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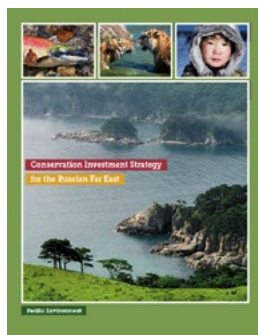


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PACIFIC ENVIRONMENT

Conservation Investment Strategy for the Russian Far East



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Bears taking lunch break
in South Kamchatka
Federal Reserve.
PHOTO by [Igor Shpilenok](#).

CONSERVATION INVESTMENT FOR THE RUSSIAN FAR EAST

Executive Summary

Tigers, Salmon, Storks, and Walruses

TWO DECADES AGO, AS THE POPULATION OF the Oriental white stork was dropping dramatically, conservation science experts from four Asian nations met on a boat on the Amur River between Russia and China, near Khabarovsk. They agreed on a series of initiatives to revive this endangered species—expanding protected areas, improving fire-control practices, and building new nesting platforms. The stork has since rebounded in Russia, and there are efforts underway to reintroduce it in two places where it has gone extinct, Japan and Korea.

In Vladivostok, thousands of spectators lined the sidewalks of Okeansky Avenue for Tiger Day this past September, cheering on dancers, musicians, skateboarders, and people of all ages dressed as tigers. Educational and outreach events like Tiger Day have helped grow support for the endangered Amur tiger, which numbers only about 500 in the wild, but has rebounded in the past decade, returning to three provinces where it had disappeared. Now there are Tiger Day celebrations in Kirovka, Partizansk, Arsenev, Luchegorsk, Novopokrovka, Lazo, Chuguevka, and Terney, as well as across the country at the Moscow Zoo. In 2009, Tiger Day crossed the border and is now celebrated annually in the Chinese city of Hunchun.

In the far northern reaches of Chukotka, scientists have teamed up with indigenous hunters to monitor walrus haulouts, assessing how climate change is affecting walrus behavior and habitat, and working to reduce disturbances from tourist ships approaching too closely and using flash cameras. Project leaders have also successfully lobbied for the creation of a Vanakarem Nature Monument, with a government-funded warden.

On Kamchatka's Kol River Preserve, Nina Zaporotskaya and her organization, Lach, long devoted to preserving indigenous culture and subsistence salmon fishing, have partnered park rangers with indigenous guides, who lead rangers to known poacher

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hideouts and patrol remote stretches of the river.

On Sakhalin, Vladimir Smirnov's commercial fishing company is now certified by the Marine Stewardship Council (MSC) and is taking aim at the growing market in Russia and the world for sustainable wild salmon. On Kamchatka, with the launch this year of two new fisheries improvement projects (FIP), commonly known as "fips," half of the peninsula's wild salmon fisheries are now engaged in the MSC program or in a FIP.

Those are but five examples of people, community organizations, businesses, and governments in the Russian Far East taking initiative to protect the natural riches of the region. There are many more examples, and, hopefully, far more to come.

Bringing Together Stakeholders to Identify Conservation Opportunities

FROM THE STUNNING STEPPES OF DAURIA TO

the salmon-filled rivers of Kamchatka to the forbidding tundra of Chukotka, the Russian Far East is full of biologically diverse ecosystems of global significance. It's home to charismatic species like the polar bear and walrus, and big cats like the endangered Amur tiger and Amur leopard.

These important ecosystems face daunting threats—especially from expanding economies



Tiger Day celebrations in Vladivostok and other Russian cities and towns have helped grow support for the endangered Amur tiger, which numbers only about 500 in the wild, but has rebounded in the past decade.

PHOTO by [International Fund for Animal Welfare](#) © [Creative Commons](#).

prioritized conservation targets to reflect the optimal intersection of (a) value to the ecosystem (and severity of threat), (b) value to local communities and stakeholders, and (c) likelihood of success.

Though the Russian Far East has been studied deeply, most previous assessments have focused on high-value ecosystems in need of conservation. This assessment has done that as well, through a process called “open standards for the practice of conservation,” but gave special attention to working with practitioners and stakeholders in Russia and internationally to identify the greatest opportunities for conservation of globally-significant ecosystems over the next five years.

The antidote to corruption and weak government oversight is a vibrant and engaged civil society.

in China and elsewhere in Asia looking to Russia's vast wilderness to meet their demand for energy and raw materials. Russia's economic growth of the past decade has largely been driven by the extraction and sale of valuable natural resources from the Russian Far East, compromising the natural environment and public health.

Coalitions of conservation organizations, scientists, businesspeople, and concerned citizens are addressing these impacts by reaching out to government agencies, indigenous communities, and other stakeholder groups. At the same time, international philanthropists, recognizing the opportunity to protect the region's unique biodiversity, have supported a variety of initiatives, such as bringing the Amur tiger back from the brink of extinction.

In producing this conservation assessment, Pacific Environment brought together local and international conservation practitioners to develop the most effective strategies for protecting one of the last great wilds on earth. Conservation leaders in each region

To do this, assessment authors conducted an in-depth review of past and current conservation efforts to identify the most effective and promising conservation strategies, which then informed a set of priority strategic directions and lessons learned for working in the Russian Far East. These strategic directions are presented together with specific conservation opportunities for each target subregion. The primary contributors to this assessment are local stakeholders—scientists and grassroots conservation leaders with decades of experience.

Though this assessment is based on past best practices, it's a living document. Where possible, it lays out the specific conditions necessary for conservation strategies to succeed, while allowing those who implement these plans to adapt to changing local conditions and pursue alternate approaches.

The project began with a head start—the invaluable guidance from Yury Darman of World Wildlife Fund, and other participants in the [Conservation Action Plan for the Russian Far East Ecoregion Complex](#). Published in 2003, this conservation document has been the most successful for the region, resulting in thousands of acres of protected territory and productive relationships among conservationists, scientists, government, and local people. A key element of this plan's success was Darman's effort to engage a large and diverse

The Russian Far East is home to almost half the world's wild Pacific salmon ecosystems, and nothing defines the natural richness of the region and demonstrates its ecosystems' health (or lack thereof) more than salmon. Salmon are central to the diet of the top of the food chain—bears, owls, eagles, and humans—and central to the livelihood/economy of much of the region. PHOTO by Pacific Environment.



group of stakeholders, a lesson that the authors of this assessment took to heart.

Growing the Conservation Movement and Civil Society Together

WHILE THE CONSERVATION MOVEMENT AND vibrant civil society in Russia are still young and growing—both started in the twilight of the Soviet Union—they are built on centuries of reverence for natural landscapes and a vibrant history of citizen engagement to solve problems.

Under the tsars, nobles created protected game reserves for their own enjoyment, which transformed into strictly protected areas under the Soviets. A surge in conservation enthusiasm in the 1990s led to the creation of many more protected areas and environmental protection laws throughout the country. Today, about 12 percent of Russia's enormous territory has protections of some kind, and Russian law provides stringent protections for the environment.

But protected areas and laws on the books are not a guarantee that important ecosystems will be protected. For protected areas to be meaningful, they need to be backed up with sufficient operating funds and committed staff who have authority to take action against potential threats. In many places, like Kamchatka, Sakhalin, and Primorye, they also need to have the support of local stakeholders, including nearby villages and businesses. Laws designed to stop environmen-

tal degradation have no impact if their enforcement is not independently monitored.

This is why gaining and maintaining conservation successes always depends in some form on local citizen support and involvement. That's the antidote to corruption and weak government oversight—a vibrant and engaged civil society.

Even during Soviet times, student volunteers across the country patrolled vast nature preserves to stop poachers and collect scientific data, and “dacha communities” of homeowners worked together to protect their gardens and fields from construction and development.

Since the 1990s, a vibrant and diverse environmental conservation movement has grown in Russia, and today conservation organizations work at all levels of society—from tiny “initiative groups” organized by villagers to protect local springs or forests, to indigenous tribes that oversee management of subsistence resources, to industrial fisheries that lobby for rational and fair use of resources. There are also international conservation groups,



Every native village in Chukotka sends a crew to compete in the whaleboat regatta in the village of Lorino, where the Chukchi Sea meets the Bering Sea. PHOTO by Konstantin Savva, National Park Service, Beringia National Park.

large and small, with deep roots in Russia.

Many of the strongest and most effective regional organizations in Russia, including the Phoenix Fund, Sakhalin Environment Watch, and the Chukotka Association of Traditional Marine Mammal Hunters, are part of the Sosnovka Coalition, an alliance of conservation groups from across Russia that organizes collective action and drives the development of new conservation strategies. Efforts by Sosnovka Coalition have helped to reroute an oil pipeline away from Lake Baikal and require that oil drilling operations protect endangered whales off Sakhalin.

International groups, like the World Wildlife Fund, Wild Salmon Center, Wildlife Conservation Society, and Pacific Environment, also conduct a broad range of projects in the Russian Far East, working directly in local communities, supporting NGO partners, and working internationally to support conservation efforts in Russia.

Over the past several decades, these groups have preserved millions of acres in protected areas, organized communities to better care for and manage resources, and built a growing movement to certify timber and fishing industries for sustainability and grow the markets for sustainably produced goods.

