

# Water: A First Nations' spiritual and ecological perspective

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Michael Blackstock<sup>1</sup>

## Abstract

Water quality and availability is an urgent global concern. This paper documents, through the use of ethnographic research methods, First Nations' concerns and perspectives about water. The paper's scope is primarily limited to the views of three Elders from the southern Interior of British Columbia: Mary Thomas from the Secwepemc, Millie Michell from the Nlaka'pamux, and Mary Louie from the Syilx Nation. Secondary literature sources complement the Elders' sharing of Traditional Ecological Knowledge (TEK). The Elders' emphasis on the spiritual importance of water is contrasted with Western science's emphasis on water's unique physical and chemical properties. This fundamental difference raises questions about Western science's approach to freshwater ecosystem management and study. Ultimately, this paper documents the wisdom of highly respected Elders about water in relation to the culture and freshwater ecosystems of south-central British Columbia.

## Contact Information

1 Aboriginal Affairs Manager, B.C. Ministry of Forests, 515 Columbia Street, Kamloops, BC V2C 2T7.  
E-mail: [Michael.Blackstock@gems8.gov.bc.ca](mailto:Michael.Blackstock@gems8.gov.bc.ca)



## Introduction

Human concern for water quality and availability is increasing across the globe. The World Conservation Union's *Vision for Water and Nature* project<sup>1</sup> predicted that by the year 2025 water abstractions would increase by 50% in developing countries and 18% in developed countries (World Conservation Union 2000). The project report states that: "Over the past decades it has become gradually evident for those directly involved that there is a chronic, pernicious crisis in the water world" (World Conservation Union 2000). Consequently, the effects on natural ecosystems will be dramatic. Schindler (2001:18) states that: "Considering its importance to all life on earth, it is strange that freshwater has been our most mistreated and ignored natural resource." First Nations people, in particular, are sounding the alarm over deteriorating water quality and over how rivers and streams are drying up.

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The Chairs of the World Bank and World Water Commission jointly stated that: "the wars of the twenty-first century will be fought over water" (de Villiers 1999). In the twentieth century, First Nations have struggled or declared war (in a non-violent sense) on industrial development projects that threaten the waters of their traditional territory. For instance, the Cheslatta First Nation near Burns Lake, British Columbia, led a successful struggle to avert Alcan's Kemano II hydroelectric project (Carrier Sekanni Tribal Council 1994). The James Bay Cree opposed the Great Whale Hydroelectric project (Ettenger 1998). The Hopi are concerned about the Peabody Western Coal Company's use of water to



Ducks Unlimited Canada photo

Mary Thomas

transport slurry (Whiteley and Masayeva 1998). And, locally, Elder Mary Thomas<sup>2</sup> from the Secwepemc has led the efforts to save the Salmon River near Salmon Arm, British Columbia.

**Mary Thomas:** Now, a few years back in the 70s, I was working with Jim [Bruce] at the resource centre for the school. I came up from Kelowna to work with him. We took grade 11 students, we went up the [Salmon River] with rubber dinghies, and we gave them each a notepad and some little jars. And we told them to come down that Salmon River and document everything they see in the river that should not be in there . . . like rusty wires, old car parts; people would dump garbage down the riverbank, and we told them to document

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<sup>1</sup> The World Water Vision represents the vision of about 15 000 people from civil society, NGOs, women, and environmental groups worldwide; it is a project of the World Conservation Union.

<sup>2</sup> Mary Thomas has been recognized for her leadership by the Smithsonian, the Governor General of Canada, University of Victoria, and the Seacology Foundation.



how many places they saw these things, and we asked them to document the erosion caused by cattle or animals near the [water] intakes. We told them if you see an intake and it has no number on it it's illegal, they're not licensed to take it; count how many have it and how many don't. Every so [often] they'd have to take a sample of the water. It was part of their study at the high school. And the study that came out of that was . . . I was just shocked. The garbage that people were throwing in the water. The [water] intakes . . . the farmers were taking water illegally. Some had a number, but the biggest majority didn't even have a number. And the water quality already was so polluted in those little jars. So I've been involved with the water for many, many years.

The students' report on the state of the Salmon River motivated Mary to start working with the people of Salmon Arm to protect and restore the river by establishing the Salmon River Roundtable. First Nations' objections to development that, in their eyes, negatively affects water, is rooted in their ecological and spiritual perspectives.

The purpose of this paper is to explore First Nations' ecological and spiritual perspectives on freshwater and, secondarily, to briefly compare their Traditional Ecological Knowledge (TEK)<sup>3</sup> to Western science's ecological perspective on water. This comparison of "ways of knowing" may illuminate new approaches in freshwater ecosystem management and help to set priorities for ensuring the ecological health of watersheds for future generations.

