

Appendix 2: Alphabetical Code examples and subthemes. Additional codes applying to each example paragraph are suppressed. For long form description of codes, see Appendix 1.

Code Shorthand	Sample Paragraph	Common Subthemes Within Code
ACC	During my investigative journey in the headwaters, a rancher who believes (like many other Coloradoans) that he owns the river, tried to have me arrested for trespassing in my tiny raft. That section of the river in fact is sometimes drained to steam size by diversions to distant Denver. - <i>Blog</i>	Private and public regulation of access, including ideas of ownership and safety.
AG	If ultimately enacted, the plans would open a 300-plus-mile migratory route to spawning grounds for endangered Pacific salmon. The agreements also cover the distribution of Klamath Basin water between farmers and ecosystems that support both fish and the fishermen who catch them. Dispute over the fate of the Klamath's water dates back a century. - <i>Blog</i>	Water footprint of agriculture; floodplain agriculture; legislation and economic aspects of agriculture; impacts of floods on agriculture; economic impacts to agriculture.
AQO	The most optimistic here even see the influx of fresh, sweet river water as a good thing for the swamp, even though it is likely to hurt oyster beds and shrimping grounds along the gulf shore. The wild crawfish will come strong in future seasons. The fish will be more plentiful. - <i>NYT</i>	Thematic articles highlighting specific species; specific species as part of discussion of broader ecosystem.
BIOD	Today 69 percent of U.S. freshwater mussel species are to some degree at risk of extinction or already extinct. The most diverse assemblage of freshwater mussels ever known was located in the middle stretch of the Tennessee River in northern Alabama. Before the damming of the river in the early 1900s, 69 mussel species had been spotted in this reach; 32 of them have apparently disappeared, with no recording sightings in nearly a century. - <i>Blog</i>	Current and past (bio)diversity, including concern over lost diversity.
BRD	In fact, a few years before Ms. Hardie, who is 57 years old, and her husband Frank, 62, moved to Charleston in 2008, they bought a two-bedroom condo facing the Cooper River. Now they enjoy being a few blocks from the downtown hubbub while also being able to watch porpoises and herons from their porch. - <i>WSJ</i>	General and specific references to birds, including birdwatching and their role in the ecosystem, birdwatching.
CARE	On a recent day, a tugboat passed through the Charleroi Locks along the Monongahela River in Pennsylvania. Only one lock is working and its gate is anchored in crumbling concrete. - <i>WSJ</i>	Litter, aging and poorly maintained infrastructure.

CHR	<p>Today a viscous rainbow sheen floats on its surface, and the area around it is redolent of hydrocarbons. Although Greenpoint has a lower overall cancer rate than much of the city, it has one of the highest incidences of certain cancers, like leukemia in children and stomach cancer in adults. The creek was designated a Superfund site in 2009.</p> <p>- <i>NYT</i></p>	<p>Health concerns from contaminated/dirty water, explicit sewage contamination.</p>
CLAR	<p>Oregon's Chetco River is one example. The river's gin-clear waters teem with wild trout and salmon, including giant Chinook salmon tipping scales at more than 60 pounds. In 1988, Congress designated the Chetco a national wild and scenic river "to be protected for the benefit of present and future generations."</p> <p>- <i>NYT</i></p>	<p>Judgment calls on color of water, both clear and not clear, general reference to color of water caused by things in it.</p>
CREC	<p>For fly fishers who pride themselves on a conservationist ethic, it hurts to discover that they may be trampling on that ethic every time they wade into a trout stream.</p> <p>- <i>NYT</i></p>	<p>General and specific references, especially boating, fishing, and swimming.</p>
EDUC	<p>Wildlife biologists and local and national fishing groups like Trout Unlimited have spread the word about the threat of didymo and felt. On fishing blogs, anglers persistently debate the merits and drawbacks of the new rubber soles and the felt bans approved this spring by Vermont's Legislature and Alaska's Board of Fisheries. (Vermont's ban takes effect next April and Alaska's in January 2012.)</p> <p>- <i>NYT</i></p>	<p>Informal education on water usage, education and awareness, formal research.</p>
ENDG	<p>The Gila (pronounced Heela) spotlights what a river can be when it flows not according to human demands for water and energy but rather to Nature's time-tested rhythms. Its seasonal highs and lows and gentle meanders across a broad floodplain create a rich mosaic of habitats that are home to a splendid array of life including some 280 species of birds. Among them are the rare western yellow-billed cuckoo, the Mexican spotted owl and perhaps the largest population anywhere of the endangered southwestern willow flycatcher, which fancies the gracious Goodding willows that shade the Gilas banks.</p> <p>- <i>Blog</i></p>	<p>Local or regionally vulnerable species, species at risk of complete extinction.</p>
FD	<p>What is needed is a comprehensive plan to add ecological infrastructure to complement engineering infrastructure - specifically to expand wetlands and re-activate floodplains so as to mitigate future flood risks.</p> <p>- <i>Blog</i></p>	<p>The Blog especially emphasizes the role of wetlands and the environment in flooding, especially how nature alters flood risk. Perhaps due to major flooding of the Mississippi during the</p>