These concrete successes are only part of the story. Just as important is that conservation issues are discussed across Russia today, from remote villages to the halls of power in Moscow and the regional capitals. What these environmental leaders have achieved is making significantly more Russians knowledgeable and concerned about environmental issues in their communities and their country, in a way they never were before.

A History of Conservation Philanthropy

NO MATTER HOW TENACIOUS RUSSIAN conservationists may be, their campaigns to protect their homeland's natural riches would not be as strong or effective if not for the financial assistance of donors near and far.

With the collapse of the Soviet Union came new promise for the rise of civil society, for advances in conservation. Recognizing the rich biodiversity of the Russian Far East, Western foundations and international funding agencies began investing in projects like improving the health of salmon ecosystems and establishing new protected areas.

The Trust for Mutual Understanding began supporting cooperation between conservationists before the fall of the Soviet Union. Over the years, TMU has supported network building and knowledge transfer between dozens of Russian and U.S. conservationists. The Rockefeller Brothers Fund also made a major commitment to Russia, focusing first on salmon habitat in the Russian Far East,

This conservation assessment is a living document, developed by bringing together scientists, local stakeholders, grassroots leaders, and international funders to identify the most promising opportunities over the next five years.

building on its work in Alaska and British Columbia. Between 1995 and 2005, it made 32 grants totaling more than \$3 million, with a heavy focus on civil society development and strategic collaboration. The United Nations Development Project–Global Environment Facility (UNDP-GEF) invested more than \$5 million to create and strengthen protected areas in Kamchatka, like the South Kamchatka State Sanctuary. The Gordon and Betty Moore Foundation devoted \$27 million over 15 years for wild salmon conservation in Kamchatka, funneling its support through U.S.-based intermediaries like Pacific Environment, World Wildlife Fund, and Wild Salmon Center.

But financial uncertainty has long been the norm for Russian Far East conservation organizations, and today, with Russian authorities tightening screws on groups receiving international funds, even the most well-connected and established organizations struggle to balance their budgets. The need for support exceeds the supply.

There are promising trends that could lead to growth in domestic giving. There's a growing middle class of active, well-educated, and involved people, particularly in large cities, taking an interest in civil society. Technology advances make it easier than ever to share information and mobilize people, to connect community organizations and funders, and to demonstrate results and potential.

Those conservation organizations most likely to succeed have strong roots in the community, successfully engage local people and businesses and governments, and are backed by national or international funders. The need for international funding is as great as ever, and there are concrete opportunities where targeted support can make a significant difference.

Those opportunities will be highlighted in the coming chapters.

Political Challenges

THE RUSSIAN CONSERVATION MOVEMENT IS STRONG, BUT faces serious obstacles. While there have been improvements in recent years, Russia is plagued by corruption, particularly at high levels of industry and government. Experts estimate that Russian companies pay billions each year in kickbacks to receive preferential treatment—overlooking violations of environmental protection legislation, for example. The government has also deliberately

weakened public oversight mechanisms for a wide range of resources.

A majority of Russians are, understandably, cynical about their government. Its inability to effectively deliver government services compounds this distrust.

In 2005, the Russian government changed the rules for domestic organizations receiving funds from outside Russia. One particularly insidious rule, adopted in 2012, requires non-governmental organizations receiving international funding to declare themselves “foreign agents.” Though the law is defined broadly, and exempts groups engaging in “protection of flora and fauna,” it has had a chilling effect on domestic conservation groups, and scared away some international investors.

But for readers not familiar with Russia, it is important to understand that the country is enormous and complex, with a cumbersome bureaucracy. Conservation, sustainability, and development are overseen by a patchwork of federal and regional agencies, regional and local governments, scientific institutes, businesses, and non-state actors.

While the politicians and agencies in the Far East take cues from the federal government, and have little power to resist direct demands, they are far from the power centers in Moscow, and retain autonomy to make many local decisions. They create protected territories, designate new land-use regulations, and support scientific research. In 2011, on Kamchatka, the local environmental prosecutor sued Gazprom, which had been drilling for oil in the Sea of Okhotsk without the necessary permits.

Scientific institutes in Russia are also branches of the government that exercise significant independence, and have a long history of placing science ahead of politics. On Sakhalin and Kamchatka, experts from the fisheries research institute have served as some of the loudest voices in favor of sustainable salmon management. In fact, many conservation leaders in the Russian Far East hold part-time jobs at government-funded research institutes or universities.

Many of today’s conservation leaders have been doing their work since the Soviet period, when the slightest dissent could result in arrest or worse. They understand how to get things done even during the most difficult political times. In spite of Putin’s power, rampant corruption, and the rush to exploit the region’s mineral riches, there are great

people doing great things all over the Russian Far East to protect its invaluable biodiversity.

Such as Dima Lisitsyn, who led the successful campaign to establish the 170,000-acre Vostochny Reserve on Sakhalin Island.

Such as the aforementioned Nina Zaporotskaya, who helped preserve subsistence fishing in Kamchatka, and combated poaching by teaming park rangers with indigenous Ivanovi guides.

Such as Sergei Bereznuk, director of the Phoenix Fund, and Dale Miquelle, director of Wildlife Conservation Society, who have been working to save the Amur tiger for almost 20 years, through anti-poaching brigades, public education, and Tiger Day celebrations.

None of their struggles are easy. But they are essential to a healthy future for the Russian Far East.

Goals of This Document

THE PRIMARY GOAL OF THIS INVESTMENT STRATEGY IS TO identify the best opportunities for achievable conservation goals in the short- and medium-term. Early on, the project steering committee chose to focus on freshwater and marine ecosystems because they have received less attention from conservationists and enjoy fewer protections than terrestrial ecosystems. They are vital for supporting the health of terrestrial systems and human well-being.

In addition to that broad priority, the authors focused on three subregions—Chukotka, the Amur River Basin, and salmon ecosystems—and the conditions necessary for success in each of them. In [Icy Riches](#), the focus is on the subsistence livelihood of the indigenous people in Chukotka. In [One River, Three Countries](#), the focus is on the depth of conservation experience and high capacity in the Amur Basin. And in [Salmon Strategies](#), it’s the opportunities for medium- to long-term transformational change possible through markets, sustainable fishing practices, and salmon councils.



Burning crop waste is a deeply ingrained custom in rural Russia, but all too often fires escape to nearby forests. Recent pilot projects combining mobile fire brigades with fire education and community involvement have made dramatic gains. PHOTO by Phoenix Fund.

The authors also identified conservation targets—ecosystem and species priorities that often overlap or cross boundaries, as is the nature of natural systems. These broad conservation targets—for example, subsistence mammals like walrus for Chukotka—are not meant to reflect every single conservation priority in that subregion. Ideally, protecting that target protects the entire ecosystem. Wild salmon is a perfect example—healthy salmon runs depend on healthy ecosystems.

This document starts with an introduction to the geography, people, economy, and politics of the Russian Far East, then zooms in on trans-boundary cooperation and international and domestic philanthropy. There's a chapter devoted to each of the three target regions—[Salmon Strategies](#); [Icy Riches](#); and [One River, Three Countries](#). Interspersed through these chapters are case studies that illustrate lessons learned, some specific to the region, others that apply more broadly. One chronicles the small but dramatic successes fighting wildfires accidentally set by farmers clearing crops, another how satellite images can help cut pollution from gold mining.

In four of the chapters, there are also Q&As with grassroots conservation leaders.

The last step of the assessment project, after identifying conservation targets and dominant threats, was to develop strategies to protect the most valuable ecosystems and species. Each regional chapter includes specific actions that can be taken to achieve conservation outcomes in the target region. In addition, the authors distilled the recommended strategies into a list of eight broad Strategic Directions that will lead to best results in the Russian Far East. Specific conservation targets may change over time, so the Strategic Directions provide a template for future conservation investment.

Examples include leveraging market mechanisms and engaging broad stakeholder coalitions to stop poaching or wildfires.

Salmon Strategies

THE RUSSIAN FAR EAST IS HOME TO ALMOST half the world's wild Pacific salmon ecosystems, and nothing defines the natural richness of the region and demonstrates its ecosystems' health (or lack thereof) more than salmon. Salmon are central to the diet of the top of the food chain—bears, owls, eagles, and humans—and central to



The Karaginsky Bay salmon fishery is the first in Eastern Kamchatka to launch a fisheries improvement project (FIP). Half the peninsula's wild salmon fisheries are now in an MSC-certification process or FIP.

PHOTO © Denis Semenov, courtesy of Wild Salmon Center.

the livelihood and economy of much of the region.

These globally significant salmon ecosystems in the Russian Far East are not one unbroken ecosystem or one contiguous political body, but thousands of square kilometers of territory, extending from the tundra of Chukotka to the rich deciduous forests of Sakhalin and the volcanic peninsula of Kamchatka. Because salmon habitat is stretched across a vast territory controlled by several provincial governments and containing diverse salmon ecosystems and populations, there are major differences in the threats, opportunities, and strategies for long-term salmon ecosystem health.

Rivers flowing through remote and sparsely inhabited areas, like northern Kamchatka and most of Chukotka, are generally healthy and thriving. Rivers that are closer to cities and industries aren't faring as well. It's not necessarily the industries themselves that impact the salmon as much as the roads and other infrastructure that bring with them increased risk of poaching, overfishing, and pollution.

