcendence; reverence for nature

Spiritual values were raised as secular spiritualism, rather than in relation to a formal religion. Many participants described feeling a sense of belonging and connection to life and the wider world when interacting with certain waterways. One participant described this sentiment when taking in the view on North Stradbroke Island:

*I feel calmer, and my mind feels open and...that feeling of belonging to a larger thing than just me. (lower catchment participant)*

Traditional Custodians expressed a stronger, more holistic spiritual attachment than non-Aboriginal participants, with one Custodian stating:

*All the waterways are significant because... our dreamtime and creation stories are all encompassed around the waterways, the mountains, the coastal areas.*

In addition to dreamtime stories, spiritual connections to waterways are carried through

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water spirits which guide people's interactions with waterways and sacred totems of marine and estuarine animals:

*Dugong, sea turtle, dolphin and whales, along with many other species are sacred Aboriginal totems for saltwater people in coastal areas.*

### Dominionistic values: Mastery and control of nature

Dominionistic values are about people's urge to master, control and have dominance over nature. This value was not expressed often (around one-fifth of non-Aboriginal participants), and it was expressed in very different ways when it was raised. Participants in rural areas spoke about controlling waterways to protect people and their livelihoods from the impacts of flooding and droughts, whereas this was seldom raised by those living in more urbanised areas in the lower catchments and around the Bay. Rural participants thus value the ability to control waterways to utilise a resource whilst also guarding against the impacts of extreme climatic conditions. Within recent years, floods have devastated rural areas, which many participants in the upper and mid catchments experienced firsthand.

In the lower catchments and around the Bay, people expressed dominionistic values in a very different way, in relation to the physical and mental challenges they face personally in certain recreational pursuits and when interacting with the waterways. For example, they value the experience of acquiring and putting into practice the skills needed to sea kayak or sail on Moreton Bay: 'It's full of surprises and that's an essential to part of life I think. Just having surprises and having a place where surprises can happen'.

Traditional Custodians did not express dominionistic values in relation to waterways. This issue was discussed during a workshop in the final stages of the project. They explained that their customary relationship with the natural environment involves working harmoniously with it, using their knowledge, rather than seeking to control it. They explained that the closest their people would come to a dominionistic value or behaviours is in traditional management practices, such as burning the landscape or building fish traps whereby Aboriginal people alter the environment for specific purposes. This is consistent with utilitarian, not dominionistic, values.

### Symbolic values: Use of nature for language and thought

Although this was not widely expressed in the interviews (about one-fifth of non-Aboriginal participants), the waterways symbolise important and meaningful aspects of people's lives, both individually and as a community. On a personal level, particular

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waterways symbolise significant life experiences. Talking about these experiences brought up deep emotion within participants. Some spoke about scattering the ashes of loved ones within Moreton Bay, with one participant explaining that it seemed ‘the right place, the right thing to do’.

At a community level, the waterways carry symbolic meaning linked to community identity. For example, the Shorncliffe pier is important to the identity of the local community: ‘it’s a huge, huge focal-point’. Moreton Bay is also important to the identity of an arts community on one of the Bay’s islands. This community draws inspiration from their relationship to the Bay to create art which in turn heightens others’ appreciation for the Bay.

For Traditional Custodians, Aboriginal place names carry meanings which convey the importance and significance of those places. Some places were named after abundant animals of that area, [Bribie Island](#) for example, which is called ‘yurin’ or ‘place of mud crabs’. Other place names represent totems, for example ‘Ngarang-Wal’ translates as ‘shovel-nosed shark’, an Aboriginal totem.

## Implications

Recognising this diverse set of values brings new insights for the social aspects of environmental management, which until now has focused on an apparent competition between resource use (utilitarian values) and conservation (involving moralistic and ecological values). While the waterways in South East Queensland support a wide range of behaviours, including cultural, commercial, recreational and stewardship activities, the ways in which people actually value these places turn out to be widely shared. Almost all of the people interviewed (88% of non-Aboriginal participants<sup>[4]</sup>) expressed a deep, emotional connection with a particular waterway (humanistic value). While these personal connections are unique, they all stem from people having, as one participant stated, a personal experience and closeness to a certain river, creek, dam or place within Moreton Bay or its catchments. These experiences may be gained through family associations, living or working close to a waterway, or associating it with a significant life experience. Another dominant value expressed (83%) concerned the importance and significance of the waterways as a place to directly experience and immerse oneself in nature (naturalistic value). People enjoy being in a natural environment and seeing the diversity of animal and plant species that live in certain places within the region. People also commonly voiced a moralistic concern (moralistic value, 75%) for the waterways and a need to care for and protect them. Many acknowledge that these natural places, which they love, use and recognise, provide important ecological

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functions (ecologicistic or scientific values), are under threat from population growth and development in the region. In contrast with the earlier historical study of values based on media analysis (5), there was less emphasis placed upon utilitarian values (68%), and these were more often expressed in the upper catchments than in the lower catchments and Bay.

The degree of sharing, and the range of values held by the public, suggest new ways of enjoining public support for managing waterways, and new ways of managing the waterways to maintain people's very strong affiliation with them. Managers can explore how they can draw upon these values in designing and implementing management strategies, and in their communication with the public. For example, managers can build on expressed values to create localised management narratives that resonate with the deep connections people have with waterways in South East Queensland. Healthy Waterways began summarising social dimensions, including values, in its annual monitoring report card from 2015 (11, 12, 13).

Presumptions that people of the upper and lower catchments could be equally motivated to manage the rivers in the interests of Moreton Bay—an idea that has underpinned much of Healthy Land and Water's (and predecessor organisations) communication down the decades—are challenged by these results. People in the upper catchments associate closely with their local waterways, as evidenced by the waterways they described as important and meaningful to them. Compared to the lower catchment participants, fewer chose to describe Moreton Bay, located 80 to 150km downstream, as a valued waterway. Upper catchment participants showed strong expectation that local waterways be managed towards local concerns such as drought, floods, erosion, weeds and access, and not primarily for downstream needs.

Further, the passion towards the waterways highlights the importance of and potential for further recognition of voluntary stewardship, by Traditional Custodians, voluntary organisations and individuals (14). It also shows latent political support for managing waterways, a point important in making resourcing decisions.

## Notes

This study was conducted under an ARC Linkage grant, with partners Queensland Government, Healthy Waterways (now Healthy Land and Water), Traditional Custodians and SEQ Catchments.

[1] These organisations have since been merged as Healthy Land and Water.

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[2] The count is according to at least one mention in an interview, regardless of the number of times it was repeated.

[3] Kellert's framework makes a distinction between the more reductionist scientific, and more integrative ecological, perspectives, though both emphasise understanding the natural world through study.

[4] These figures are given indicatively, to highlight approximate proportions of participants holding a value. Because the sampling was purposive, capturing heterogeneity of types of participants within the catchments rather than being a random sample capable of representing the entire population of the region, modest reliance should be placed on these figures.

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