Ethnographic research methods were employed to document the TEK of three Elders who live in the southern Interior of British Columbia: Mary Thomas from the Secwepemc, Millie Michell from the Nlaka'pamux, and Mary Louie from the Syilx Nation. Each Elder was interviewed independently using the same set of questions. The First Nations' perspective on water, derived from the primary data collected in these interviews, was combined with a survey of the literature published in reference to a number of First Nations throughout North America.

## The Importance of Water: A First Nations' Perspective

Water "symbolizes the whole of potentiality; it is *fons et origio*, the source of all possible existence . . . water symbolizes the primal substance from which all forms come and to which they will return either by their own regression or in cataclysm. It existed at the beginning and returns at the end of every cosmic or historic cycle; it will always exist, though never alone, for water is always germinative, containing the potentiality of all forms in their unbroken unity" (Eliade 1963:188). Many First Nations' creation oral history cycles begin when there was just water on earth—it is the primal substance. For instance, Syilx Elder Harry Robinson (1989:31) says: "God made the sun . . . Then after that, he could see. All Water. Nothing but water. No trees. No nothing but sun way up high in the sky." Later, Coyote created earth by diving into the water to get a grain of dirt, which expanded into earth as we know it today. The Gitxsan creation oral tradition speaks of the flood, which describes how a people were brought by flood to live in their traditional territory. For instance, a mountaintop exists in Chief Geel's house territory named "where the canoe landed during the flood."<sup>4</sup> Bouchard and Kennedy (1977) recorded accounts of the flood, a common theme among the Northwest Coast and Plateau culture areas.

*This is a true story that has been told to the Mount Currie people for many, many years . . . A long, long time ago, one of my ancestors, whose name was In-Chee-nim-kan, received some advice from the Great Chief. He was told that the land was going to flood and almost all of the mountains would be covered with water (1977:10).*

The legendary world of Hopi origins lies deep below the surface of earth.

*The Hopi Indians of northeastern Arizona are an epitome of human endurance: they are farmers without water. According to their genesis narrative, the Hopi emerged from a*

<sup>3</sup> There is no universally accepted definition of Traditional Ecological Knowledge (TEK); however, Berkes defines it as "as a cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and their environment" (1999:8).

<sup>4</sup> The author is a member of the House of Geel, Gitxsan First Nation.



layer under the earth into this, the fourth, world by climbing up inside a reed. On their arrival, they met a deity, Maasaw, who presented them with a philosophy of life based on three elements: maize seeds, a planting stick and a gourd full of water . . . Wikoro, the gourd filled with water, represented the environment—the land and all its life forms—as well as the sign of the creator's blessing (Whiteley and Masayesva 1998:10).

Loftin (1991) says that in the Hopi world sacred beings:

*. . . bring forth moisture according to [their] own intentions and purposes. Water can be given and it can be withdrawn by the "very something" that creates and sustains all life. The Hopi think of water not merely as a material phenomenon subject to unchanging and determined physical processes. To them, water is the essence of the sacred and can appear at any time. A shortage of moisture to the Hopi is not the result of overuse in a scientific sense. Rather, it is the consequence of improper spirituality, which shows up in irreverent—that is, ignorant or greedy—interactions with the earth mother (1991:11).*

Therefore, water is the element from which all else came; it is the primary substance within the interconnected web of life; it is the centre of the web, rather than being just one component. Elders Mary Thomas and Mary Louie both stressed the importance of water in the interviews.

**Mary Louie:** Water, we call it Mother Earth's blood, her nourishment to her children. I call this term "the blood of life" . . . and without it we'd never survive. So we need water, and we need to keep it clean because if it continues in the manner that it's going . . . a person would wear a new pair of shoes right down to nothing before they'd get to clean water. That's one of those things that the ancestors talked about. So that's why I'm saying that we need learn to preserve water.<sup>5</sup>

**Mary Thomas:** You can't live without water, your body is over two-thirds fluid. And how



Joyce Sam photo

Mary Louie

can you survive without water—everything needs water. That's the biggest belief that our people had. Water is something they really wanted to protect because that's where they get their food, their daily living, like the fish, all kinds of fish. Without the water we can't survive. And I can remember our Elders talking about it. Therefore, when we're weighted down with a lot of grief, your life is becoming unmanageable, or you're going through a lot of pain, the first thing our grandmother and my aunt and my mother would say, "go to the water." Water is powerful and yet it can be so gentle. You can see that when there's a big washout, the water can bring down boulders and big huge trees. It can move anything—a whole mountainside. And yet if you sit by a little brook, which I often did when I had a home up at Mabel Lake, I can feel that—I experience all what my Elders taught me—I personally experience it. And you think of that water, you wonder where is

<sup>5</sup> The average Canadian consumes about 326 L of water per day at home, about twice the per capita water use in Europe and many times that of countries in the Middle East (Schindler 2001).