But even the healthiest salmon runs face daunting challenges in the coming years—climate disruption, massive coal and mineral mining projects, oil and gas exploration, gold mining, logging and forest fires, commercial fishing, hatcheries that can dilute the wild genetic pool, tourism, and ineffective fisheries management.

The best opportunities for preserving high-value salmon ecosystems are leveraging the demand for wild, sustainably sourced salmon, and nurturing salmon councils that bring together stakeholders in support of healthy salmon runs for generations to come.

The world's appetite for wild salmon is strong, and growing. With a global middle-class interested in food safety and sustainability, there are huge opportunities for salmon fisheries to make money while keeping the salmon ecosystems healthy.

Key to getting Russia's wild salmon to premium markets are third-party certification programs, like those operated by the

Marine Stewardship Council (MSC). There are also more fisheries improvement projects (FIPs), alliances of fishers, processors, producers, and retailers that develop action plans to make improvements, to fast-track fisheries into sustainability certification.

In September 2014, the Wild Salmon Center reported that two new fisheries improvement projects in Kamchatka now bring half

are self-sustaining, generally they require outside support to implement specific programs. On Sakhalin, for example, salmon councils invite international experts to help with salmon management or post-mining land reclamation. Russia's salmon councils also require support to develop economic alternatives to salmon, such as tourism, and to continue to run anti-poaching campaigns on the river each summer.

In the early years of the Russian Federation, conservationists were successful in campaigning for the creation of new protected territo-

Scientific institutes in Russia are branches of the government that exercise significant independence, and have a long history of placing science ahead of politics. On Sakhalin and Kamchatka, experts from the fisheries research institute speak out loudly in favor of sustainable salmon management.

of the peninsula's wild salmon fisheries into an MSC-certification process or a FIP.

The recently launched FIP in Karaginsky Bay, the first in Eastern Kamchatka, produced more than 22,000 tons of salmon in the first eight months of 2014. The Western Kamchatka Regional Salmon FIP expanded to four additional watersheds, doubling the volume of salmon under improved status. These improved Russian salmon fisheries have gained access to high-end markets in North America and Europe, which in turn is driving additional interest in certification and FIPs. Major seafood buyers such as Nestle, Gorton's, and High Liner Foods have become partners in the Wild Salmon Center's FIPs.

Market mechanisms provide an excellent opportunity for improvements in fisheries sustainability, but full, long-term salmon sustainability in the Far East depends on more active citizen and state engagement in enforcing smart salmon management programs. One promising model is the salmon council, also known as a watershed council. Most councils are government-plus-grassroots hybrids that convene all the stakeholders in the river basin and serve as advisory bodies to local and regional governments. The Ust-Bolsheretsk Salmon Council hired local military veterans as public inspectors, gave them basic training and equipment, and provided a spartan camp on the banks of the Bolshaya. Public inspectors have no law enforcement powers of their own, but they partner with local fisheries inspectors, and their presence provides extra security and oversight. They have played a crucial role in reducing poaching on the Bolshaya.

Salmon councils have been active on Sakhalin for many years. Although some salmon councils

ries. In today's environment, the most important efforts are likely to be improving support for existing protected areas. The Kol River Preserve in Kamchatka is a cautionary example. Founded in 2006 as the result of efforts by the Wild Salmon Center, it's the only preserve in Kamchatka created specifically for salmon conservation.

However, without support, the Kol River Salmon Preserve is in danger of losing its protected status. Efforts should be made to ensure the permanence of the Kol River Preserve, and to support a preserve staff that is large enough to protect the territory and facilitate scientific study.

On Sakhalin, there is an opportunity to create a marine protected area off the coast of the island's wildest terrestrial park. The waters off Vostochny Wildlife Refuge are home to sea lions, seals, orcas, and migrating salmon. Sakhalin Environment Watch has built the local and regional support to establish a maritime protected area here.

Strategy Highlights (Salmon Ecosystems)

- 1. ACHIEVE FISHERIES SUSTAINABILITY** by facilitating fishery improvement projects or third-party sustainability certification as a gateway to premium markets.
- 2. UNITE SALMON STAKEHOLDERS TO IMPLEMENT BEST MANAGEMENT PRACTICES** and reduce threats to wild salmon populations with the establishment of public salmon councils on high-value rivers.
- 3. ESTABLISH OFFICIAL PROTECTIONS FOR HIGH-VALUE SALMON RIVERS** and support existing protected territories to stop poaching and other threats and to implement conservation measures.
- 4. INDEPENDENTLY MONITOR MINING AND OTHER DANGEROUS DEVELOPMENT PROJECTS** to prevent impacts to salmon rivers.
- 5. PROMOTE SPORT FISHING, TOURISM, AND OTHER SUSTAINABLE DEVELOPMENT** to reduce reliance on poaching and unsustainable resource use.



Reindeer herding is part of the subsistence livelihood of indigenous Chukotkans. PHOTO by Sasha Leahovcenco.

Icy Riches (Chukotka)

CONSERVATION PRIORITIES IN REMOTE AND mostly pristine Chukotka include protecting the polar bear and Pacific walrus, and preventing harmful effects of mineral extraction in the Arctic. But climate disruption is bringing dramatic change.

Chukotka is found at the intersection of three climatic zones, which makes for its rich and unusual diversity of terrain, flora, and fauna. It's also a bridge between continents, between hemispheres. It is the only subregion evaluated in this assessment that is entirely contained in just one federal-level administrative district, providing a consistency of governance that can be advantageous for building stable local relationships with government leaders and agencies.

Almost as large as Texas, it has only 51,000 residents, making it one of the most sparsely populated areas in Russia. Its population has declined since the fall of the Soviet Union, and many of the state-subsidized mining and processing facilities, which were not profitable in Russia's new market economy, have been abandoned. The departure of heavy industry has led to a renewed focus on preserving the subsistence livelihood of the indigenous people, who make up about a third of the population and include the Chukchi, Eskimo, Even, and Chuvan peoples.

Polar bear and Pacific walrus populations have dropped over the past decade. Climate disruption is the primary culprit—the edge of the drifting ice is significantly farther north than in the past and the shrinking ice sheets reduce habitat and hunting ground for the bears and walruses and limit their access to the shore.

There are several partnerships among indigenous communities, scientists, and conservationists that combine research, monitoring, and community education to protect the polar bear and walrus for the long-term. Several bear attacks led to the formation of “bear patrols” to keep villages safer.

Scientific monitoring and data sharing has already proved an effective way to reduce human impacts to these marine mammals. For example, Alaskan officials



Mountain avens (*Dryas octopetala*) grows on the shores of the Chukchi Sea. PHOTO by Konstantin Savva, National Park Service, Beringia National Park.

report that experiences shared by Russian indigenous peoples and scientists during WWF-sponsored exchanges were instrumental in their decision to immediately cease airplane overflights of a haulout of 30,000 walrus in 2014. And polar bear patrols teach non-lethal methods of expelling bears as an alternative to killing hungry animals that enter villages, reducing annual polar bear mortality.

With the melting ice and the opening of the Northern Sea Route, there's also now a rush of activity in the Arctic, notably drilling for oil and minerals. Russia has explicitly stated its commitment to expand the competitiveness of the Russian oil and gas sector, and in 2013, the state oil company Rosneft received rights to multiple blocks along the Russian shelf, including three in the Chukchi Sea. U.S. oil company ExxonMobil has signed on as a partner and investor with Rosneft for this project, though that partnership has been suspended as part of recent U.S. sanctions against Russia.

Oil drilling in the Arctic presents numerous potential threats, from the impact of seismic tomography (part of the exploration and survey process) on marine mammals to oil spills large and small. The Exxon Valdez spill in Alaska more than 20 years ago demonstrated how recovery of some species can take decades. An oil spill in the pristine waters off Wrangel Island would be catastrophic for the whales, polar bears, and walrus that call the region home.

While stopping the drilling is not realistic in the short term, it is important to make sure that any industrial activity north of Chukotka mitigates risks to whales, polar bears, and surrounding ecosystems. The project plans must be shared transparently and conform to all applicable Russian laws and regulations.

Russian conservationists are prepared to undertake a complex study of the risks of an oil drilling project to demand strict safety measures from project operators. Such a study, known as an independent environmental impact assessment, is a common tool used by conservation groups throughout Russia to draw state attention to environmental violations.

Strategy Highlights (Chukotka)

- 1. FACILITATE PARTNERSHIPS BETWEEN INDIGENOUS COMMUNITIES, SCIENTISTS, AND CONSERVATION GROUPS**
in Chukotka and Alaska to monitor and record climate and anthropogenic impacts to walrus and polar bear populations and to share conservation best practices.
- 2. WORK WITH LOCAL VILLAGES TO REDUCE POLAR BEAR DEATHS**
resulting from human-bear conflicts.
- 3. INTRODUCE NATIONAL AND INTERNATIONAL PROTECTIONS**
to safeguard walrus, polar bears, and their habitat from shipping and other human impacts, such as mandatory rules to avoid concentrations of these animals.
- 4. INDEPENDENTLY MONITOR OFFSHORE OIL AND GAS ACTIVITY**
and onshore minerals development to bring transparency to extraction efforts and hold companies accountable for maintaining high standards required by law.
- 5. CREATE FORMAL PROTECTIONS FOR WALRUS AND POLAR BEAR HABITAT** by creating or expanding protected territories, such as Beringia National Park.

