WILD SALMON CENTER 2012 Annual Report





The Future of Wild Salmon

In March of this year, Wild Salmon Center and High Liner Foods Inc. brought together twelve of the world's most prominent international seafood companies in Boston to discuss shared concerns about the future of wild salmon. <u>Global seafood demand is projected to</u> double by the year 2050, and with wild salmon facing threats ranging

from poaching to habitat loss to impacts from hatchery salmon, major seafood buyers realize that they are competing for a shrinking resource.

The meeting in Boston resulted in eight seafood companies signing an agreement with the Wild Salmon Center to form the Global Wild Salmon Fisheries Achievement Initiative. The goal is to engage 75% of global commercial salmon fisheries in improvement projects, with a focus in Asia where the Russian Far East and Japan combine to account for nearly two thirds of Pacific salmon harvest.

The meeting was a breakthrough in our efforts to safeguard some of the world's most productive wild salmon runs. Let me explain.

<u>Habitat protection alone will not save salmon</u>. Healthy salmon runs depend on large numbers of wild salmon reaching spawning and rearing habitat, sometimes thousands of miles from the ocean. To achieve this we need to ensure that commercial fisheries and fishery management practices do not put the health of wild salmon runs at risk.

An essential tool to ensure good fishery management is the use of independent, third party certifiers to assess the sustainability of fisheries according to international best practice standards. Seafood buyers and retailers are increasingly realizing that without this assurance, they won't know if the fish they are buying come from responsibly managed fisheries, and if the supply is likely to be reliable over time.

If our goal is to sustain salmon for ecological, economic and cultural values, partnering with major seafood companies to achieve the highest standards of wild fish management and conservation represents a major strategic opportunity.

In this year's annual report, you will see the strong progress Wild Salmon Center is making. With a new office in Anchorage, Alaska, a growing network of local watershed councils in the Russian Far East, major watershed protection opportunities in the U.S. Pacific Northwest, and new strategic partnerships in the seafood industry, we are well positioned to support our shared goals: healthy wild salmon rivers and human communities in some of the most productive and beautiful places on earth.

Thank you for helping make this happen.

Guido Rahr President and Chief Executive

The volcano-encircled Kuril Lake in Russia's South Kamchatka Nature Reserve provides spawning grounds for sockeye salmon migrating up the Ozernaya River. A major success was won for wild salmon in 2012 when the Ozernaya sockeye salmon fishery, the largest in Asia, was certified as sustainable.



WILD SALMON CENTER 20 years of protecting salmon across the North Pacific



Best management practices

adopted by fishing industry

and fishery resource managers,

hatchery impact on wild salmon

minimized, and illegal fishing

eliminated.

Local and regional coalitions of wild salmon champions educated, organized and effectively advocating for conservation and sustainable fisheries management. Landscape-scale legal protection,

conservation and restoration of

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selected salmon strongholds

wildsalmoncenter.org | 4

North America

CANADA

A BRITISH COLUMBIA

WASHINGTON Olympic Peninsula

OREGON Nehalem & Tillamook Sandy/Clackamas-

> North Umpqua Illinois CALIFORNIA

UNITED STATES

WSC Project (see pg 18 for designated Salmon Strongholds)
A Sustainable Fishing Project
Watershed Council/Regional Coalition

Why Salmon?

Salmon are what biologists call a "keystone species": a species that plays a critical role in the healthy functioning of an entire ecosystem. Just as a keystone in an arch holds the whole structure up, Pacific salmon knit together marine and freshwater ecosystems across the Pacific Rim, from Northern California to Alaska and from the Russian Far East to Japan.

Every year, hundreds of millions of wild salmon swim their way up rivers, to spawn in the same waters where they were born. This migration is one of the wonders of the natural world. It's also an enormous-and essential-transfer of nutrients from ocean to forest, bringing thousands of tons of nitrogen and carbon inland in the form of fish. Other species including bears and eagles help spread the nutrients even farther; marine-derived nitrogen from salmon can end up in the needles of spruce trees over a quarter mile from streams.

Salmon support enormous food webs, feeding at least 137 species from orca whales to otters. Their abundance in autumn can determine how many coastal birds show up the following summer. The free-flowing rivers and dense forests of healthy salmon ecosystems also provide clean drinking water, wild spaces to enjoy, and carbon sinks crucial for global climate change.

Wild salmon support millions of people around the Pacific Rim who rely on them for income and a healthy and sustainable source of protein. Pacific salmon fisheries fuel a \$3 billion annual industry and support tens of thousands of jobs. Demand for wild and sustainable salmon is soaring-as are the pressures that are pushing salmon populations toward the brink. These threats include habitat loss, overfishing, extractive industries and development, and climate change.





Salmon support enormous food webs, feeding hundreds of species -including our own.

Many salmon populations have declined dramatically from their historic numbers. But there are still places where healthy salmon ecosystems that still teem with wild fish. Wild Salmon Center focuses efforts and resources on these last, best places, using proactive and pragmatic strategies based on the best science, to ensure the long-term survival of the species and the people and communities who depend on them.

WSC's three-part strategy starts with safeguarding core salmon habitat, using landscape-scale protections. The next step is promoting the sustainable management of salmon fisheries, supporting rigorous certification standards and enforcement of fishery laws. None of this

would work without local support. WSC partners with communities, governments, and other stakeholders in salmon strongholds, to train and equip on-the-ground leaders and stewards to ensure the conservation of their local fisheries.

When we protect wild salmon, we protect much more than just the fish themselves. We safeguard the hundreds of species they sustain, the invaluable places they live, the clean waters they swim in and the millions of people who rely on them for food and economic security. It's a difficult challenge and an incredible opportunity—and definitely a fish worth fighting for.

Sustaining Fisheries

The demand for salmon and other seafood is expected to double in the next twenty years to meet the needs of a growing and more affluent human population. Now more than ever it's important to ensure that the Pacific's commercial salmon fisheries are managed to benefit commercial fishermen, local communities, and all the species that depend on wild salmon.