it coming from—will it ever empty? Where is it going—will it ever fill up? The wonders of Mother Nature’s gifts. While I’m sitting there, I’m thinking, meditating, and I pray. What has gotten me down so bad? Then I think I could hear my grandmother’s voice saying “go to the water.” Water is powerful. You couldn’t go into that little creek, it was so small, just a little brook, gurgling along. I’d sit at the edge of it and just put my hands in it and I could hear the little birds singing around me, the same tune they’ve sang forever since Creator put them on this earth. The little squirrels chirping, they’re all wondering what am I doing here? It makes me feel that I was connected to them. The pure life they were living, and why am I feeling the way I am? I wash my hands in the brook and then I sponge bath in it. That was something that our grandparents, our parents taught us. You wash and then you take a big drink—drink a lot of it. I’ll be honest when I come away from there, I feel as if I’ve left a ton of weight back there. I feel better, I feel light, and that’s the same thing with a sweat lodge.

The Elders I interviewed emphasized how important it was to understand the spirituality of water; water has a spirit that they converse with and pray to. In the following sections, the Elders share their traditional spiritual knowledge about “going to the water” ceremonies, such as meditation and the sweat lodge, as well as the significance of springs and rain. This spiritual perspective lays the foundation of their ecological perspective.

## Spiritual Perspective on Water

### “Go to the Water”

Water is a meditative medium, a purifier, a source of power, and most importantly it has a spirit. Water is alive—biotic. This feature of First Nations’ cosmology is a key concept in the upcoming comparison of ecological perspectives; therefore, in preparation for that discussion the Elders talk about “going to the water.”

The Cherokee have a purification ritual called the *amo:hi atsv:sdi* (water place, to go and return, one) or the “Going to the Water” rite. It is a:

*. . . cleansing rite which is usually preceded by a period of fasting by the participants. The actual ceremony is performed by the edge of a creek, where the source of the water is free flowing. It is timed to coincide with the spiritually potent illumination of sunrise. They submerge themselves or pour water over themselves four to seven times* (Kilpatrick 1991:51).

Eliade describes immersion rituals as the “equivalent, at the human level, of death, and at the cosmic level, of the cataclysm (the Flood) which periodically dissolves the world into the primeval ocean” (1958:194–6). Water has the power to purify whatever is immersed in it by regenerating the spirit into its purest form, which has parallels with evangelical baptism. The difference between the two is that the Cherokee did not believe that this act “promulgated the soul’s conversion and ultimate salvation” (Kilpatrick 1991:51–2). In the context of Christianity, baptism does, however, facilitate spiritual regeneration, for immersion in the water of baptism “is equivalent to being buried with Christ” (Eliade 1958:194–6).

Mary Louie describes the “going to the water” ritual, which is very similar to that of the Cherokee. She also describes a ceremony for new babies, which is a strength and life-giving gift from the water to the newborn.

**Mary Louie:** The water is the biggest part of all our lives; without it we’d never survive. So when you go to the water and you talk to that water, that water helps you. But you have to come from the heart with it, with your words. If you go to the water early in the morning and get into it before anybody’s up or around, that water will strengthen you because your spirit cries for that water, not just your shower or your tub water; its tired of the hot water, it wants cold water. And when you plant a garden or your flowers, you have to water [them]; if you don’t [they] die . . . Some places . . . with the first born, they take their babies to the water and dunk that baby into the water. It’s steaming, gives that baby strength; it shares its life with that baby, its energy. That one will never be scared of water. The animals use it, the birds.



Secwepemc medicine men “always went to the water”; they swam morning and night when they were practising their medicine powers (Mary Thomas, personal communication, 2000). The Elders believe that water has a strong spirit, which can be gentle or powerful, forgiving or angry.

**Mary Louie:** If you don’t make offerings [to the water], sometimes it can take you. It wants to be respected. It gets upset so it will take you. Every time I use it, I talk to it and ask it to watch out for people because they don’t know, because they don’t have that teaching, you see? They don’t have that training anymore. They’re bottom-up backwards. They just go there and raise Cain with it. But the water, it’s a gift of life. It bothers me because our water is . . . disappearing because it’s not being respected. People won’t offer gifts to the water anymore, you know; they don’t take food to it, or tobacco . . . or even coins . . . Because the water, they have feelings too, huh? They are always there to provide for you; what do you give back . . . ? It gets upset too, it gets hurt just like the animals. There are no ceremonies now for them either. Nobody goes for cleansing anymore or talks to them and say “well my family’s hungry, I want to feed them.” They don’t make any offerings to them.

The water is shown respect and appeased through offerings in the form of gifts of food or coins, and through prayer.

### Sweat Lodge

The sweat lodge ceremony is a purification ritual that has the same purpose as immersion—to return the body and spirit to its purest form, as to when it left its mother’s womb. Mary Thomas relates a moving description of the role of water in the sweat lodge ceremony.