One River, Three Countries (Amur Basin)

FROM ITS HEADWATERS IN MONGOLIA AT THE BIRTHPLACE OF Genghis Khan, the Amur River winds 4,444 kilometers before it empties into the Tatar Strait, across from the island of Sakhalin. More significant than its length is its biodiversity. The river basin is home to the largest species in the salmonid family (the Siberian taimen), one of the largest freshwater fish (the kaluga sturgeon), and charismatic species such as the Amur tiger and Amur leopard. Within its watershed is the legendary taiga of Siberia and the Russian Far East and the Daurian steppe, with its unique multi-year climate cycle.

The number of species is not as singular as is the way they meet and mix. Nowhere else in the world do tropical liana vines climb the trunks of boreal conifers, or do northern anadromous salmon stare at Chinese soft-shelled turtles.

Because the Amur watershed is so vast and diverse, home to so many ecosystems and species, the conservation targets are divided into four broad (and interconnected) priorities:

- Keeping the river free-flowing.
- Maintaining the lakes and floodplains of the eastern part of the basin.
- Protecting the Daurian steppe and its dynamic wetlands and grasslands.
- Retaining healthy forests, for their value to the freshwater ecosystems, as well as for habitat for endangered Amur tigers and leopards.

In the western part of the Amur basin lies the Daurian steppe, which boasts a tremendous diversity of plants and animals because multi-year climatic cycles are more pronounced here than any-



where else in the basin. Over a period of 25 to 40 years, the climate alternates between wet, cool periods and dry, hot periods, between floods and droughts. In wet periods, ducks, grebes, and water hens make their homes in the lakes and dirt banks. The sandpipers move in as the drought takes hold. At the height of the dry season, larks nest on the parched lake bottoms.

The drought cycle dictates an unceasing succession in plant and animal communities, which increases the number of ecological niches and sustains a high diversity of species and habitats. Wildlife constantly moves between wetland sites in search of water and food. That's why long-term survival of the area's flora and fauna depends on preserving many wetland sites within the ecosystem.

The species targets in Dauria include the white-naped crane, the swan goose, and the Mongolian gazelle.

Fresh water is key to the area, and while flora and fauna have adapted well to the long-term climatic cycles in the basin, human communities have not. Thus there is a drive to sequester water behind dams instead of adopting more sustainable measures.

The many threats facing the Amur River Basin can be grouped under three categories—colonial patterns of development, driven by actors outside the region; water management practices that

attempt to adapt to the climatic cycles with unnecessary dams and reservoirs; and the political and economic competition among Russia, China, and Mongolia.

Today, most of the cooperation among Russia, China, and Mongolia is based on trade and extraction of natural resources. The long-term health of the region depends on expanding that cooperation to conservation matters. The headwaters of the Amur rise in Russia, China, and Mongolia, and for more than two-thirds of its journey to the Pacific Ocean, the river forms the border between Russia and China. Dams and dikes in one country impact water flow in another. The Mongolian gazelle migrates between Russia and Mongolia. Salmon swim thousands of miles from the ocean to their spawning streams, sometimes through Russia and China.

Pollution doesn't stop at border checkpoints. Nor do tigers.

Fishing in the ocean also requires cooperation among nations. Though the Amur River is not part of Japan or South Korea, the fishing economies of those countries depend on the Amur more than many rivers inside their own borders because the nutrient-rich Amur empties into the Sea of Okhotsk and affects the bioproductivity of those fishing grounds.

Creating new protected areas and improving management of existing ones has proven an effective method for conservation of the Amur River Basin's unique ecosystems and endangered species. Expanding protected areas was a key factor in the stork rebound.

There are about ten binational or trinational protected area agreements. The Daurian International Protected Area (DIPA) is considered to be the most successful transboundary nature reserve in Russian Asia. Established by Mongolia, China, and Russia in 1994 to protect and study biodiversity of the region, DIPA united Dalai Lake in China, Mongol-Daguur in Mongolia, and Daursky



The Russian Far East is home to dramatic scenery as well as globally significant ecosystems. PHOTO by Pacific Environment

in Russia. A campaign is under way to name this international protected area a united World Heritage Site.

Strategy Highlights (Amur Basin)

1. MAINTAIN THE NATURAL STATE OF THE AMUR

and its tributaries by working with local, national, and international communities, conservationists, and state agencies to prevent hydropower development.

2. EXPAND PROTECTED AREA COVERAGE to afford greater protections for freshwater and forest resources, including Amur tiger habitat, and support existing protected areas to introduce needed conservation measures.

3. PROTECT RARE BIRDS AND FISH by working with regional regulatory bodies to ensure natural flow volumes and to prevent excessive diversion of water for irrigation.

4. INDEPENDENTLY MONITOR GOLD MINING PROJECTS to increase transparency of mining operations and stop pollution of waterways.

5. INVEST IN THE NEXT GENERATION OF CONSERVATION by supporting scientists, conservationists, and outreach programs to communities in or near high-priority ecosystems.

Conservation Strategies

THE LAST STEP OF THE CONSERVATION ASSESSMENT PROCESS

was to develop a set of broad strategies for ecosystem and species protections. These strategic directions are general and were developed based on best practices and recommendations from practitioners and experts in all target regions. Application of these directions presents the best opportunity for conservation success across the Russian Far East. (See the chart on page 15 for strategy highlights, and page 80 for the full list.)

Some of these strategies we have already alluded to above, like building and leveraging public engagement to ensure best practices for natural resource management. Other strategies include piloting sustainable and/or eco-friendly businesses, like tourism and small farms, as alternatives to resource extraction. Another is to build a stronger conservation constituency in the Russian Far East.

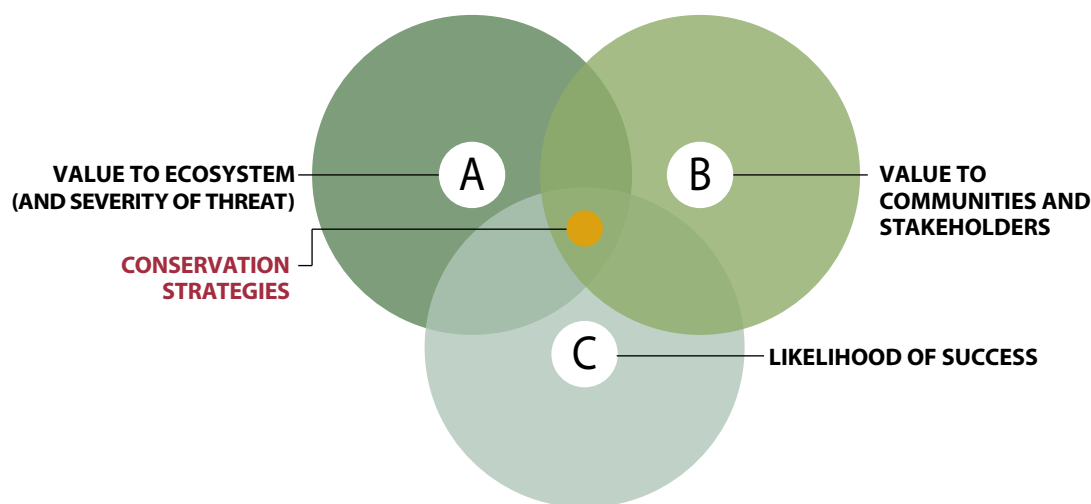
The report also concludes with a series of lessons learned from the past several decades of work in the region. They overlap with the strategies, but are broader recommendations for all regions. They include encouraging transparency by making information widely available, implementing diverse and creative fundraising initiatives, managing conservation projects adaptively and being flexible in response to changing circumstances, and leading from behind, urging government officials to be the face of local conservation initiatives.

The recent expansion of fisheries improvement projects in

Strategic Direction Highlights

TO PRODUCE THIS CONSERVATION ASSESSMENT, Pacific Environment brought together local and international conservation practitioners to develop the most effective strategies for protecting the last great wilds on earth. These conservation leaders chose targets that reflected the sweet spot of (a) value to the ecosystem (and severity of threat), (b) value to local communities and stakeholders, including economic livelihood, and (c) likelihood of success. (See [Strategic Directions and Resources](#) for the complete list of strategies.)

Identifying Optimal Conservation Strategies



STRATEGIC DIRECTIONS

1. Build and leverage public engagement to ensure best practices for natural resource management and prevent or mitigate the most damaging impacts of industrial development.
2. Leverage market mechanisms to increase transparency and introduce best conservation practices in Russia.
3. Pilot sustainable and/or eco-friendly businesses such as tourism and small-scale agriculture as an alternative to natural resource dependency.
4. Strengthen and expand protected area coverage of priority ecosystems and territories.
5. Use international and national venues to achieve conservation protections for the Russian Far East.
6. Build a local conservation constituency.
7. Diversify sources of financial support for Russian conservation initiatives.
8. Monitor and adaptively manage impacts of conservation investment across the region.

Kamchatka, bringing half the peninsula's wild salmon fisheries into an MSC-certification process or a FIP, is a testament to conservation leaders seizing emerging opportunities.