Teaming up with Fishermen and Seafood Buyers

With this goal in mind, WSC and High Liner Foods, Inc. brought together the world's top seafood buyers in the spring of 2013 to launch a Global Wild Salmon Fisheries Achievement Initiative. Buyers from around the world gathered in Boston, Massachusetts to address the threat to the future of the industry and to help ensure the majority of Pacific salmon fisheries become certified as sustainable. Eight companies pledged to help increase volumes of third-party certified wild capture salmon to 75% of total pan-Pacific production. Around 50% of Pacific salmon production is currently certified as sustainable or under assessment. This is an encouraging start, but there is still much work to be done to reach the 75% goal.

Through its Sustainable Fisheries Initiative, WSC is helping fisheries around the Pacific with practical solutions to achieve standards like Marine Stewardship Council (MSC) certification, the "gold standard" eco-label for sustainable seafood. Through this and other Fishery Improvement Projects (FIPs) in Russia and Japan, WSC is facilitating advancements in management and fishing practices. WSC is also providing important technical, financial and logistical support for fisheries going through the certification process.

The MSC provides a rigorous set of environmental and management benchmarks, including measures to set catch limits so that sufficient numbers of wild fish return to spawn, prevent illegal fishing, and minimize bycatch—the capture of unwanted or endangered species that are often killed in the fishing process and simply discarded. Certification is becoming an essential key for fisheries that want to unlock growing world markets—with the potential of achieving a higher price premium from consumers. More fisheries are aiming for the MSC certification every year, and WSC is there to help see them through the process.

Seizing Opportunity

When the iron curtain fell over twenty years ago, a new system of land and resource management emerged in the Russian Far East. The Russian legislature started issuing fishermen long-term operating leases (typically lasting 20 years) on select coastal ranges. With this change in ownership, some fishermen began to realize they had a vested interest in the health of the rivers and were motivated to ensure strong returning salmon runs. The fishermen also wanted access to Western and European markets where they could potentially get a higher price for their salmon. It was this confluence of interest that created an opportunity for WSC to work with these commercial fishing businesses to make improvements to fish management and work towards certification. Thanks to our work in Russia dating back to the mid 1990s, WSC was positioned to connect the Russian fisheries with these new markets and at the same time help address sustainability issues. Before these developments, there was little incentive for compelling fishermen to meet the stringent standards for sustainability set by the Marine Stewardship Council.





- ▲ WSC is working with fisheries and buyers to reach a pan-Pacific goal of 75% salmon certified as sustainable.
- Salmon powers a \$3 billion a year industry and accounts for the main source of sustenance in many coastal communities around the Pacific.

In 2009, the Iturup Island pink and chum salmon fishery in the Kuril Islands (between Sakhalin Island and Japan) become the first Russian salmon fishery to achieve certification.

In 2012, two more key Sakhalin fisheries were certified as sustainable. After five years of close collaboration with WSC, the NE Sakhalin pink salmon trap net fishery was MSC certified. These six fishing companies together haul in up to 6,500 metric tons of pink salmon every year. A number of Sakhalin's pink salmon spawn in protected nature reserves recently set aside specifically for that purpose—such as the Vostochny Reserve created in 2007 in partnership with Sakhalin Environment Watch.

2012 also marked the year Kamchatka celebrated its first MSC certified fishery. The Ozernaya River sockeye salmon beach seine and trap net fishery is not only the largest and most valuable of its kind in Asia, but the headwaters of the Ozernaya River are protected as part of the Kronotsky Nature Reserve. The certification was the result of years of teamwork between commercial fishermen, WSC and the World Wildlife Fund.

The Long Haul

MSC certification is a multi-year, ongoing process, and WSC continues to help fisheries make improvements and meet

the highest standards of sustainability. For example, WSC is working with the pink salmon fishery at Aniva Bay on Sakhalin Island to implement hatchery marking and monitoring programs to fully assess the impacts of hatchery fish to wild fish. In Japan, where hatcheries are prevalent, WSC has been working with Hokkaido's chum salmon fisheries to improve tracking and monitoring and allow more wild fish to return to spawn. WSC will continue to work with these and other fisheries to work towards greater sustainability and to help secure a promising future for wild salmon.



Containing the impacts of hatcheries

Over thousands of years evolutionary processes have finetuned the life cycle of wild salmon in the North Pacific. From the time they emerge as fry from the stream gravel, to their migration out to the sea and return home, these fish grow and mature at sea and complete their life cycle in freshwater. While there are a myriad of threats that can disrupt this process, including dams, overfishing and habitat loss, perhaps one of the least understood threats is the practice of producing and releasing hatchery salmon. Initially, hatcheries were introduced as a way to boost wild populations that had declined from the impact of dams. Science is revealing that hatchery fish are having an adverse affect on wild populations. The problem is exacerbated by pressure to release more hatchery fish to meet the growing global demand for salmon.

Much has been learned over the past two decades about the genetic effects of hatchery fish interbreeding with wild fish. The growing mountain of research indicates this issue is real and needs to be further addressed. Scientists have long suspected there might also be broader ecological effects of exposing wild salmon to hatchery fish in natural habitats. But until recently there has been very little documented research on ecological interactions.

More than five billion young salmon are artificially produced and released every year in the North Pacific —and little thought has been given to how this might be influencing wild salmon populations. At every life history stage, hatchery salmon can encounter and interact with their wild counterparts. They compete with them for food

Over five billion hatchery salmon are released into the Pacific each year. One in four returning adults are of hatchery origin.





and habitat and may fundamentally affect their migration behavior, transmit disease or pathogens, and disrupt natural reproductive behavior on spawning grounds. In addition, intensive ocean fisheries targeting hatchery salmon may inadvertently catch a large share of returning wild salmon, thus increasing fishing pressure on wild populations.

New Research on Ecological Interactions

To address this gap in information, WSC Senior Conservation Biologist Pete Rand organized a team of international scientists to document for the first time the ecological impacts of hatchery salmon to wild salmon across the Pacific Rim. In May of 2012, the results were published in the peer-reviewed scientific journal *Environmental Biology of Fishes: Ecological Interactions*. It was the first time an entire issue was devoted to ecological interactions between wild and hatchery salmon. The issue describes the many different dimensions of the problem and includes the first studies on this topic ever reported in Japan and the Russian Far East.