**Mary Thomas:** It’s very important that we go into the sweat lodge and it has to do with the water. When you go to your sweat lodge, you look at the fire, you meditate, you don’t talk to anybody; you just live within yourself, you watch the fire consume the wood. The rocks that we take for granted, they’re cold, they’ve no life, they don’t grow; you know they’re just

plain rocks and yet that fire can turn them into red, hot rocks. It changes the temperature. You meditate on that fire—fire and water are two very important things in our culture. When you’re sitting there meditating, you’re praying—that I’m going into this sweat lodge that represents my mother’s womb; when I came out of my mother’s womb I was perfect. I have gone through a lot of pain that’s really hurting me and I want to be purified again . . . You go in there and you sweat; the rocks are really hot and we throw water on [them] and [they] steam and you perspire. In your arms bring four little ends of the fir bough; the very soft ends . . . you tie them together. There’s a certain amount of oil in those boughs that’s medicinal. When I’m in there, I begin to really perspire, and you can rub yourself and your dry skin, the second skin, comes off . . . you cleanse yourself and while you’re doing that with your body . . . you get thirsty because of the heat, and to prepare me . . . to wash away all things that are hurting me. When you finish meditating and finish cleansing yourself [that is] the first round. We have four rounds [and when] we come out of there, all that stuff is rolled off of our skin, and we go into the water right away, wash away those little needles from the fir boughs stuck on you. When water touches, they wash off, and you say [to the water], “like you are washing away all the needles off my body, wash away things that are bothering me. Heal me.” You talk to the water to heal you and you wash . . . that’s the first round . . . praying for yourself. [In] the second round . . . we pray for our families, that our families unite and become strong . . . [In] the third round you pray for your community, all your relatives, your friends. [In] the fourth round you pray for Mother Earth and you spray water around you—cleanse Mother Earth, she’s dying, and she’s suffering today at the hands of ourselves. That’s the spirituality of the water, how great it is to our people. We do a lot of drinking, and sometimes if you drink a lot of water while you’re taking your sweat lodge, it’ll even make you feel like you want to throw it all up. Don’t stop it, let it go.



You can get pretty sick to the stomach. Just let it all go and you drink lots more water and if it wants to come up, let it go. Then we usually bury it with hot ashes and that's the cleansing. Powerful, powerful water cleanses.

Water, steam, and fir needles cleanse, purge, and revitalize, directly and indirectly, the body, spirit, community, and Mother Earth. The sweat house is usually located by rivers, lakes, or springs.

## Springs

Springs are of great importance since they provide very pure water for medicinal plants; spring water is used for making medicinal tinctures. Springs are also a source of great spiritual power, an *Axis Mundi*—a place where one can travel from one cosmic zone to another, from the sacred to secular worlds (Eliade 1958).

I asked Mary Louie if there were any special spirits associated with springs.

**Mary Louie:** Yes. For you to regain your strength, you find a spring water and pour it over you or you can sit beside it and talk to it. Or you fast or . . . you'd be surprised what that water can do for you. That's why we have that facility we built for the women . . . it's not a prison, it's just a facility. And it's got spring water all around it. And we have the Elders working there . . . their Elders. 'Cause . . . [the women] are able to go out and sit down and talk about whatever it is that they need to—to let go. And when they're crying, it goes into the ground. 'Cause they're letting go and the water will take it. Spring water is one of the best.

Eliade describes the life force of flowing water and springs: "Water flows, it is 'living,' it moves: it inspires, it heals, it prophesies. By their very nature, springs and rivers display power, life, perpetual renewal; they *are* and they are *alive* . . . There are a great number of cults and rites connected with various springs, streams, and rivers throughout history to correspond to these many different values given to water" (1958:199–200). The Hopi call springs *Paahu*, "natural water" or "spring." Springs are absolutely central in Hopi social and environmental thought because they are the prototypical water sources (Whiteley and Masayesva 1998:13).

Robinson (1961) relates a Haisla oral history of how the raven (Wyget, or Weegit) brought a spring to the Kitimat area.

*The skies had been clear for days and this particular day was oppressively hot. Weegit went from one stream to the other trying to find cool drinking water. There was just no good drinking water available in the Kitamaat area. Suddenly, Weegit thought of a little spring, which he had seen in the Skeena Valley, and without waiting he started flying north toward this spring. In time he arrived in the Skeena Valley and after finding the little spring, he picked it up and flew with it back to Kitamaat.*

*On his arrival Weegit set the spring down at the north end of the village and charmed it saying, "Your sole reason for existence will be to quench people's thirst at all times."*

*To this day, Weegit's Spring may still be found at the north end of Kitamaat Village, faithfully fulfilling its reason for existence.*

*During the coldest part of winter, when every stream is frozen, Weegit's spring still flows.*

*Even in the hottest summer weather, this charmed spring is ever ready to quench people's thirst with clear, cool water (1961:10).*

The Lakota believe that it is dangerous, in a spiritual sense, to drink spring water at nighttime: "When a man drinks from a spring during the night, this is what he says before he drinks, it is said. If he does not say this and drinks the water, then the spring shoots him (*opi*), it is said. Therefore, the people are very much afraid of springs and no one drinks water from a spring at night" (Walker 1980:170).