Igor Redkin, general director of Vityaz Avto,

one of the certified companies, sees a new generation of leaders coming up in Russian salmon fisheries. "Before, people were living day by day," he says, "but now they are thinking about the future—understanding that protecting nature means protecting your business."

Within the vast Russian Far East are globally significant ecosystems of rich biodiversity, including habitat for the endangered Amur tiger and leopard.

This conservation assessment focuses primarily on three regions—Chukotka, salmon ecosystems, and the Amur River Basin.

Welcome to the Russian Far East



Chukotka

Busiest region of the Arctic at time of severe climate change and pressure to extract natural resources

Salmon Ecosystems

Where nearly half the world's Pacific salmon spawn

Amur River Basin

Nexus of the world's growing population and demand for energy and resources



Nowhere Else on Earth

IF YOU WERE TO FLIP ALASKA AND CANADA ON their horizontal axis, you'd have something like the Russian Far East and Siberia. Except that the Russian Far East is bigger than Alaska, more

like two-thirds of the entire United States, and Siberia is slightly larger than Canada.

The Russian Far East lies between Lake Baikal in Eastern Siberia and the Pacific Ocean, and makes up about a third of the Russian Federation. Only about 6.3 million people live in this vast region, most of them in the more temperate Amur River Basin, next door to China, North Korea, and Mongolia. The Trans-Siberian Railroad runs through this area, and settlement followed the railroad.

Chukotka, in the far north and east, is less than 100 kilometers from Alaska across the Bering Strait. Sakhalin Island is only 50 kilometers north of Japan.

Almost three-quarters of the region is dominated by permafrost, permanently frozen ground that only melts on the surface in the summer. The less frigid parts of the Russian Far East boast

1. WELCOME TO THE RUSSIAN FAR EAST

1.1 Nowhere Else on Earth

1.2 Growing Demand for Energy and Natural Resources

• HOW THIS DOCUMENT IS ORGANIZED

1.3 Dominant Threats Facing Russian Far East Ecosystems

1.4 Protected Areas Most Effective When Supported by Local Stakeholders

• CASE STUDY 1—GOLD MINING

1.5 Politics and Civil Society in Russia

1.6 Methodology and Target Selection

• CONSERVATION TARGETS

• Q&A—ANATOLY LEBEDEV

some of the planet's richest biodiversity and largest intact ecosystems. The Ussuri taiga forest in Primorye and Khabarovsk provinces, considered the most biologically diverse in Russia, is home to the endangered Amur tiger. Half of the world's wild Pacific salmon ecosystems are in the Russian Far East.

(The Russian Far East Federal District includes the vast and underpopulated Sakha Republic, which in physical geography belongs to Siberia and is not addressed in this assessment, which focuses on freshwater resources that drain into the Pacific Ocean. The rivers in Sakha drain into the Arctic.)

The region is home to many dozens of indigenous peoples, including the Chukchi, Koryak, and Even, who continue to rely on walrus, salmon and other subsistence resources for their survival. They rub elbows with many millions of Russians and others who migrated to the region over the past few hundred years. Far Easterners are proud of their region's reputation as Russia's "Wild East," and they value the vast wilderness that is not far even from the region's biggest cities.

Growing Demand for Energy and Natural Resources

THE UNIQUE BIODIVERSITY AND ENDANGERED

species of the Russian Far East are coming under increasing threat from the world's growing demand for energy and raw materials. Growing economies in Asia, especially in China, demand energy and natural resources from Russia's vast wilderness. Russian companies, private and state-owned, are rushing to harvest oil, gas, timber, minerals, and seafood for export across the border to China. In the rush for profits, preservation of unique ecosystems is rarely a priority. And as worldwide demand for Asian-manufactured goods ranging from wooden toys to iPhones is expected to continue to grow in the coming years, there is no reason to doubt that this trend will continue.

In 2014, the United States, European Union, and other Western powers leveled sanctions against Russian banks and state companies, as well as individual business and government leaders. Russia is now speaking publicly about making a strategic shift toward Asia and China. Russian companies are likely to focus more heavily on fulfilling demand in China and Asia,

How This Document Is Organized



1. Welcome to the Russian Far East

The assessment starts with an introduction to the geography, people, economy, and politics of the Russian Far East, giving special attention to how conservation leaders can seize opportunities for progress on conservation.

Then it zooms in on two subjects that demand their own chapters—transboundary cooperation and international and domestic philanthropy.



2. Speaking a Common Language of Conservation

3. History and Future of Conservation Investment

Then comes the heart of the assessment, with a chapter devoted to each of the three target regions—

3. Salmon Strategies

4. Icy Riches (Chutkota)

5. One River, Three Countries (Amur Basin)



Interspersed through these chapters are case studies that illustrate best practices and Q&As with grassroots conservation leaders including Eduard Zdor and Dima Lisitsyn. One case study chronicles the small but dramatic successes fighting wildfires accidentally set by farmers clearing crops, another how conservationists in Baikal helped residents reimagine their former mill town as an ecocity.



In Chapter 7 comes a set of broad strategies and lessons learned for protection of the region's invaluable resources. Examples include leveraging market mechanisms and engaging broad stakeholder coalitions to stop poaching or wildfires. The assessment concludes with a list of literature.

which will increase the pressure on Far Eastern ecosystems.

Corruption and a lack of transparency in Russia and China, combined with the close proximity of the Chinese border and the relative remoteness of the Russian Far East, also facilitates criminal smuggling activity. Large quantities of illegal timber, seafood, and endangered wildlife cross into China every year.

Industrial development, lack of economic opportunities, weak and inconsistent governance, and growing demand for resources from the international market contribute to the challenge of protecting the region's natural riches.

Reducing the reliance on unsustainable resource extraction in the Russian Far East will require a two-pronged approach that focuses on enforcing existing conservation laws and establishing meaningful economic alternatives to poaching and smuggling.

Dominant Threats Facing Russian Far East Ecosystems

OVER THE PAST YEAR, A TEAM OF ELEVEN qualified experts reviewed and analyzed dozens of federal and regional development strategies for Russian Far East territories and industry sectors, emerging energy markets, shifting politics, and social and economic conditions, and identified the most important threats facing the region's large, intact ecosystems. They then developed a set of strategies and necessary conditions for protection of these resources.

The systemic threats are grouped into four categories, which overlap and influence each other, but provide a useful framework to understand and address the threats to the region:

- Industrial development
- Socioeconomic factors
- Governance
- Transboundary issues

Industrial Development Too Often Lacking Full Environmental Review

INDUSTRIAL DEVELOPMENT INCLUDES BOTH what has already happened and what is to come. More often than not, current practices have had damaging impacts on the environment and local population, and they would be difficult to fix

even if there were political will and money.

Two big, related problems are the lack of transparency and insufficient environmental impact assessments.

With this growing pressure to develop resources, Russian regulatory agencies are increasingly seeking to avoid completing full scientific assessments of the potential impacts of large-scale projects. Weak oversight mechanisms and systemic corruption fuel this practice. Foregoing a full accounting of environmental threats accelerates the timetable for project approval but can result in poor

risk mitigation planning.

Nonetheless, there are ways to reduce the threats and impacts:

- Businesses becoming actively involved in conservation activity, including by improving business practices to gain access to international markets.
- Conservation organizations and scientific experts must engage with, and provide oversight of, companies and regulatory agencies responsible for environmental impact evaluations and mitigation policies.
- These organizations, as well as engaged citizens, must insist that all positive and negative information about proposed developments are made widely available to local stakeholders and the general public and that laws are enforced.
- International governance structures and financial institutions can exercise oversight of relevant activity in the Russian Far East, and hold local institutions to international standards.

Hard Times, Limited Opportunities

DURING THE SOVIET PERIOD, MAJOR POPULATION CENTERS in the Russian Far East depended primarily upon state economic support through the military or collective farms. Since the late 1980s, residents of this region have faced severe economic hardship and have frequently relied upon subsistence resources to survive hard times. Local enterprises are driven out of business by large Moscow-based monopolies, which in turn are swallowed up by international conglomerates. As a result, there is little investment or support for local and regional interests.

The conglomerates drive down wages for locals by bringing in immigrant laborers from Central and East Asia. This is a dual blow—immigrant laborers have no connection to the region and little motivation to protect it and all too often the unemployed or underpaid Russian locals engage in illegal hunting, fishing, and logging to make ends meet.

Because of the limited opportunities, and a decline in the quality of higher education, there is a shortage of qualified local scientists and environmentalists to defend the best interests of the region, specifically conservation and sustainable livelihoods for the people.

Wages for scientists and academics fell severely following the fall of the Soviet Union, leading many experienced scientists and conservationists to leave the region or seek employment in unrelated fields.

It is critical to maintain high-quality local scientific capacity—local scientists are better able to understand and manage local resources. Despite drops in funding for science education over the past 25 years, scientists are still highly respected in Russian society.

For this reason, investors in Russian conservation should support local science and management capacity, and should focus on supporting local civil society organizations that work closely with scientists and integrate scientific knowledge and data into their program.

Another problem exacerbated by poverty, particularly in the southern part of the region, is local farmers engaging in agriculture activities poorly adapted to the region and damaging to the environment.