One study, for example, looked at how wild and hatchery salmon from distant regions overlap in the ocean and may compete for a limited supply of food. It found that Alaskan Norton Sound chum were impaired by Asian hatchery chum salmon, most originating from Hokkaido, Japan. Hatchery chum from Japan and Russia have become exceptionally numerous and surpassed the abundance of wild chum salmon in the North Pacific over 30 years ago. Models projected that in that time (from 1965 to 1992), an increase in adult hatchery chum salmon from 10 million to 80 million adult fish led to a 72% reduction in wild chum salmon populations. A possible reason for this is that wild Norton salmon are smaller and take longer to mature than their hatchery counterparts, accounting for their inability to compete for food and spawning grounds. This and other studies provide new evidence indicating that largescale hatchery production may influence not only local and regional wild salmon populations, but wild salmon across their entire range.

What is the scale and magnitude of all these effects, both at the regional scale and at the global scale? WSC's **State of the Salmon Program** has devoted considerable effort to get a better handle on the science and its implications for conserving and managing wild Pacific salmon.

Moving Forward

There are clearly some compelling studies, both in the laboratory and in the field, that point to the potential for detrimental effects hatchery fish can have on their wild counterparts. There is a growing body of data that suggests we need to be very cautious when it comes to hatcheries,

With 5,000,000,000 (and counting) hatchery salmon released into the Pacific each year, we must consider the impact on wild salmon.

and it is prudent to halt any further expansion in hatchery production until we have a more complete understanding of hatchery impacts on wild salmon populations.

As a result of WSC and partners in the scientific community daylighting this issue, a number of federal, state and provincial government agencies are taking steps to address the problem posed by hatcheries. The State of Alaska has embarked on a new \$5 million field study to better understand the impacts of hatchery salmon on wild salmon. National Oceanic and Atmospheric Administration (NOAA) is currently conducting an Environmental Impact Statement for federal hatcheries in the Columbia River that will offer solutions on how to reduce the impact of hatcheries.

It is important to note that even in the absence of new studies and formal impact assessments, there are a number of proactive, pragmatic steps that can be taken to reduce impacts, including: reducing overall hatchery releases; marking 100% of hatchery juveniles so we can determine when they are straying and how many of returning salmon are actually wild; and changing hatchery release locations and timing to avoid overlap with wild salmon. We hope the emerging science will help fishery and hatchery managers make decisions that help advance wild salmon conservation and protect the productivity and resilience that are key to healthy wild salmon populations.

Making wild fish a priority

Historically there have been no policies in the U.S. making wild salmon a priority on any given river, leaving the door wide open for hatchery expansion. In February of 2012, however, WSC and partners made an important step towards a paradigm shift in wild salmon protection. The Washington Department of Fish and Wildlife (WDFW) declared the state's first Wild Salmonid Management Zone (or wild salmon sanctuary) for steelhead on the Sol Duc River in Washington.

The Sol Duc is one of the key salmon rivers on the Olympic Peninsula, spilling from the lush Olympic Mountains and flowing through the wide Sol Duc Valley before meeting the Bogachiel River just a few miles from the Pacific. It's a clear, free-flowing stream that has been famous for decades as the state's top steelhead fishery. As a result of the wild salmon sanctuary designation, hatchery steelhead will no longer be released into the entire length of the 78-mile Sol Duc, and wild fish will be given management priority.





- Wild salmon and steelhead will now be given management priority on Washington's Sol Duc River.
- Working with fisheries and buyers to promote certification, WSC is helping to preserve natural production and spawning habitat for wild salmon on Sakhalin Island.

For over five years, WSC served on advisory committees and provided independent technical reviews of hatcheries programs and public fisheries policy. In addition, under the umbrella of the Washington Coast Sustainable Salmon Partnership, a collaborative effort focused on protecting and restoring wild salmon habitat across 4 million acres of Washington's coast, WSC helped build consensus among a wide range of interest groups. As a result, additional wild salmon sanctuaries are included in the 2012 draft Conservation Plan for the Washington Governor's Salmon Recovery Office.

"The Sol Duc sanctuary is a promising start to a better future for wild salmon management in Washington," said Devona Ensmenger, WSC Washington Senior Program Manager. WSC is consulting with native tribes and advocating for additional salmon and steelhead sanctuaries on the Olympic Peninsula, which could include rivers such as the Hoh, Calawah and Clearwater. Meanwhile, WSC will keep working with partners to bring the best available science to identifying the impacts of hatchery fish and improving fishery regulations and management. In the end, the best hatchery is a healthy, free-flowing river.



Sakhalin watershed council members and fishery owners Vladimir Smirnov and Andrei Sukhotin join Jim Humphreys from the Marine Stewardship Council (MSC) to celebrate the certification of Sakhalin Island trap net fisheries.

Fishermen as partners in conservation

Vladimir Smirnov, owner of two of the fishing companies certified in northeast Sakhalin in 2012, is a prime example of an engaged fisherman making a difference for wild salmon. He is an active member of the Smirnykh watershed council, helps organize anti-poaching initiatives, speaks out against in-river commercial fishing, and strives to hire from within the community.

Vladimir Smirnov was one of the first in the area to fight poaching headon. "When we first arrived in the Smirnykh district, illegal fishing was out of control," he said. The Smirnykh public watershed council runs anti-poaching patrols funded by local fishing companies, including Smirnov's. With their financial help, anti-poaching brigades have almost completely eliminated illegal fishing on the rivers in the council's district.

As a result of these and other efforts to improve the sustainability of their fisheries, the Northeast Sakhalin fishery became the first on Sakhalin Island to receive MSC certification. "Certification will inform not only fishermen but also consumers on a large scale that there are still places where salmon are naturally reproducing," Smirnov said, "and that we all need to take good care of them to preserve natural production and spawning habitat."

In the summer of 2013 a NE Sakhalin processor received MSC Chain of Custody (CoC) Certification. With the traceability that CoC provides, consumers and buyers can have confidence that the salmon they are buying comes from a fishery that meets the MSC environmental standard for sustainable fishing. This helps keep illegally-caught salmon out of the supply chain and rewards fisheries such as Smirnov's with greater credibility in the marketplace.

The best hatchery is a healthy, free-flowing wild salmon river.

Building Leadership

It was a first for Russia's Kamchatka Peninsula, which boasts up to a guarter of all Pacific salmon: over 1,000 people from Kamchatka, and guests from Sakhalin Island, mainland Russia, and the U.S., gathering on the Bolshaya ("Big") River to celebrate all things salmon. For three days in August, the First Regional Salmon Festival and Sport-Fishing Championship drew recreational fishermen, government officials, and hundreds of community members for competitions, indigenous performances, presentations and award ceremonies.