Mary Thomas explains the importance of springs for small mammals.

**Mary Thomas:** According to the Elders . . . we should keep the springs the way they are because that is the home of our little creatures. There are porcupines, slow-moving creatures, that can not go all the way down to the river or the lake, and go all the way back to their feeding ground. [The Elders] always said that Mother Nature is so good that she looked after her own. And that's why these little springs



erupted where little animals that are slow moving would have their share of the water . . . that's my understanding [of what] the old people used to talk about. And I can remember when the little Dry Lake up there started drying up and we used to take mom up there. She was up in her 70s; she'd stand there with her cane and really look, and she would say, "Ohhhhhh, what's happening, is that water ever going to come back again like it used to be?"

Springs were also important water sources for sweat lodges and villages. For instance, there is an ancient Stl'atl'imc pithouse village, northwest of Lillooet B.C., that is located high above the Fraser River; it is situated right beside a series of spring-fed pools that probably supplied the village with drinking water.

## Rain

The Tsimshian tell an oral history about how raven (Weeget, or Txamsem) brought freshwater to the people in the form of rain.

*Txamsem tricked the chief who controlled water. Txamsem tricked the chief into believing that he had soiled himself. Txamsem said he would help clean the chief, but first he would need some of his water. The chief agreed.*

*Txamsem in the meantime took the water bag and began to saturate his blanket with water and then he ran out and threw the water to all the different directions which then caused many rivers to flow and now there was water all over the world. The great chief was too embarrassed to get up from his sleeping place, to stop Txamsem from running with the water bag. The rain came every time that Txamsem shook his robes, which were saturated with water (Cove and MacDonald 1987:16).*

Rain, or the spiritual substance of rain, is "perceived to be the constitutive, underlying structure of all the Hopi world's forms and rhythms. When the Hopi dance for rain, they are dancing (praying) for the creation and sustenance of the cosmos" (Luftin 1991:37). The Hopi also believe that the sacred spruce tree has the magnetic power to bring in the clouds and moisture, and that it can draw water up

from the underworld through a spring (Waters 1963:49, 200).

Mary Thomas shared this view of how rain can rejuvenate the human spirit and Mother Earth (*Tellus Mater*).

**Mary Thomas:** . . . my parents used . . . to welcome rain. When there's going to be rain, especially after hot, hot weather . . . they used to just welcome it, and they used to say Mother Earth must be feeling very, very tired. She wants to rejuvenate herself [by] having the rain wash her down. My dad used to have this saying: Oh, more rain, more rest! And my mother would say: "Now that one is letting me know you're getting lazy!" Sort of teasing one another. But, you know they accepted the rain because it was part of Mother Nature. Even after somebody died—passed away in your family and it started drizzling—they used to call it the "heavenly tears." Put your head up and let Mother Nature wash the sorrow off of you. If it just happened to be raining after you have lost a dear one, you can stand out there and just let Mother Nature wash you . . . And drought is something they dreaded. They always felt that somebody did something wrong and that Mother Nature is doing that to discipline us. If there's a drought, it means we have misused something; you do soul-searching: what is it we haven't done right? Many times the Elders would say: when you start depending on yourself to survive without that spirituality—the thanksgiving, thanking Mother Nature, the creator for their gifts—you'll suffer because of it. You know, they depend on the saskatoons to ripen, the wild fruits to ripen, from the rain and the sun. But without rain and nothing but the sun, it's going to burn. They used to say that if you start depending on yourself, your own strength, without the spiritual strength, you suffer for it—and Mother Nature has its way of disciplining us.

The concept of showing respect for water and Mother Earth is a keystone to the First Nations' ecological epistemology, which is explored in the following section.





## Ecological Perspective on Water

The concern over water and what is happening to Mother Earth was shared in a dramatic way by a Nlaka'pamux Elder. At the age of 86, Mildred Michell (N'whal'Eenak, or Rising Star, was born on May 13, 1914 and passed away on October 2, 2000) agreed to be interviewed on the importance of water to our lives. She was a highly respected and knowledgeable Elder in her Nation and by other Nations in the southern Interior. I arrived, along with my colleagues Joyce Sam, Art Sam, and Rhonda McAllister, at Millie's home (at the Siska Indian Reserve) as a witness to already unfolding events on October 2, 2000.