		sample period, the NYT/WSJ especially focused on actual damages and flood control decision-making.
FHZ	Unfortunately we're likely to see more breached, failed and overtopped levees in the future, because for several reasons, the deck is increasingly being stacked against the Mississippi's levees being able to provide the protection of life and property they once did. - <i>Blog</i>	The Blog emphasizes broad information on public safety, while the NYT/WSJ focus more on specific occurrences, including references to evacuation and deaths.
FISH	Six Great Lakes states and the Canadian province of Ontario have petitioned the U.S. Supreme Court to separate the water basins in a last-ditch effort to prevent the Asian carp from decimating the \$7 billion Great Lakes fishing industry. The Army Corps of Engineers has launched a \$10 million, five-year feasibility study of the idea. And the plan became the focus of a hearing on the Asian carp problem on Capitol Hill last week. - <i>WSJ</i>	Invasiveness, human impacts on fish populations, fisheries, and fish as part of the ecosystem.
FO	The great lesson of the floods may be that humans will have to do a lot more if they are to outwit nature, if that is even possible. - <i>NYT</i>	The Blog focuses on flooding as a natural occurrence, including the use of floodplains in flood management and flooding restoring wetlands. The NYT/WSJ focus more on human interactions with flooding, including engineering solutions for flood management.
GREED	"It's all about the almighty buck," Mr. Boyd said. "It's the destruction of Mother Earth and the life blood of the river for money." - <i>NYT</i>	Disregard for nature, ineffective legislation (underregulated, underfunded, or too limited in application), human interests (including development) versus nature.
HUNT	He and others waiting for the floodwaters make a point of saying that the heart of Cajun country here will be just fine. Zydeco music will still spill from the cafes in nearby Breaux Bridge, and the last of the crawfish from this season will continue to be boiled in countless backyards. - <i>NYT</i>	Using river-related fauna as a food source (excluding fish).
IND	In a normal year, the water that is used to keep the river	Complex code covering