The hugely successful event shows how Russians are taking pride in their rivers and salmon fisheries—as well as responsibility for their conservation. It was organized with WSC's help and hosted by the Ust-Bolsheretsky watershed council, whose name in Russian is "Let's Save Salmon Together." Watershed councils in Russia (called public salmon councils) are groups of local stakeholders that join together to protect specific rivers, the lands that surround them and the fish they support. They're made up of local citizens, municipal governments, indigenous community members and commercial fishermen, along with scientists, educators, and NGOs.

Although their focus is local, watershed councils are beginning to coordinate across natural and municipal boundaries to decide how best to conserve larger regions over the long run. With WSC's expertise and on-the-ground technical support, watershed councils conduct a wide range of activities, from restoring habitat to patrolling for poachers. Community projects and events like the festival help involve local communities, the people who can have the greatest impact on the health of these rivers, and who are in turn the most immediately affected.

A network of watershed councils

Since the first Russian watershed council was founded in the Smirnykh district on *Sakhalin Island* in 2008, seven more have followed. Sakhalin is home to five of these. Sakhalin rivers support 11 salmonid species that together make up the third most abundant salmon resources on Earth after Alaska and Kamchatka. Fishing is the island's second largest industry, generating \$500 million every year. The salmon-fueled ecosystems and revenue base are the driving forces behind local efforts to push back against the leading threats to Sakhalin's salmon: oil, gas, and coal development and large-scale illegal salmon harvesting.

In the central part of the island, the Smirnykh salmon council runs antipoaching patrols funded by local fishing companies. These brigades have almost completely eliminated illegal fishing on the rivers in the council's district. Sakhalin's Vostochny Wildlife Refuge, established in partnership with Dmitry Lisitsyn and Regional NGO Sakhalin Environmental Watch (SEW)in 2007, initially suffered from illegal fishing but that has changed dramatically. Thanks to patrols and other monitoring efforts coordinated by the SEW and local law enforcement—49 raids in 2012 alone—poaching has been virtually eliminated in the Vostochny.

In western *Kamchatka*, the Ust-Bolsheretsky public watershed council was set up in 2011 to conserve the Bolshaya River, Kamchatka's second-longest. With the addition of the Elizovo public watershed council, which covers the Bolshaya's upper reaches, conservation strategies and anti-poaching efforts will be coordinated across the entirety of the Bolshaya Watershed, from headwaters to ocean. The Ust-Bolsheretsky council has laid the groundwork by developing





▲ Watershed councils in Russian Far East.

In the Ozernaya region of southern Kamchatka (pictured above), the independent observer program was expanded in 2012—the same year it became only the second wild salmon fishery in Russia to meet the Marine Stewardship Council's strict chain-ofcustody standard for traceability.

Leila Loder on behalf of WSC receives a "Keeper of the Salmon" public recognition award at the Kamchatka Salmon Festival

management plans to sustain salmon populations, working with indigenous communities, conducting river clean-ups and organizing events like the Salmon Festival, where WSC received a "Salmon Keeper" public recognition award for its conservation efforts on the peninsula.

One of WSC's other major success in Kamchatka has been getting extractive industries involved in salmon conservation. In 2012 we partnered with Zoloto Kamchatky Joint Stock Company, the largest gold mining company on the peninsula, to fund a joint five-year environmental research program. Four projects were selected for funding, including research to explore reducing the impacts and environmental risks of large-scale mining on salmon rivers and a habitat monitoring project on the endemic Kamchatka char led by Professor Dmitry Pavlov, head of the Russian Academy of Sciences's Institute of Ecology and Evolution.

In the mountainous Khabarovsk Region on the mainland, the Koppi watershed council watches over the river of the same name. In 2010 WSC partnered with the Khabarovsk Wildlife Foundation to establish the Koppi River Nature Reserve to protect a 200 mile stretch of salmon habitat. The region suffers from widespread poaching and forest fires and in 2012 WSC launched a three-year research study with two main goals: to track the impact of recreational fishing on the critically endangered Sakhalin taimen; and to increase anti-poaching activities through a joint effort with the local public watershed council and indigenous community.

In 2012 the Koppi council, chaired by Alexander Merzlyakov, spearheaded 46 anti-poaching raids and worked with Russia's Wildlife Protection Service to create an environmental protection plan for the entire watershed. In the process of becoming certified Public Nature Protection Inspectors, local residents learned how to estimate the size of illegal catches, and when and where poachers were most likely to strike. Two full-time inspectors have also been hired to patrol the reserve.

On WSC's most recent trip in 2012, we saw no evidence of poaching on the Koppi. Just five years prior there had been widespread evidence of poaching for taimen and other fish—including gill nets, illegal catches and active camps. This kind of stakeholder involvement to curb poaching is critical to our goal of establishing locally-led and sustainable, commercial and sport fisheries on the Koppi.



In recognition of WSC's work, including support for watershed councils, WSC was recognized as the only international NGO in Russia's new Federal Program for Environmental Conservation, a framework for all conservation projects through 2020.

Tracking taimen

The Koppi River is thought to support the strongest remaining population of Sakhalin taimen, a mysterious salmonid that can grow over six feet long, weigh 110 pounds and live for over 30 years. The Sakhalin or "sea run" taimen is an ancient predator that tops the food chain in river ecosystems-at least those where it is still found. Once common, it has been driven to extinction in some watersheds.

To learn more about this species and determine the actual population size, WSC Senior Conservation Biologist Pete Rand joined Western Pacific Program Director Mariusz Wroblewski and fellow researchers from Khabarovsk branch of TINIRO to set up a scientific tagging program on the Koppi. The team, led by Russian partners Alexander Kulikov and Sergei Zolotukhin, succeeded in finding 20 taimen over three feet long in the protected area, and tagged 15 more in the lower part of the river. These encouraging results show that conservation efforts are already benefiting taimen and other salmonid populations on the Koppi.

As Chair of the IUCN Salmonid Specialist Group, Pete Rand led the completion of IUCN global status assessments on taimen. The report concluded that all species of taimen are now threatened or Data Deficient, and point to a host of ongoing and emerging threats, including habitat loss and over-harvest.