After introductions and tea were made, Millie began to speak in her own language (through the interpreter Art Sam) about the importance of water. Millie's first comment to Art was, "Why do they [myself and my colleagues] come here to ask us about water, isn't water important to them as well?" Millie was puzzled, since human's are made up of two-thirds water—we all need water, so why were we here. Nevertheless, she understood our purpose and began to talk to us about water. Art Sam's dialogue summary, shown below in italics, is included here in its entirety out of respect for Millie's knowledge and as a record of her last words.

*Millie began to talk about the 1935 snowfall, wherein there was no traffic or train movement for three weeks due to the abundance of snow from the mountaintop to the river bottom. Millie lost her father-in-law during the snowfall, while trying to remove the snow, on his third attempt, along the highway. Millie said the snow was so abundant that there were no landform distinctions, such as the highway or railway lines. Millie also talked about the last flood in British Columbia during 1948. Bridges and roads were washed away, again crippling traffic and railway lines. Millie pointed to the mountain; she said that everything from the top of the mountain, and down to the river bottom relied on "water," including people. Every life form, from the tiniest bug to the fish that lived in the water. When animals get sick, they require water, when people take medicine, they require water. Millie grew up with knowing and using her traditional teachings about respecting water.*



Michell family photograph

Millie Michell

*She was taught, by her grandparents and parents, to respect everything, which we do not teach our children today. In her childhood, they had to pack water for bathing, drinking, cooking, and making tea. When I told Millie that you [the author] were going to write about water, Millie glanced over to you and Rhonda, and she asked, "Are they going to fix it?" She meant were you going to fix what is happening to the earth? Millie continued talking about respecting the water, in the form of cleansing yourself. Everyday she prayed to the water, rocks, air, and trees. When people went hunting, water was used for praying and cleansing one's mind, body, and spirit. People used to talk to the deer just before shooting, to let the deer know why they were taking him and to thank him for being taken. Every part of the animal was used, nothing was wasted. Now-a-days we just shop at the supermarket. Millie also talked about how people used to go out to get their own clothing in the mountains, such as gathering bark, roots, and mosses. All the clothing, right down to your feet was gathered or hunted for. Today we have different material, and don't practise this anymore—people don't know how.*



Millie also talked about water in seasons.

- *Springtime brought lots of water; it was also a time for new birth. In May, were the first thunders of the year. A time that was important for the deer and other animals. It indicated to the people that it was close to giving new birth, for the deer and animals depended on the water.*
- *Summertime made things grow. Water flowed, but also evaporated. Water went underground or filtered down into the earth and came out at a creek; earth has its own filtering system, which was in place before our time.*
- *Fall was the season of Fog. Warm air and cool air are circulating. This was the “storage” season. Putting away our garden in cellars.*
- *Wintertime was the season to sit down. The earth is sleeping. This is the time to fix your clothing, patch work or making buckskin clothing.*

*Millie talked about pollution. Diesel disturbs the earth. Fumes that come from the machines: where does it settle? Where do these bugs come from that are killing the trees?*

*Millie also talked about the land. There are too many gates, with no trespassing signs. A long time ago, people used trees as markers or boundaries. Everyone knew where these boundaries were. Each place had a name. Everyone knew where these places were. Today they call it “Crown land.”*

*Throughout, Millie questioned the weather pattern. She was very concerned about the weather change around the world. Examples were too little snow: what’s going to happen? Thunder used to be in May, and now it thunders in December as well. Millie also talked about how artesian, or underground, water was so important to villages.*

*Logging in the watershed [Millie pointed behind Siska, to the Coast Range mountains, which tower above her house] has caused streams to disappear; when trees are removed, water disappears underground, or dries up. At this point, Millie said, “My heart is sad, why do they do this to us?”*

At that moment her body began to shake, and she fell back into her chair. She had suffered a massive stroke and she died four hours later in the Lytton hospital. Her sons told me that Millie’s deceased husband and son had visited her, in her dreams, several times, calling her to join them. On the night before October 2nd, they had both come to her all dressed up, and that was the first time they had visited in that form. She had said to them, “not now”; she had told them that her mission on earth was not complete until she met with us.

Water was very important to Millie; it was important to her that children were taught to respect water. She was very concerned that the water was drying up, about pollution, and about the changes in the weather’s annual cycle. Elders such as Millie Michell, Mary Louie, and Mary Thomas all emphasized the importance of groundwater. They believe that trees and vegetation act as water pumps; the trees pump water from the ground and store it in the forest. Mary Thomas spoke about her experiment with collecting sap from the birch tree and how she was amazed at how much sap went up the tree each day. Continuing with her discussion of sap, she shares her view (as it relates to spacing and brushing tree plantations) of why creeks dry up.