There are no simple solutions to eliminate these socioeconomic challenges, but there are steps that can make things better:

- Growing sustainable commercial fisheries and other sustainable developments, including energy projects, tourism (sport fishing), small businesses, and non-timber forest products.
- Attracting international buyers for these sustainable goods like fish and timber.
- Offering environmental education programs to promote the benefits of healthy ecosystems and a clean local environment.
- International and local support for existing science and conservation experts.
- Supporting local universities to train future scientists, resource managers, and conservationists.
- Educating local farmers and other stakeholders to value healthy ecosystems and take steps to ensure their continued health, including learning best practices for farming in a region characterized by flooding and drought.

Harnessing Citizen Engagement to Improve Governance

WIDE-REACHING CORRUPTION, WEAK OVERSIGHT mechanisms, and insufficient standards and legislation contribute to the state's inability to protect and adapt to the needs of the region.



Vladivostok is the largest city in the Russian Far East, with a population of about 600,000. The entire Russian Far East has about 6 million people, making it one of the most sparsely populated areas in the world. PHOTO by [Igor Shpilenok](#).

Despite improvements in recent years, corruption is still a major problem in Russia, particularly at high levels of industry and government. Experts estimate that Russian companies pay billions each year in kickbacks to receive preferential treatment—overlooking violations of environmental protection legislation, for example. The government also deliberately weakens public oversight mechanisms for a wide range of issues. Resource allocation is often riddled with corruption as well.

Even if there were no corruption, there's the problem of economic and geopolitical issues taking precedence over environmental concerns and local people's livelihoods. One example is military development—the bases and off-limits zones in the region present a threat to the environment with their illegal use of natural resources and storage of toxic materials. Regional legislatures are generally weak and insufficient, and there are no uniform environmental standards for business and resource management.

Citizen engagement by itself doesn't prevent corruption, but public oversight of state and private activities can shine the spotlight on corrupt practices. As awareness of corruption in Russia grows, the Russian government is focusing on rooting out and punishing the most blatant offenders, and an active civil society can facilitate this process by publicizing the negative effects of corruption in the Far East.

Other mitigation opportunities include:

- Providing oversight of companies to expose and correct corrupt and illegal practices.
- Working with understaffed state agencies to identify violations of conservation legislation.
- Using remote sensing technology to expose violations of conservation legislation and force state agencies to take action.
- Working directly with Russian companies to tie them to international markets where corruption is less

Satellite Monitoring Spurs Gold Mine Cleanup

They say pictures are worth a thousand words. The satellite images of gold mining pollution of the

Angara River may prove even more valuable, leading to enforcement of

environmental laws and cleaner waterways.

ALL TOO OFTEN, ENVIRONMENTAL ABUSES

continue even in the face of compelling evidence. But in the Krasnoyarsk region of Russia, once satellite images showing the extensive pollution caused by gold mining were presented to the media and authorities, action came swiftly. The responsible companies were ordered to pay large fines, setting an important precedent for enforcement against other polluting miners.

Last year, two NGOs—Plotina and Transparent World—partnered with ScanEx, a Russian remote sensing company, to monitor gold mining in the Angara River watershed.

“We used Landsat 8 images to document seven cases of river pollution in three confluents of the Angara River in the summer and fall of 2013,” says Dmitry Aksenov, general director of Transparent World. “Satellite images provide an unfiltered channel of information, and you can’t hide what you’re doing on the ground.”

So much of the gold mining in Russia is happening in remote areas. In the past, says project manager Aleksandra Loshkareva, of Transparent World, enforcing the laws was a charade. “Government agents were not allowed to visit a mine without an appointment. When they did, they’d get a tour and all would be fine. And there are far more mines than agency personnel.”

But the satellite monitors without an appointment. In the case of the mining in the Angara River watershed, satellite technology allowed for monitoring many cases of pollution over the course of the summer, demonstrating how widespread the problem was.

Aksenov and his colleagues documented two cases of pollution over two weeks, wrote up the results and presented their findings, with the satellite images, to other NGOs, the media, and the Russian Federal Agency for Oversight

of Natural Resource Usage, which levied the fines. Existing laws regarding mining pollution are reasonably strong, but they have rarely been well-enforced.

Arguably as important as imposing the fines was demonstrating to the government and the mining companies the power and reach of satellite imagery to document violations.

The images are sophisticated enough that experts can analyze them in depth and attest to the severity of the pollution, and simple enough to be understood by a lay audience. They also hold up in court as official evidence.

Aksenov stresses the importance of the close collaboration between the NGOs and ScanEx. “We were able to complement areas of expertise to bring together a final product very quickly. The collaboration with the Ministry of Natural Resources and Environment was even more efficient—after learning about our findings, the minister ordered the responsible authorities to monitor the target areas.”

The media, including the government-sponsored media, also played a crucial role, getting the information out. “It is worthwhile,” says Aksenov, “to use the government media’s interests to appear responsible and socially conscious.”

Activism in the local communities has also been growing, which is significant because gold mining is the backbone of the economy. Recently, when one company was about to expand its mining operations too close to a nearby cemetery, community members began protesting and contacting the media.

Imposing a fine is only the first step. Getting companies to clean up existing pollution and operate in a more environmentally friendly way remains a daunting challenge.

Transparent World and Plotina have recently documented one company that has mined for gold too close to dwellings, says Loshkareva. “That’s a serious breach that can lead to revocation of its license. Plotina is now collecting evidence with the intention of suing, which could force the company to stop mining.”

The two organizations are also working on an initiative to use satellite monitoring on a federal level, to address gold mining pollution across all of Russia.

common and acceptable.

- Public monitoring of conservation and development projects, including cooperation with military structures, and broad dissemination of progress or lack thereof.

Protected Areas Most Effective When Supported by Local Stakeholders

RUSSIA HAS A LONG HISTORY OF PROTECTED areas. Under the tsars, nobles created protected game reserves for their own enjoyment. Under communism, the Soviets set aside large tracts of wild land for scientific study. During the 1990s, a surge in conservation enthusiasm set off the creation of many new protected areas throughout the Russian Far East. Today, about 12 percent of Russia's enormous territory has protections of some kind.

There are two types of protected areas in Russia: federal and regional. Federal protected areas include zapovedniks (land accessible only to scientists, usually translated as "preserve"), zakazniks (wildlife sanctuaries typically created to protect a keystone species, usually translated as "reserves"), national parks (managed for

conservation and recreation), and natural monuments (places of natural beauty or historical significance).

Designation as a federally protected area is the optimal way to protect a worthy natural territory, because they receive federal funding and provide the strictest legal and on-the-ground protections. Examples include the Land of the Leopard National Park in the Amur Basin or the Kronotsky Zapovednik in Kamchatka. The process of creating new federal protected areas is complicated and lengthy.

Regional protected areas can be zakazniks or parks or wildlife sanctuaries. These are afforded less reliable protection than federal protected areas. Sometimes they are created for a limited period of time. A zakaznik might be created for only ten years to allow an endangered bird population to recover, after which time the protections expire. Or their level of protection depends on the capacity of the regional government to maintain them. The Kol River Salmon Reserve on Kamchatka has only a few rangers to patrol vast stretches of territory.

Regional wildlife sanctuaries are easier and faster to establish, but they have fewer restrictions on human activities. For example, animal husbandry and ecotourism are typically allowed in regional parks. They do, however, reduce human impacts and provide leverage to stop the most damaging human activities.



Lotus growing in a lake. PHOTO by Pacific Environment.

In addition, regional protected areas often provide protections for specific components of an ecosystem. A salmon preserve may be focused on protecting keystone salmon populations. Federal-level reserves afford systemic protection to the ecosystem as a whole. Examples of regional protected areas include Sredne-Ussiriysky in Primorye, Dichun in the Jewish Autonomous Oblast, and Tugursky in Khabarovsk Krai.

Protected territories are never an end in themselves. Over the years, conservation groups have learned that the existence of official protections does not protect ecosystems on its own, and that other measures are necessary. For this reason, protected territories are an important element of a comprehensive conservation strategy. Particularly with regional protected areas, it is often necessary to partner with local governments and communities to supplement necessary resources for protection.

Experience in the Russian Far East shows that protected territories are an effective way to protect high-value ecosystems. In the Amur Basin, in particular, conservation organizations have had excellent success establishing a network of protected areas that provides meaningful territorial protections throughout important ecosystems. Experience in Kamchatka and Sakhalin shows that protected areas are most effective when they have support of local stakeholders, including nearby villages and businesses. In Kamchatka, Sakhalin, and Khabarovsk, there are promising examples of local co-management between protected area officials and local people—in the Kol River Salmon Preserve, Vostochny Wildlife Refuge, and Koppi River Nature Reserve.

Russia's protected areas typically provide better protections for terrestrial ecosystems than for freshwater and marine ecosystems. Those freshwater systems that have some federal or regional protection, however, suffer less from human impact than those that don't, and this assessment focuses on optimizing the effectiveness of protected areas safeguarding freshwater systems.