Twenty taimen over three feet long were tagged in the Koppi River Nature Reserve, plus fifteen more in the lower part of the river-evidence that WSC's conservation efforts are paying off.





Bringing rivers back to life

As dawn breaks over Sakhalin Island in the Russian Far East, you'll often glimpse countless boats slipping into the misty rivers in search of salmon. Near the coastal town of Aniva, however, a few vessels are doing just the opposite. They're crewed by volunteers, including teachers and small business owners, who are setting out before work to patrol for poachers and their illegal nets, in a truly grassroots effort to protect Russia's most valuable fisheries.

Salmon are more than food in the Russian Far East; they're a way of life, critical both economically and culturally to the residents of this rugged fringe of the continent. Home to roughly 40% of Pacific salmon, the region is experiencing a wave of illegal, unreported and unregulated fishing, primarily for salmon caviar, that threatens the very existence of some of the richest wild salmon fisheries in the world.

By some estimates, the illegal catch is up to 1.8 times the legal catch. In all, catch rates may be up to 90% of the total run in some places, making illegal fisheries the most important threat to wild salmon fisheries in the region. This clearly can't go on forever, but it will as long as the

benefits for poachers far outweigh the costs. One study commissioned by WSC found that the wholesale price of a kilo of salmon caviar was \$45-55 in the Russian Far East, but the risk of being caught only added \$0.61 per kilo. That's why WSC is working with local partners to shift the balance: to ensure legal and sustainable fisheries are more profitable than their illegal alternatives.

To increase the value of legal and sustainable fisheries, we're working with partners to encourage major buyers to purchase from legal and sustainable sources, and to create traceability and transparent systems so they can buy with confidence. At the same time, we're also trying to raise the costs and consequences of illegal fisheries by investing in community-based enforcement strategies, like the salmon councils that organize the early-morning volunteer antipoaching brigades out of Aniva. These efforts complement actions at the federal and commercial levels, but most important, they're fueled by locals' passion for protecting the rivers they call home.

In Aniva, the *volunteer anti-poaching crew* is led by Maxim Ageev, a state government employee who is also a member of the local public watershed council. Ageev started the group "Aniva Without Poachers" in 2009 with

round-the-clock coverage of certain key stretches. They educate local fishermen, find poachers' nets, and when necessary call in the regional fisheries enforcement.

From April to October 2012, Ageev's group conducted 95 raids along the coast and on seven rivers in the district. In the process, they covered 12,500 miles by car, 200 miles by boat and over 125 miles by foot—resulting in countless nets and illegal fishing gear being removed or destroyed.

"Why do we do what we do?" Ageev asked. "We don't want our descendants to ask, 'What does a fish look like?', or 'Why does nothing live in this river?" He recalls how they once came across a six-mile stretch of river that was entirely lifeless with no fish, not even any birds singing along the banks. Sure enough, at the mouth of the river they found four nets completely blocking the passage. After they alerted the fisheries enforcement agency and the nets were removed, Ageev says the birds began to sing and, "the river started to come back to life."



Anti-poaching group leader and Aniva water shed council member Maxim Ageev.

Safeguarding Habitat

Thriving salmon populations are essential to the health of our forests and rivers, and ultimately to our own well-being. As wild salmon ecosystems decline, so do our options for sustaining biodiversity, clean water, and a high quality of life for our children and future generations. A fundamental challenge to salmon conservation is that by the time a threat is recognized, we are too late to respond. Historically, the response has been to launch a long and expensive recovery effort in an attempt to restore decades of harm to a salmon run.

Our best and most cost-effective opportunity for range-wide salmon recovery is to recognize and prevent threats to those ecosystems that are still healthy with strong wild salmon runs. The "stronghold approach" will not only keep us from repeating the mistakes of the past, but by maintaining strong populations, it will anchor ongoing recovery efforts. Any plan for the long-term survival of wild salmon must include the protection of strongholds—areas where wild salmon and steelhead are best adapted to thrive in the face of large-scale threats like climate change, resource extraction, and pressures from hatchery salmon.

The Stronghold Initiative in the Pacific Northwest and California

WSC is leading public-private partnerships in the Pacific Northwest and California through two key strategies of the Stronghold Initiative. First, we are working with partners to both prioritize emerging threats and to change inadequate management policies that allow habitat loss to continue. Second, we are positioning stronghold partnerships to establish new conservation funds that can finance innovative solutions to challenges that continue to threaten salmon habitat (such as fragmented land ownership - see page 20).

In 2012 WSC completed much of the groundwork to ensure the Stronghold Initiative will continue to advance in the years to come. WSC and our partners finalized the mapping of strongholds in California, Oregon, Washington, and Idaho. From the genetically vital steelhead runs of southern California's Santa Clara and Big Sur rivers to the booming sockeye runs of British Columbia's Harrison River, the North America Stronghold Map spotlights the region's core centers of wild salmon abundance and diversity.

V Standing room only. At public meetings in Cannon Beach and Hillsboro, citizens rallied behind "High Value Conservation Areas" on the Tillamook and Clatsop State Forests. In all, over 2,500 signatures were gathered in favor of the new classification which was unanimously affirmed by the Oregon Board of Forestry in June of 2013.







WSC and partners recently completed mapping of strongholds in California, Oregon, Washington, and Idaho. For more detailed maps of salmon strongholds, go to wildsalmoncenter.org.

Protecting the Tillamook

The Tillamook Bay stronghold in western Oregon

represents a globally important salmon ecosystem with some of the most productive coastal rivers in the Pacific Northwest. A large part of this ecosystem is encompassed in the Tillamook State Forest, one of the largest contiguous coastal temperate rainforests in the lower 48 states. Because such a large part of the ecosystem is under public ownership, and the floodplain and estuaries are in relatively good condition, maintaining and improving the Tillamook represents one of the most important conservation opportunities in Oregon. However, threats to the ecosystem are rapidly accelerating—adding to the urgency to safeguard this stronghold while we can.

On Oregon's North Coast, WSC is leading a campaign to establish permanent conservation areas in the Tillamook and Clatsop State Forests. These public lands represent 518,000 acres of rugged temperate rainforests—providing habitat for steelhead, Chinook, coho and Oregon's strongest remaining populations of chum salmon. The forests have faced intense pressure to be managed as industrial tree farms with calls for expanded clear cutting and narrower "no cut" buffers along streams.