**Mary Thomas:** So we pulled the spigot out, we mud-packed [the hole] to stop it from dripping, to let it heal itself. You know what . . . I just kept thinking where on earth did my people a long time ago know this? When that sap comes down, it goes in the ground and other plants feed from it. There is so much sap there [in a thickly brushed-in place], no wonder the creeks were filled up. There was a certain amount of fluid going into the creeks, it had to come out somewhere and build up our creeks. So when they cut everything out, when . . . [they] were tree spacing, I’d go up there with them. They were cutting everything out! Everything! Just the little trees that were planted [were left]. And that’s what got me thinking why are they doing that? And I could hear my Elders speaking about how much sap there is in those trees they’re cutting. And why are our creeks drying up?

The Elders believe logging can impair or disable the trees’ ability to pump, store, and enrich



groundwater. Mother Earth filters the water as it is pumped. On wet sites, the water table may rise after harvesting because the water is no longer stored in trees, and instead it pools on the already saturated soil. On dry sites, the water table may fall after harvesting since the trees can no longer pump and store the scarce water in these sites, and the evaporation rate may also increase because of higher soil temperatures. As the Elders say: “the water goes back down—it dries up.”

Hetherington explains, from a contemporary, scientific point of view, the effects of harvesting on stream summer low flow: “Under some circumstances, low flows might be reduced in small streams following logging or fire. After initial increases, flows in West Coast or eastern Canadian streams could eventually be diminished below pre-disturbance levels by the vigorous transpiration of new streamside deciduous vegetation or reduced fog interception. Even if flows are not reduced, build-up of gravel in streambeds, such as might occur after logging, could result in flow being entirely subsurface. This change in the channel would impair its use by fish. In general, however, the evidence indicates that low flows in most of Canada are more likely to increase rather than decrease after removal of the forest cover” (1987:192). It seems, based on Hetherington’s limited research, that there is the possibility for minor reductions in stream summer low flows at the local level. Elders may notice local springs and creeks which appear to be drying up when the water course is disturbed by road building or site preparation, or from increased transpiration in riparian zones. At the global scale, Schindler (1998:157–160) discusses the negative effects of global climatic warming on boreal forests; some of these effects include declining water levels in the boreal wetlands, reduced streamflow of headwater streams and increased residence time of water in lakes resulting in increased concentrations of chemicals.

Millie Michell was very conscious and respectful of groundwater movement, the annual hydrologic cycle, and the importance of water to all life forms. Millie had a spiritual connection to the land; additionally, Millie’s life—her physical being—was also directly connected to the water and mountains overlooking her house. When harvesting occurred

there, it affected her—her physical health was affected by the health of the ecosystem.

A healthy ecosystem is one in which water, of sufficient quality and quantity, is delivered in a functional rhythm. In some cases, the ecological health of a forest watershed can only be maintained by minimizing significant human interventions, such as harvesting. Ecosystem integrity, as defined in *Vision for Water and Nature*, is “the range of interactions between the water cycle, individual species and biophysical, chemical and ecological processes that support the organization of an ecosystem” (World Conservation Union 2000). The findings of this project suggest that the ecological health or integrity of freshwater ecosystems can be preserved by maintaining “the hydrological characteristics of catchments, including the natural flow regime, the connection between upstream and downstream sections (including coastal and marine zones), the linkages between groundwater and surface waters, and the close coupling between the rivers and floodplains” (World Conservation Union 2000:50). Ecosystems, such as upper catchment cloud forests, springs, and certain wetlands, directly provide us with clean water, and help regulate flooding and basic ecosystem functions.

### The Importance of Water: A Western Perspective

From a Western perspective, water is a part of the physical environment that significantly affects how well the living organisms function in an ecosystem: “Water is one of the most common and most important substances on the earth’s surface. It is essential for the existence of life, and the kinds of and amounts of vegetation occurring on various parts of the earth’s surface depend more on the quantity of water available than any other single environmental factor” (Kramer 1983:1). Early science, as expressed by Adolphe Ganot, an nineteenth-century physicist, was the knowledge of the laws that govern the universe; the universe was regarded as made up of mind and matter, or man and nature. The mind is “that which thinks and wills” and matter is “that of which we become cognizant through the medium of senses” (Ganot 1863:9). Matter is then subdivided



into that which is organized (particles aggregated into organs to support life: the study of physiology), and unorganized (the study of physics). Western science has constructed the *nature:culture* and *subject:object* dichotomy; it views nature as a commodity (Berkes 1999).<sup>6</sup>

Science attributes water's special roles to its unique physical and chemical properties, rather than its spiritual qualities. According to Kramer: ". . . water has the largest collection of anomalous properties of any generally known substance" (1983:7–9). For example, water:

- has the highest specific heat, which helps stabilize temperatures: the high heat of vapourization means the evaporation of water has a pronounced cooling effect and condensation has a warming effect;
- is transparent to visible radiation, allowing light to penetrate bodies of water;
- has a much higher surface tension than most liquids (which aids in the ascent of sap in a tree);
- has a high density and expands on freezing, so that ice has a 9% greater volume than liquid water (which explains why ice floats); and
- is slightly ionized and acts as a universal solvent; it tends to be absorbed, or bound strongly to the surfaces of clay, micelles, cellulose, protein molecules, and many other substances (Kramer 1983).