	<p>level high enough for barges comes from releases from the dam system built to control river flow. But the states north of the dams, including North and South Dakota, have argued that the river is no longer needed for navigation and that more water should be kept in the reservoirs for recreation, to help the region's economy.</p> <p>- <i>NYT</i></p>	<p>topics such as pollution/contamination from private entities, shipping, commercial fishing, energy production, water-based businesses (e.g. kayak rental), etc.</p>
LAREA	<p>The study, issued by the environmental group Riverkeeper, underscores how a big sewage discharge in July, caused by a fire at a treatment plant in Manhattan, was part of a persistent and far more widespread sewage problem along the 155-mile river.</p> <p>- <i>NYT</i></p>	<p>The Blog tended to reference area, while the NYT/WSJ tended to reference length.</p>
MAMM	<p>In 2007, a beaver, a species driven out of New York waters 200 years ago by overeager fur traders and developers, was seen in the river, and its 12-foot wide lodge -- a mound of twigs and mud -- was discovered. The beaver was christened Jose in honor of Mr. Serrano.</p> <p>- <i>NYT</i></p>	<p>Specific references to a variety of mammalian species.</p>
MENTAL	<p>"At the time I started there were no public access points to the water," he remembered. "I could come here to this place of peace and tranquility amid this chaos of New York City. You feel you're losing something genuine. On the other hand, my images have taken on deeper meaning as historic documents."</p> <p>- <i>WSJ</i></p>	<p>Getting away from the chaos of the city and a positive aspect to being immersed in nature.</p>
MVMT	<p>In the background was the music of the Gilas riffles, where the river bubbles over cobbles in its bed, adding oxygen to the water. It was a sensory feast the sights and sounds of the Gila, alive.</p> <p>- <i>Blog</i></p>	<p>Movement suggesting a river is alive, river speed.</p>
NBAL	<p>Such changes can begin to unravel a whole web of life, which in turn can eliminate crucial services we humans get from healthy rivers and streams including the purification of our drinking water. For example, many freshwater mussels disperse by hitching a ride with a particular species of fish before dropping off and nestling into a streambed. If that fish disappears from the river, so may the mussels. That's bad news for water quality as a single mussel can filter up to a gallon of water per hour.</p> <p>- <i>Blog</i></p>	<p>Human modifications impacting species and river systems, invasive species damaging ecosystems, broad interconnections and cycles.</p>
NEGINF	<p>As they stood on the bank, the small and eager group exchanged the requisite disparaging jokes about the Los Angeles River, best known for its uninviting concrete channels that make many think of a drainage ditch.</p> <p>- <i>NYT</i></p>	<p>Hope for the removal of infrastructure, criticism of the normalcy of concrete channels, criticism of adding infrastructure.</p>

NOCODE	It felt like Death Valley as stifling heat reached down on Friday and took the city in its clammy grip, transforming the streets and sidewalks into hot griddles and creating instant dripping wretchedness. - <i>NYT</i>	Applied to any paragraph that was not otherwise coded.
NSPEC	A single-celled organism also known as rock snot, didymo has done as much as any invasive species to prompt calls for a ban on felt soles. - <i>NYT</i>	General reference to native species, humans causing introduction of invasive species or making native species vulnerable.
NUIS	Asian carp have few natural predators and can grow up to four feet long and weigh 100 pounds. They reproduce several times a year and outcompete native fish for food. To make matters worse, they blindly leap up to eight feet out of the water at the whining sound of high-speed propellers, injuring boaters. - <i>WSJ</i>	Fish injuring humans, toxic plants, dead zones caused by algae.
ODOR	"To me it was always about getting access," Mr. Hamboussi explained. It apparently still is. Our final stop -- though the photographer was clearly just getting warmed up a couple of hours into our tour of his old stomping grounds -- was the remnants of the Maspeth Bridge, these days little more than some ancient wooden sticks jutting from the fetid waters. - <i>WSJ</i>	Unpleasant odors.
PREC	Suzanne Hardie found herself drawn to Charleston, S.C., and its pedestrian-friendly, antebellum waterfront after wrapping up her chemical-engineering career with Procter & Gamble Co. She had been living in a small German city, where she walked everywhere and enjoyed the historical charm. - <i>WSJ</i>	Various ways, including walking/walking paths, river as viewscape, rivers as part of artistic endeavors, and tourism.
PRES	Just as we buy home insurance and life insurance to protect ourselves and our families from catastrophic losses, so society now needs to buy disaster insurance to reduce the damage caused by floods and other weather related events. By strategically investing in the protection and restoration of ecological infrastructure, we can begin to re-gain the benefits of nature's services. - <i>Blog</i>	Preservation for the immediate future, preservation for future generations, preserving or protecting species, protecting rivers.
PRIS	Opponents say the loads will change the wild character of the rivers, as floaters fish and watch giant machinery go by. - <i>NYT</i>	Wilderness untouched by man, general idea of wild/wilderness, untouched scenery.
QUALO	In today's economy, job creation trumps just about everything. But for Nebraskans, at least one thing ranks	The Blog tends to talk about water quality in abstract