WSC joined regional partners to form the North Coast State Forest Coalition and generate political pressure for a new

land classification: "High Value Conservation Areas." There was an outpouring of public support, with packed meetings in local communities where citizens rallied behind the conservation focus. With additional backing from Governor Kitzhaber and key cities and counties, the Board of Forestry responded with a new proposed classification. "The process isn't complete, but this new classification is a crucial step in a new direction", said Bob Van Dyk, WSC Forest Policy Manager. "This is a mainstream idea whose time has come."

But safeguarding the health of just the forest is not enough. Ensuring connectivity between the freshwater habitats found on state forest lands and the tidally connected floodplains and estuaries in the lower watershed is vital to maintaining and enhancing the region's strong populations. In addition to establishing permanent conservation areas in state forests, WSC supported the Tillamook Estuaries Partnership's development of a report to prioritize habitat protection and restoration in the tidal reaches of the bay and its five tributary rivers: the Trask, Wilson, Tillamook, Miami, and Kilchis. This report, The Tidal Wetland Prioritization for the Tillamook Estuary, will guide projects for decades to come and serve as a model for conservation in other strongholds.

WSC also advanced the stronghold partnership in Oregon where we worked to increase funding in stronghold rivers, which ultimately resulted in the National Fish and Wildlife Foundation dedicating its grant from the Oregon Governor's Fund to strongholds. These funds, plus matching project grants provided by the Oregon Watershed Enhancement Board, totaled over \$625,000—supporting eight conservation projects in Oregon's salmon strongholds, including projects in the Umpgua and Sandy watersheds. In California, we met with conservation partners throughout northern California strongholds, including the Smith and Mattole watersheds, and identified common threats and the capacity needs of local and regional partners to address these threats. Looking forward, the California Stronghold Team will determine priorities for the program and begin work to secure long-term funding for strongholds projects.

Establishing Conservation Areas

In addition to advancing the Stronghold Initiative in the U.S., Wild Salmon Center works on the ground with local partners to safeguard high priority wild salmon habitat in Russia and Japan. In the Russian Far East, WSC has successfully supported the creation of three large-scale protected areas totaling over 800,000 acres (Kol River Refuge, Vostochny Wildlife Refuge, and Koppi River Nature Reserve) with several more watersheds in the pipeline. In Japan, WSC helped establish the Sarufutsu Environmental Conservation Forest—the first Protected Area on private lands in Japan. And in the U.S., WSC worked with Western Rivers Conservancy to establish the Hoh River Trust to create a 7,000 acre conservation corridor extending from the river's mouth to its protected headwaters within Washington's Olympic National Park. This effort has yielded almost complete protection of the Hoh's main stem, one of the most important strongholds for wild salmon, steelhead, coastal trout, and char south of Canada.



Oregon's Stronghold Rivers Threatened by Logging Legislation

2.4 million acres of public land harboring some of Oregon's strongest wild steelhead and salmon runs are in danger of losing key protections under legislation currently pending in Congress. "O&C Lands"—named for the Oregon and California Railroad that once owned it-reverted to the federal government and is now managed by the Bureau of Land Management (BLM). The O&C Lands are distributed like a checkerboard, with alternating squares of public and private ownership (see map inset to right). Fragmentation of these lands presents challenges for conservation because vastly different levels of watershed protection apply to federal and private parcels.

O&C Lands contain some of the last old growth forests and healthiest streams in the U.S. Pacific Northwest with over 40 major watersheds providing clean drinking water for nearly 2 million Oregonians. These lands include some of the region's most fabled salmon and steelhead rivers—including the Rogue, McKenzie, Nestucca and North Umpqua.

In the 1980s and early 1990s, logging was decimating Oregon's ancient forests and damaging wildlife and

waterways. In 1993 the Northwest Forest Plan created a series of policies to set things right. Unfortunately, the policies were vulnerable to change and the legislation now pending in Washington D.C. is seeking to more than double current timber harvests and weaken protections for riparian areas—the buffers that act as natural filters, protecting streams from excessive sedimentation, supplying shade to regulate water temperature, and providing rearing habitat for juvenile salmon and steelhead.

WSC seeks to accomplish three things to maintain the extraordinary conservation values on Oregon's O&C Lands: 1) defend existing riparian protections; 2) make these protections permanent; and 3) begin to redraw the checkerboarded map so we can ensure our most important salmon and steelhead habitat is protected.

WSC's first step was to build public awareness about O&C Lands and in 2012 published the Atlas of Conservation *Values* in partnership with The Nature Conservancy. This comprehensive database includes maps of land use, ownership, habitat type, and wildlife distribution, including 56 strong salmon populations in over 1,400 miles of streams. The Atlas is an indispensable tool when evaluating potential tradeoffs that come with any change in land management.

Next WSC joined American Rivers, Pacific Rivers Council and other partners to form a coalition to ensure a balanced management approach to O&C Lands. The coalition is working to defend and make permanent robust aquatic protections such as riparian buffers and expanded Wild and Scenic designations, as well as establish a permanent fund for land acquisition (see TEDx Talk by WSC President Guido Rahr on Salmon Strongholds, O&C Lands and "redrawing the map" at wildsalmoncenter.org).

In late 2012, Governor Kitzhaber appointed WSC's Greg Block, VP of Conservation Finance and External Affairs, to a panel that included representatives from timber companies, county governments and other conservation groups to find a long-term solution to this decades-old issue. While the Governor's panel did not reach a comprehensive agreement, WSC and our conservation partners won agreement from the group to strengthen river and stream protections in any proposal going forward.

The significance of O&C Lands can't be overstated: they provide clean drinking water to nearly half of Oregon's population, remove millions of tons of carbon from our atmosphere, and are anchors for old growth forests and the hundreds of species they support, including some of our healthiest remaining runs of wild salmon, trout and steelhead. As this process moves forward, WSC is committed to working with our partners, congressional leaders, scientists, and other stakeholders to ensure that we win permanent protection for habitat along Oregon's coastal salmon rivers and strike a balance between timber harvest and conservation on Oregon's O&C Lands.





Bureau of Land Management Land

From the Atlas of Conservation Values. For more O&C maps, go to wildsalmoncenter.org.

Alaska's Bristol Bay

Alaska is the largest and most productive wild salmon region in North America, and one of the most important in the North Pacific. WSC's Alaska program is working proactively to improve fisheries management and protect salmon habitat by involving the local residents who depend on them most directly.