In much of the Amur Basin, freshwater systems are not the key targets of protected areas. For example, Khanka and Bolon lakes are only partially covered by their respective protected areas, with most of these lakes open to unlimited exploitation. These protected areas lack a basin-oriented approach to conservation, thus



Kronotsky Zapovednik in Kamchatka, a UNESCO World Heritage Site, was established in 1934. It is accessible only to scientists, other than about 3,000 tourists a year, who pay to travel by helicopter for a one-day visit. PHOTO by [Igor Shpilenok](#).

leaving the lakes open to upstream impacts.

There are several positive examples of specific protections for freshwater systems in the Russian Far East. In the Amur Basin, the Jewish Autonomous Oblast is home to the Bastak Natural Reserve, which provides effective protections for the entire Bastak River, a lake system, streams, and temporary waterways in the Amur River floodplain.

The situation is better in salmon ecosystems and Chukotka. The Vostochny Wildlife Refuge protects two important salmon basins, and the Kol River Salmon Preserve is the first protected territory in Kamchatka established specifically to protect salmon. Organizations like WWF and Sakhalin Environment Watch are working to provide similar protections to important marine and coastal territories.

In Chukotka, Beringia National Park protects important habitat for polar bears and other marine species. Originally intended as a joint U.S.-Russian park with territory in both countries, current tensions between both countries have halted progress toward establishment of a joint park. Beringia National Park is just one of many promising conservation and scientific and scientific collaborations slowed by tensions between Russia and the United States.

Politics and Civil Society in Russia

AS PRESIDENT, VLADIMIR PUTIN HAS AMASSED FORMIDABLE political power that is unchecked and unchallenged. But Russia is an enormous, complex nation with a cumbersome bureaucracy, and conservation, sustainability, and development are overseen by a patchwork of federal and regional agencies, regional and local governments, scientific institutes, businesses, and non-state actors.

Most important resources and issues are controlled exclusively by federal agencies and represented in the field by field offices directly subordinate to Moscow. Those include military, security,

border service, river basin management, and mineral resources. However, each Russian region also has a governor and legislature that are elected with the approval and oversight of the federal government. Provincial governments have branches of ministries similar to those headquartered in Moscow, such as the Ministry of Natural Resources, which are controlled by the federal government through legislation and subsidies, but are answerable to the governor. They have little power to resist direct demands from Moscow. But for *most* local issues, they make the decisions. They create protected territories, designate new land-use regulations, and support scientific research. The elites in Russia's federal government are more interested in securing their revenue streams than interfering in the minutia of environmental conservation. This is especially true in the Russian Far East. Moscow is thousands of kilometers away and far more focused on the West.

Despite the unfavorable political climate, there continue to be opportunities to make progress on conservation.

One way conservation groups in the Russian Far East can succeed is by being useful to local government leaders. For example, federal and regional legislation generally requires a strict assessment of the impacts of any activity that could cause widespread damage, like the harvest and sale of natural resources. Regional bureaucrats often lack the necessary skills to facilitate this resource extraction without violating laws or provoking anger of local people. This is an opening for conservation groups that have scientific expertise and grassroots contacts, and can guide projects that satisfy the demands of officials without destroying valuable natural systems.

Independent conservation groups and scientists have also recently helped state agencies create several protected areas in the Far East to safeguard particularly sensitive habitats or ecosystems, such as the recently established Shatars Islands Preserve in the Sea of Okhotsk.

Working with state leaders successfully can be a tricky balancing act. Because Russia does not have a history of strong civil society, government leaders may perceive a powerful civil society as a threat. Conservation groups that can “lead from behind”—encouraging state leaders to serve as the face of conservation initiatives—are more

likely to get results. On Kamchatka, for example, conservation groups in Ust-Bolsheretsk drove the creation of a salmon council under the aegis of the local government, allowing the local mayor to take credit for the council's successes. Government agencies on Kamchatka have since created a region-wide fisheries council built on the Ust-Bolsheretsk example.

Residents of the Russian Far East are justifiably proud of their homeland—in some ways, it's like America's Wild West—and they are not necessarily enthralled with the heavy-handed power of the federal government. They see that Russia's most valuable natural resources—oil, gas, and hydropower—are increasingly concentrated in state-owned monopolies like Gazprom, Rosneft, and RusHydro, all of which are controlled by powerful Putin loyalists. Little of that wealth stays in the Russian Far East to spark a thriving economy. They also see a federal government that does not enforce laws or support equitable compensation for eastern regions, which provides an opportunity for conservation groups to win grassroots support for initiatives that benefit local people.

Many natural resources, particularly those with slim profit margins, are not deemed important or profitable enough to be consolidated under federal monopolies. The seafood and timber industries, for example, are largely controlled by local companies in each region. These companies are increasingly receptive to initiatives that can increase profits through sustainability, and there is an opportunity to help these “green” businesses find markets that pay a premium for a sustainable product (See “[Leveraging Demand for Wild, Sustainably Sourced Salmon](#).”)



Fisherman on the Kovran River casts his net using traditional techniques. PHOTO by Sibyl Diver, Pacific Environment.

SCIENTIFIC INSTITUTES IN RUSSIA ARE BRANCHES

of the government that have historically been autonomous. During the Soviet period, the Russian Academy of Sciences and Russia's scientific research institutes were funded by the government but provided dispassionate scientific analysis of conservation and resource issues. On Sakhalin and Kamchatka, experts from the fisheries research institute have served as some of the loudest voices in favor of sustainable salmon management.

Since the fall of the Soviet Union, state budgets for scientific research have contracted and many scientists and institutes have sought funding elsewhere. Unfortunately, the highest bidders have often been companies seeking a scientific "rubber stamp" for destructive projects. A positive side effect of that development is that some of the scientists who refused to compromise have become conservation leaders, bringing their strong scientific and technical expertise to the cause.

One positive holdover from the Soviet era is strong public confidence in scientists and scientific research and evaluation. Conservation groups working closely with scientists and technical experts tend to be perceived as more credible and legitimate. International groups can make a difference by providing support for scientists and helping them stay informed of international scientific developments and best practices.

NGO Politics

THE PAST SEVERAL YEARS HAVE SEEN A GROWTH

in state-led policies to limit the influence of civil society in Russia, the most notorious of which is a law requiring nongovernmental organizations receiving international funding to declare themselves "foreign agents." Although the law is defined broadly, and includes an exception for organizations engaging in "protection of flora and fauna," it is widely believed to be applicable to most independent conservation groups. Russian conservation groups insist on their independence, and all have resisted adopting the foreign agent label. Not all have prevailed.

A few conservation groups that have been ordered by the Ministry of Justice to register as



Sunset in Kamchatka. PHOTO by Pacific Environment.

foreign agents have vowed not to register, and are appealing this designation in the courts. In Western Russia, several human rights organizations that lost in the courts have decided to forgo international support or disband entirely.

Though the political landscape continues to shift, the best way to avoid state-sponsored persecution is to maintain productive relationships with state representatives. Sakhalin Environment Watch and WWF-Russia both have long histories of cooperation with state agencies and have largely avoided persecution or investigation. Maintaining a broad constituency can also help insulate against state persecution. Organizations focused on private business and international markets, like the Wild Salmon Center, maintain productive partnerships with business leaders and have not faced scrutiny.

International organizations that focus on supporting grassroots Russian conservation, like Pacific Environment and Global Green-grants Fund, have worked closely with Russian organizations to ensure that international partnerships do not pose a liability. It's important, however, to regularly review and update practices and test new opportunities.

Here are some of the recommendations Russian conservation groups have shared with international supporters over the past several years to avoid running afoul of the foreign agent law:

- Provide "general support" for things like travel and administration instead of direct objective-oriented projects, so there's no specific contract spelling out expectation. This makes it less likely that local organizations are viewed as carrying out tasks on behalf of a foreign group.
- Coordinate staff visits, publications, and other visible activities with local organizations, and allow local organizations to be the face of conservation initiatives.
- Maintain contact with Russian civil society and legal experts to share advice and understand best practices.
- Develop meaningful cooperation with Russian state entities, when it doesn't compromise environmental objectives, like participating

in conservation-focused events sponsored by regional governments.

- Work within the framework of the United Nations and other widely recognized international fora.
- Support international cooperation among Russian conservation leaders and organizations or experts in China, Mongolia, the United States, Europe, and elsewhere.
- Support conservation priorities put forward by Russian leadership and Putin personally, such as tiger conservation.

International Politics

RELATIONS BETWEEN RUSSIA AND THE WEST

have been deteriorating since at least 2008. They took a turn for the worse in 2011-2012 when the Russian government accused Western governments of organizing protests that drew thousands of Muscovites to the streets in opposition to Putin's government. These protests coincided with a slowing of the Russian economy, driven largely by falling gas prices. Russia's government, which had long pinned its popularity to its ability to provide consistent economic growth, responded with an upsurge of nationalism that stoked fear of outsiders. They took steps to limit the influence of NGOs, independent media, even bloggers and social networkers.

(This suspicion of outsiders did not extend to international oil giants like Exxon, Shell, and Eni, which have been providing money and technical expertise to keep Russia's oil and gas flowing. No one in the government has accused them of being tools of Western influence.)

The sanctions that the United States, European Union, and several other countries levied in 2014 as a response to the conflict in Ukraine are isolating Russia from international capital markets and foreign technology. Russia's response has been to ban the import of food products from the West. The government has few levers to strike back without damaging the economy.