	<p>higher and that's protecting their precious water sources. They know, as we all should, that ample clean water is crucial for economic vitality now and for generations to come.</p> <p>- <i>Blog</i></p>	<p>terms. The NYT especially focuses on formal analysis and regulation of water quality, often in connection with drinking water. The WSJ especially focuses on negative water quality.</p>
QUALSP	<p>In 2007, for instance, after a pipe manufacturer in Alabama, a division of McWane Inc., was convicted and fined millions of dollars for dumping oil, lead, zinc and other chemicals into a large creek, an appellate court overturned that conviction and fine, ruling that the Supreme Court precedent exempted the waterway from the Clean Water Act. The company eventually settled by agreeing to pay a smaller amount and submit to probation.</p> <p>- <i>NYT</i></p>	<p>Many attributes, including temperature, salinity, bacteria, chemicals, heavy metals, etc.</p>
QUANO	<p>What ecologist Daren Carlisle and his colleagues found is nothing short of a wake-up call to make the restoration of river flows a high priority. Flows were altered in nearly nine in ten river segments, and compared with eight other variables including water temperature, nitrogen and phosphorus pollution, and the loss of riverside land to farming or urban uses stream-flow alteration was the primary predictor of a rivers biological integrity.</p> <p>- <i>Blog</i></p>	<p>Flows and flow levels, implied volume, river heights.</p>
RECAM	<p>Four miles and about 90 minutes later, we arrived at Ferry Swale, one of six sandy campsites, each with a composting toilet, maintained by the Park Service. With all of our many imported comforts, this was five-star camping. After setting up our tents and cooking dinner, there was blissfully little to do but watch hundreds of stars glimmer into view as night fell. Later the moon arrived, bathing the cliffs in a surreal silvery glow.</p> <p>- <i>NYT</i></p>	<p>Specific and general amenities, including parks, beaches, boat launches, and campgrounds.</p>
RES	<p>Who would believe that a translucent sightless amphibian that dwells only in dark underground caves could force a big Texas city to not only slash its water use but make water waste illegal? But the rare, four-inch Texas blind salamander has done pretty much just that and spawned an unusual water story in San Antonio, where impressive conservation efforts are now being tested by one of the worst droughts in memory.</p> <p>- <i>Blog</i></p>	<p>Several facets of residential use of or discharge into river water, including drinking water, contamination via flushing, sewage treatment plants, and competing interests.</p>
ROK	<p>To the south, flash floods out of Peralta Canyon had left a wide trail of boulders, black mud, and charred debris. They had also deposited ten feet of sediment in the channel,</p>	<p>Rocks or gravel beds, rocks on water's edge, boulders moved by floods, impact of</p>

	<p>which will raise the level of subsequent floods. - <i>Blog</i></p>	<p>mining.</p>
SELS	<p>Despite these challenges, self-sustaining populations of large-bodied catfish still exist. Globally, efforts to protect the ecological integrity of rivers where large-bodied catfish occur will benefit thousands of species of freshwater fish and millions of people who rely on fish for their livelihoods and food security. Plus, they're cute! - <i>Blog</i></p>	<p>Impact of human or lack of human intervention, sustainable species and ecosystems, sustainable water usage.</p>
SENS	<p>The U.S. Geological Survey (USGS) started to detect this [<i>sic</i>] chemicals in rivers throughout the U.S. nearly ten years ago, and then in 2003 intersex fish were collected from several Potomac River sites. - <i>Blog</i></p>	<p>Impacts of endocrine disruptors on fish populations.</p>
SEW	<p>The announcement came eight days after a four-alarm fire at the North River Wastewater Treatment Plant in Harlem led to the discharge of hundreds of millions of gallons of untreated sewage into the Hudson River. - <i>NYT</i></p>	<p>References to sewage treatment plants or treated wastewater.</p>
SHZ	<p>This year, there have been seven drownings in unguarded New York City waters, health department officials said. There have been no deaths in places where lifeguards have been present, they said. - <i>NYT</i></p>	<p>Recreational swimming and drowning, forbidden access, injury from slipping, potential danger of drowning while kayaking.</p>
SNAV	<p>But the Missouri can accommodate fewer barges because of the strong current and sharper bends. And though navigation, along with flood control, gets priority for releases of water from dams, the unpredictable river levels have made shipping contracts riskier. - <i>NYT</i></p>	<p>River engineering for commercial traffic, dangerous waterways, defining navigability in regards to regulation, recreational navigation.</p>
SND	<p>It is New York City's only freshwater river, a gurgling, meandering relic of the pastoral terrain that almost 400 years ago beguiled early European explorers and traders. - <i>NYT</i></p>	<p>Used as a descriptor of a setting.</p>
SUPP	<p>It's important to note that bringing a damaged stream back to life is not an easy process; it takes time and can be fraught with challenges. But if an appropriate plan is put in place and adhered to over time, things can be turned around for virtually any waterway. - <i>Blog</i></p>	<p>The Blog especially emphasizes what should be done to existing conditions. The NYT/WSJ discuss a wide variety of examples, including what is considered natural, the role of man within nature, and historical conditions.</p>
TR	<p>So much riparian restoration is about planting trees, but here the river is healing itself, said Martha S. Cooper, a forest ecologist and Southwest New Mexico Field</p>	<p>Forest management, forest fires, trees in relation to flooding, trees along</p>