With its new permanent office in Anchorage, WSC is stepping up its efforts with a wide range of partners, communities, and state and federal agencies to protect key salmon rivers across Alaska. The epicenter of our effort is Bristol Bay, with six major watersheds that support thriving runs of five species of Alaska's Pacific salmon, including half the sockeye on Earth—up to 40 million mature fish annually. A 2013 report found the Bristol Bay salmon industry pumps \$1.5 billion into the U.S. economy every year and creates the equivalent of nearly 10,000 year-round jobs.

Despite Bristol Bay's ecological, commercial, and cultural value, a massive threat looms: the Pebble Limited Partnership is proposing to develop what would be one of the largest metallic sulfide mines in the world at the head-waters of the Nushagak and Kvichak rivers. Preliminary proposals describe a gargantuan project that would dwarf all other mines in the state put together: a mine footprint bigger than Manhattan, up to 4,000 feet deep and 3.2 miles wide, with a 740-foot high tailings dam to impound 2.5 billion tons of toxic waste.

Major risks include chronic contamination of surface and ground waters by acid mine drainage, and a tailings dam failure triggered by the region's seismic activity and extreme weather—either of which would have catastrophic impacts on the highly productive fishery.

To make matters worse, the year the mine was discovered, the Alaska Department of Natural Resources (DNR) submitted a revised Bristol Bay Area Plan that removed the wildlife "habitat" classification—and main bulwark for protection—from nearly 94% of the region (including 100% of Pebble claim lands), essentially paving the way for development of Pebble Mine and others like it.

A Citizens' Alternative

Within months of establishing our Anchorage office, Emily Anderson, WSC's new Alaska Senior Program Manager, was hopping from one remote Alaska Native village to another by bush plane. "One thing in particular that makes WSC effective in a place like Alaska," she says, "is our willingness to work in tough places, rural areas with little access, because that's where the salmon are." Accompanied by our diverse network of partners, Emily helped inform communities about the "Citizens' Alternative" to the revised Bristol Bay Area Plan. Developed with input from six Native Tribal Councils and local communities, this plan seeks to restore habitat protections and ensure that subsistence uses and recreation are balanced with responsible development.

Emily's travels took her deep into the headwaters of the Nushagak and Kvichak, the main watersheds at risk from the proposed Pebble Mine. Most residents agreed with the main points of the Citizens' Alternative: DNR permits cannot be issued when the impact to fish or wildlife is uncertain; metallic sulfide mining should be prohibited in the Nushagak and Kvichak watersheds; and Bristol Bay's renewable resources must be protected from significant harm from any mining that is allowed. After successfully collecting comments and input, WSC and its partners drafted and submitted the Citizens' Alternative to the DNR in April of 2013. Under the best case scenario—even if acid mine waste is contained—up to 90 miles of salmon bearing streams would be destroyed by the proposed Pebble Mine site.





The Bristol Bay salmon industry pumps \$1.5 billion into the U.S. economy a year and creates roughly 10,000 jobs. Lake Iliamna and Upper Talarik Creek (above) are just two waterways that would be impacted by the proposed Pebble Mine. Scientific Justification for Stopping Pebble Mine While WSC is working with partners and area residents at the state level to address threats, another battle has been underway at the federal level. In 2010, nine federally recognized Alaska Native tribes requested that the Environmental Protection Agency (EPA) evaluate the Pebble Mine proposal. Under the Clean Water Act, the agency can restrict or prohibit the discharge of mining waste into streams and wetlands if it will have unacceptable adverse effects on fisheries. Since then, other Alaska Native tribes and corporations, commercial fishing interests, 350 sport fishing and hunting organizations and over 200 chefs and restaurant owners also encouraged EPA involvement.

In May 2012 the EPA released its Draft Watershed Assessment which came to the same conclusion as a scientific report published four months earlier by WSC and Trout Unlimited: that even if everything went according to plan, large-scale mining would be detrimental to Bristol Bay's globally significant wild salmon populations. The public comments that followed showed overwhelming support for the EPA's findings—as high as 94% of respondents in the Bristol Bay region urged the agency to take action to protect the bay and its fisheries.

Following a final peer-reviewed report by a panel of a dozen prominent independent scientists, the EPA published its Revised Draft Watershed Assessment in April 2013, the final step in the review process. It found that, if anything, the agency underestimated the impact on salmon from large-scale mining in Bristol Bay. Even under a best case scenario, up to 90 miles of salmon bearing streams would be destroyed by the proposed Pebble Mine footprint alone.

It is now up to the EPA and the Obama administration to decide whether to use this solid scientific justification to protect the Bristol Bay Watershed, its world-class fisheries and the thriving communities and ecosystems they support. As this issue continues to unfold, Emily and WSC will be working to ensure Alaskan stakeholders and everyone who values Bristol Bay's wild salmon have a voice in the future of this unrivaled wild salmon ecosystem.

 WSC's Emily Anderson talks to Cordova citizens and fishermen about Pebble Mine.



WILD SALMON CENTER

Statement of Activities

For the fiscal year ending December 31, 2012

	2012
REVENUE	
Foundations	\$1,253,289
Individuals	1,179,802
Governments	472,601
Corporations	118,988
Investments and other income	146,662
Total revenue	3,171,342
EXPENSES	
Program Services:	
North America Program	998,262
Western Pacific Program	1,505,237
Sustainable Fisheries	696,274
State of the Salmon	950,584
Total program expenses	4,150,357
Support Services:	
Management and General	516,085
Development and Fundraising	516,478
Total expenses	5,183,076
Change in net assets	(-2,011,734)
Net assets at the beginning of the year	7,993,225
Net assets at the end of the year	\$5,981,491





Wild Salmon Center has been awarded The Independent Charities' "Best in America" Seal of Excellence by the Independent Charities of America and Local Independent Charities of America. This signifies that, upon rigorous independent review, the organization met the highest standards of public accountability, as well as program and cost effectiveness.

FY 2012 Operation Revenue: \$3,171,342*



Salmon support enormous food webs, feeding at least 137 species, from seals to Steller's sea eagles (opposite page).