Western science's definition of an ecosystem seems to harbour the fundamental difference between the First Nations' and Western view of water.

*Ecosystem: any unit limited in space that is made up of a biotic community interacting with the physical environment so that a flow of energy leads to a clearly defined trophic structure (food chain) and material cycles within the system* (World Conservation Union 2000:40).

The ecosystem concept "implies that an organism cannot be considered separately from its environment, considers the ecosystem to be the basic functional unit of nature, and seeks to

understand organism behavior through the study of extremely varied and complex relationships between an organism and the environment. In the geographical context, a forest ecosystem is a segment of landscape that has relatively uniform climate, soil, plants, animals, and micro-organisms. The biotic community of a site is composed of a combination of plants (vegetation), animals, and microorganisms, each of which forms its own community" (Klinka *et al.* 1989:4). Water is not explicitly mentioned as part of the ecosystem definition, rather it is enveloped in the concept of the physical environment—an inert matter, which interacts with the living world.

The Elders believe that water is alive or biotic. It has a living spirit. The Greek philosopher Thales, also known as the "Ancient Hydrologist," asserted that water was the origin of all things (Biswas 1970; Kramer 1983). He believed that, "the earth was created out of the primordial waters of Nun and that such waters were still everywhere below it" (Biswas 1970:40). Thales also stated that water is the fundamental, original, or primary substance. Greek philosopher Empedocles of Agrigentum postulated the concept of the four basic elements of matter: fire, air, water, and earth, which Aristotle later expanded upon by adding a fifth—heaven (Biswas 1970). So while water originally seemed to have a significant "life-giving" importance in Western thought, it now seems to be an unorganized, non-thinking, or willful, particle in the physical world.

Water still has, however, a special fundamental place in the First Nations' ecosystem—it is at its heart, since it provides the "blood of life" (Mary Louie, personal communication, 2000). This explains why the Elders' first concern about the environment is the health of the water.

The comparison of perspectives and issues raised by the Elders generates fundamental research questions for Western science. For example:

- Should water be considered biotic?
- Is there any pure, non-organic water in the ecosystem?

<sup>6</sup> Dr. D.T. Suzuki, an expert in Zen Buddhism, believes the Western *man:nature* dichotomy has biblical origins (from Genesis I [27–28]): ". . . the creator gave mankind the power to dominate all creation. It is fundamentally due to this story that Western people talk so much about conquering Nature. When they invent a flying machine they say they conquered the air; when they climb to the top of Mt. Everest they loudly announce that they have succeeded in conquering the mountain" (Suzuki 1999:230).



- Does water have a spirit like living organisms?
- Should the status of water in the biotic world be elevated to a primary stature?
- Are freshwater ecosystems drying up because of disturbances such as harvesting?
- Do trees significantly contribute to the capillary rise of water from the water table to the soil's rooting zone?
- How much water does the forest store above ground?
- Do trees enrich the soil with their sap?
- Have annual hydrologic cycles changed significantly in the past 100 years?

Ultimately, a forest manager's first thought when contemplating forest management interventions, should be: "How will the planned intervention affect the delivery of water in a functional rhythm within the ecosystem?"

## Conclusion

A Tsimshian oral history about the Txamsem, the Raven:

*Txamsem would consume huge dishes of food and berries. He would finish the food in one house and then move into the next and the next until he had finished eating all the food in the chief's village, and he was growing very quickly. One day the children playing by the water's edge saw something coming up through the water as from a spring. Curious, they followed it until they saw this gluttonous person sitting at the edge of the water and there was a constant stream of excrement coming from his anus. This they saw and they went up to the chief's house. "We have seen the gluttonous one and his excretions are now filling the beach and his anus is a long way from here" (Cove and Macdonald 1987:17–18).*

The Chief decided the people would have to abandon their village and said "all people will move tomorrow, we will desert this gluttonous person before we ourselves are starved." Humans, especially in the metropolitan ecosystem, are consuming at a rate of abandon, without regard to its "downstream" effects. The solution, perhaps, will evolve from a convergence of First Nations and Western perspectives, not a replacement of one or the other.

The Elders, who graciously shared their knowledge here, believe we should show more respect for water as a living spirit and give back what we take.

Carl G. Jung observed that, "as scientific understanding has grown, so our world has become dehumanized. Man feels himself isolated in the cosmos, because he is no longer involved in nature . . . Thunder is no longer the voice of an angry god . . . No river contains a spirit, no tree is the life principle of a man . . . His contact with nature has gone, and with it has gone the profound emotional energy that this symbolic connection supplied" (1964:85). This sentiment still rings true today: we have lost our emotional and spiritual appreciation for nature. This is where the Elders can help—with their wisdom of past generations.

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