	<p>Representative with The Nature Conservancy. The Gila still has its hydrograph. The floods still have the power to act creatively on the landscape.</p> <p>- <i>Blog</i></p>	riverbanks.
TRIB	<p>In the case of the Klamath, it's a great example of how various uses for the river came into conflict: Native American interests, fisheries interests, farmers' interests, the desire for hydroelectric power. And then there were the beautiful salmon runs. The four dams slated to come down under these agreements brought all the conflicts over waters uses to a head.</p> <p>- <i>Blog</i></p>	Pre-Columbian and historical tribal use of rivers, tribal stakeholders in planning, impacts of flooding and scarcity on native people.
UNUS	<p>My favorite freshwater mussel is the orange-nacre mucket (<i>Lampsilis perovalis</i>), found only in the rivers and streams of Alabama's Mobile River basin. Like many freshwater mussels, the orange-nacre mucket has a fascinating life cycle and exhibits some of the most sophisticated mimicry in the animal kingdom.</p> <p>- <i>Blog</i></p>	Unique or unusual animals/animal behavior, unique to a location, unique landscapes.
USENEG	<p>Water levels fluctuate year to year, depending on rainfall and dam releases. This spring -- good news for kayakers-- the river is higher than it's been in the recent past. But even when levels are low in the park, there is the Lower Canyons area, a spring-fed stretch of the river that runs for 83 remote miles beyond the park's eastern boundary. Here, you are almost guaranteed not to see another soul.</p> <p>- <i>NYT</i></p>	Appreciation of minimal exposure to others using the river, criticizing tourist use of the river.
VEGO	<p>While large scale improvements didn't happen overnight, staff and students did make steady progress year-in and year-out; slowly, the creek started to show signs of life. Streamside vegetation was eventually restored, in-stream habitat improved, and water quality issues addressed. Finally, several years ago, the stream had improved to the point where we could re-establish a trout population for the first time in almost four decades.</p> <p>- <i>Blog</i></p>	Streamside vegetation, aquatic plants, native plants and shrubs, grasslands.
WLO	<p>But the river is once again at risk. Over the last twenty-five years, tireless advocates have blocked the construction of two dams. Today, the threat is a proposed diversion to siphon off 14,000 acre-feet of water per year. By skimming peaks off of modest floods, and piping the water some 25 miles to an off-channel reservoir, the project would weaken the rivers critical connection to its floodplain and the galleries of cottonwoods and willows that provide the habitat so crucial to the areas rich diversity of birds and wildlife.</p>	General references to wildlife and discussion of specific species.

	- <i>Blog</i>	
WSHR	Up to 80 percent of this residue containing arsenic, cadmium, and other contaminants associated with cancer is dumped into landfills. These toxins have been known to leach into groundwater supplies near dumpsites. - <i>Blog</i>	Water contamination, monitoring of water, need to secure clean water, linking chemicals/contaminants to health risks.
WSS	As individuals, we can make a start. But to keep rivers flowing and ecosystems healthy will also take the efforts of corporations, dam managers, energy and water providers, and many others. Together, a societal goal of shrinking our collective water footprint by 25 percent by 2025 is within reach. Water is life. Let's share it. - <i>Blog</i>	The Blog focuses on a proactive approach of reacting to and planning for scarcity, while the NYT/WSJ focus more on dealing with drought and controlling a limited resource.