*Wild Salmon Center's year-to-year annual operating revenue fluctuates between high and low years due to the timing of receipt of large multi-year contributions restricted for work to be carried out both in the current year and for future years. For example, WSC's FY 2011 Operation Revenue was over \$9 million while FY 2012 Operation Revenue was only over \$3 million. In both years, however, our FY Total Expenses was over \$5 million.

FY 2012 Total Expenses: \$5,183,076

wildsalmoncenter.org | 24



PARTNERS

United States

Alaska Conservation Foundation Alaska Department of Fish and Game Alaska Fisheries Development Foundation Alaska Marine Conservation Council American Fisheries Society American Rivers Audubon Society Bering Sea Fishermen's Association Bonneville Power Administration Bristol Bay Heritage Land Trust Bristol Bay Native Association Bristol Bay Regional Seafood Development Association California Department of Fish and Wildlife California Trout Cape Blanco Challenge Center for Biological Diversity Chelan County Department of Natural Resources Clallam County Coast Range Association Columbia River Inter-Tribal Fish Commission Curry County Soil & Water Conservation District The David Lucile Packard Foundation Earth System's Institute Earthworks Ecotrust Elk River Land Trust Environmental Protection Agency Federation of Fly Fishers, Northern CA and SW Councils

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Nunamta Aulukestai Olympic Natural Resource Center Oregon Conservation Network Oregon Department of Fish and Wildlife Oregon Governor's Office Oregon League of Conservation Voters Oregon State University Oregon Watershed Enhancement Board Oregon Wild Pacific Coast Federation of Fishermen's Associations Pacific Coast Lead Entity Pacific Northwest Aquatic Monitoring Partnership Pacific Rivers Council Quileute Indian Tribe Quinault Indian Nation **Quinault Nation Lead Entity** Resources Legacy Fund **Rivers Without Borders** Rutgers University Sierra Club Siuslaw Institute Trout Unlimited United Fishermen of Alaska University of Washington U.S. Agency for International Development **USDA** Forest Service U.S. Department of State U.S. Fish and Wildlife Service U.S. Forest Service International Programs U.S. Forest Service Pacific Northwest Research Station U.S. Geological Survey

WSC's Leila Loder (pictured center) with members of the Koppi watershed council and local sport fishing outfitters on the Koppi River in the Russian Far East.



The Walton Family Foundation Washington Coast Sustainable Salmon Partnership Washington Department of Fish and Wildlife Washington Forest Law Center Washington Governor's Salmon Recovery Office Western Rivers Conservancy Wild Fish Conservancy Wild Steelhead Coalition World Wildlife Fund for Nature, America Yukon River Drainage Fisheries Association

Russia

Aniva Watershed Council Boomerang Ecological Education NGO, Sakhalin Center for Economic and Financial Consulting, Moscow Dewey & LeBoeuf, Russia Interminerals Management, Ltd. Irkutsk State University Kamchatka Ecotourism Society Kamchatka League of Independent Experts Kamchatka Protected Areas Association Kamchatka Regional Administration KamchatNIRO Kamchatka State Technical University Khabarovsk Division TINRO Khabarovsk Regional Administration Khabarovsk Wildlife Foundation Kol River Salmon Refuge Kronotsky State Nature Reserve Ministry of Natural Resources & Environmental Protection Moscow State University, Ichthyology Department Nogliki Watershed Council Okha Watershed Council Ostrov Ecotourism and Sport Fishing Company Plavnik Co. Poronaisk Watershed Council RENOVA Russian Academy of Sciences Institute of General Genetics and Institute of Problems of **Evolutionary Ecology** Russian American Pacific Partnership (RAPP) Russian Federal Research Institute of Fisheries and Oceanography (VNIRO) Russian Fly Fishing Magazine "Nakhlyst"



Russian Forest Service, Sakhalin Regional Branch Russian Salmon Fund Sakhalin Energy Investment Company Sakhalin Environment Watch Sakhalin Regional Administration Sakhalin Regional Fisheries Association Sakhalinrybvod Sakhalin Salmon Initiative Center Sakhalin State University SakhNIRO Save the Salmon Coalition Save the Salmon Fund Skolkovo Foundation Smirnykh Watershed Council TV and Radio Company "Okha" Uglegorsk Watershed Council UNDP Moscow, Four Territories Project Ust-Bolsheretsky Watershed Council World Wildlife Fund for Nature, Russia Canada

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Japan

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International

Conservation International Heilongjiang River Fisheries Research Institute

on	WSC partnered with the Univ Natural Resources Center or identify the highest intrinsic salmon to rear and spawn— coastal watersheds (Quillayu WSC's goal is to create mod million acre Washington coa better prioritize salmon restored	versity of Washington's Olympic n an innovative mapping project to value habitat—the best places for for five species of salmon across four ute, Hoh, Queets, and Bear rivers). els that can be applied to the entire 4 ist region to help resource managers poration and protection projects.
of	Pictured above: from left to r Coast Sustainable Salmon P (University of Washington's Center), Joseph Gilbertson (Larry Gilbertson (Senior Scie Northcut (Harvest Managen Scharpf (Washington Depart	right: Miles Batchelder (Washington artnership), Miranda Wecker Olympic Natural Resources Fisheries Manager, Hoh Tribe), entist, Quinault Indian Nation), Kris nent Biologist, Quileute Tribe), Mike tment of Fish and Wildlife).
ncil	International League of Conservation Photographers International Riverfoundation IUCN, Species Survival Commission Marine Stewardship Council Ministry of Nature Environment and Tourism of Mongolia Mohammed bin Zayed Conservation Fund North Pacific Anadromous Fish Commission	Pacific Salmon Commission Sichuan University Sustainable Fisheries Partnership Trace Register United Nations Development Programme/Global Environment Facility U.S Russian Business Council World Wildlife Fund for Nature, International

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WSC President Guido Rahr with WSC Board Members Mike Sutton, Bill Swindells and Dan Plummer. along with Jim Root and Peter Bousum on the Zhupanova River on the Kamchatka Peninsula, Russia.

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WSC's Mariusz Wroblewski (right) with photographer Alexander Tereshenko at the Kamchatka Salmon Festival Sport Fishing Championship



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WILD SALMON CENTER

The mission of Wild Salmon Center is to promote the conservation and sustainable use of wild salmon ecosystems across the Pacific Rim.

We identify science-based solutions to sustain wild salmonids and the human communities and livelihoods that depend on them.





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