Current tensions are likely to exacerbate shortterm challenges facing conservation groups in Russia. Already local conservation groups are carefully evaluating the risks of working closely with international organizations. During these difficult times, it is important to follow the lead of organizations based in Russia. Many of these

groups got their start during the more repressive Soviet period and understand how to maintain a delicate balance between conservation and politics.

While Russia's crackdown poses a challenge to conservation groups, it may be that the country's isolation from the West could benefit the intact ecosystems in the Russian Far East. With limited access to capital and technical expertise, Russia may be less likely to pursue large-scale development of oil and minerals. Russia's isolation from major international governance organizations like the G7 could lead to other engagements in multilateral diplomacy. Conservationists have already noted greater Russian activity at the Arctic Council and a greater readiness to engage with Chinese officials regarding management of joint resources in the Amur Basin.

The most important lesson of the current political situation in Russia is the need for creativity and adaptive management of conservation activities there. Conservation practitioners should maintain close contact and cooperation with Russian experts and conservationists to understand how political decisions are affecting on-the-ground conservation activities.

Conservation Legislation

FOLLOWING THE FALL OF THE SOVIET UNION,

Russia experienced rapid development of environmental legislation, with independent conservation organizations playing an active role in its foundation. That core legislation established strong protections and safeguards that form the legal foundation for conservation work. Unfortunately, in recent years, these measures have been challenged as "unnecessary regulation" that burdens business. Because of widespread corruption, the laws on the books are too often not enforced.

While making progress on legislation is unlikely at the federal level, conservation groups continue to have opportunities for local and regional legislation. As a primary conservation strategy, however, pursuing legislation is not promising in the foreseeable future.

Though this trend is unfortunate, the conservation legislation established during the 1990s is actually quite strong, and there's potentially great benefit to implementing and defending existing laws. Through creative media campaigns

and grassroots organizing, there are still ways to hold government and companies accountable. One example is the campaign by Transparent World and Plotina to use satellite images to document pollution by gold-mining companies in the Angara River watershed and elsewhere. (See Case Study 1—Gold Mining.)

There's plenty of work to do preventing existing laws from being weakened. In early 2014, for example, some legislators pushed for an amendment that would have undermined safeguards for Russia's strictly protected territories. A campaign by conservation organizations reversed the most serious aspects of this law.

Most of Russia's legislation is written in Moscow, with European Russia in mind. Because conservation matters in the Far East are so different, conservation organizations can exert influence by helping local political leaders understand the local implications of proposed federal legislation. In some cases, regional government bodies and conservation groups will ally to blunt the effects of bad laws.

Methodology and Target Selection

THE ASSESSMENT AUTHORS BASED THEIR conservation planning on the “Open Standards for the Practice of Conservation” methodology, adapted as needed. (For more information on the Open Standards for the Practice of Conservation, please see cmp-openstandards.org.)

They split the plans into three region- or species-based sub-units—Amur, Chukotka, and salmon ecosystems (Sakhalin, Kamchatka, Chukotka, and parts of mainland Russia's eastern coast)—to better engage local stakeholders. Next, the team selected a regional coordinator responsible for engaging local stakeholders on conservation planning.

There was a conscious effort by the regional planning coordinators to pay attention to ecosystem and species targets that crossed boundaries. That's how the group agreed on the umbrella priority of freshwater ecosystems and associated species and constructed their plans with that in mind.



Cultural exchanges are part of the mission of Berengia National Park. Above, Koryak native dancers perform for the public at the Native Festival in 2005. PHOTO by Vic Knox, Berengia National Park, National Park Service.

Participants in each region were encouraged to choose three to seven targets, and given leeway to approach target choice to best reflect their region and their stakeholders.

The Chukotkans prioritized a handful of iconic species, like the polar bear and Pacific walrus, because the main way to protect those species is by protecting the ecosystem. The Amur Basin group identified broad ecosystem targets, like keeping the main stem of the Amur River free flowing, and then identified species targets that reflected that broad goal. In salmon ecosystems, stakeholders identified targets of major regional importance.

When necessary, the regional groups did additional ranking exercises to limit the quantity of targets, looking at existing protected status, relative significance for the umbrella ecosystem, and potential for success, among other factors. (If everything is a priority, then nothing is.)

Once the priority targets were identified, then they focused on threats and the strategies to counter those threats. In a subsequent step, they identified quantitative indicators of success for each strategy.

Then, after several months of work at the regional level, the key stakeholders from Amur, Chukotka, and salmon ecosystems gathered at the end of the process to pull together a unified vision. They organized their regional strategies into broad “strategic directions,” and prioritized those most likely to achieve meaningful outcomes in three to five years.

Russian Far East Conservation Targets

Conservation Assessment authors identified freshwater ecosystems as the umbrella priority for the Russian Far East. Working with local stakeholders, they chose targets for each region that represented the best opportunity for conservation progress.

SALMON STRATEGIES

Region	Conservation targets
Kamchatka	<ul style="list-style-type: none"> • Kol, Kamchatka, and Bolshaya rivers • Chinook and coho salmon
Sakhalin	<ul style="list-style-type: none"> • Vostochnyi Reserve • Cherry salmon • Sakhalin taimen
Chukotka	<ul style="list-style-type: none"> • Meinypilgynsky sockeye salmon





CHUKOTKA

Priority	Conservation targets
Subsistence livelihood of indigenous people	<ul style="list-style-type: none"> • Polar bear • Pacific walrus • Arctic Ocean



AMUR RIVER BASIN

Priority	Conservation targets
Keep river free-flowing for entire 4,444 kilometers and allow for unobstructed migration of fish.	<ul style="list-style-type: none"> • Gorgeous river gorges, iconic river stretches • Siberian taimen • Kaluga and Amur sturgeon • Chinese soft-shelled turtle
Maintain lakes and floodplains of eastern part of basin.	<ul style="list-style-type: none"> • Floodplain complexes at mouths of Amur tributaries • Forest-river nexus • Khanka Lake, shared by Russia and China • Red-crowned crane • Oriental white stork
Daurian steppe-wetland complexes 	<ul style="list-style-type: none"> • Argun, Ulz, and Upper Onon river valleys • Lakes of Dauria (Torey, Buir) • Forest-steppe areas with high biodiversity • White-naped crane • Swan goose • Mongolian gazelle • Eastern great bustard • Siberian marmot • Saker falcon
Taiga (Forests) 	<ul style="list-style-type: none"> • Ussury broadleaf and mixed forests • River valleys in Eastern Siberian boreal taiga forests • Hooded crane

Q & A



Anatoly Lebedev

Anatoly Lebedev has been an environmental journalist, member of the regional parliament, television producer, author, and most of all, conservationist devoted to protecting Russia's forests. He is editor in chief of "Ecology and Business," a magazine published by the Bureau for Regional Outreach Campaigns. In 2012, the United Nations honored him for his work as one of five international Forest Heroes.

Q: How have the threats facing Russian Far East ecosystems changed over the course of your career in conservation?

THEY'VE CHANGED ENTIRELY. This is something we needed to look at closely in the conservation planning part of this assessment. In the USSR, regulations for business were strictly enforced by the Party and government. In the new Russia, business is primarily focused upon natural resource extraction and is comparatively unregulated. There's a lot for environmental NGOs to do, but corruption and the power of the oligarch make success elusive. We had a niche to fill in the 1990s, assisting the state in development of environmental legislation. Today, the government does not prioritize implementing or enforcing conservation standards.

Q: Describe a conservation success that your newspaper and/or non-profit organization played a role in achieving.

OUR 1992 JOINT PROJECT WITH GREENPEACE INTERNATIONAL and the Rainbow Warrior sailship was quite remarkable. At the time, BROCC (Bureau for Regional Outreach Campaigns) was an informal group of activists, scholars, and journalists. Our protests against dumping of radioactive wastes at sea and clearcuts in northern Primorye led to Russia declaring such dumping illegal, and to the creation of a special disposal site for nuclear wastes, and initial efforts to recycle nuclear submarines. They also led to the collapse of the Svetlaya forest processing plant, a Hyundai-funded project that operated with many legal violations. This helped me, as a forestry coordinator for the regional legislature, to put into place forward-thinking forestry laws regarding indigenous rights and protected areas.

Q: Many Russians are cynical about politics and have little faith that they can make a difference. How do we persuade them to get involved?

RUSSIA REMAINS A TSARIST EMPIRE regardless of the changes in name and structure of our government. We continue to follow our "tsar" (Putin) in spirit, but not the laws passed by his government, which everyone knows is corrupt. As individual citizens, we think that the laws are not for us, but for others, and we act against them in our own interests or in the interests of our friends and family.

Q: How can international markets help environmental issues in the Russian Far East?

THEY CAN EXERT DIRECT POLITICAL OR ECONOMIC INFLUENCE upon our oligarchs and decision-makers by pulling Russian NGOs into international projects with effective coverage by media outlets. International organizations can also support Russian initiatives that are associated with international processes like the Forest Stewardship Council, Marine Stewardship Council, Forest Law Enforcement and Governance, indigenous rights organizations, climate negotiations, and so on.

Q: How can local environmental philanthropists be fostered?

PHILANTHROPISTS WITH PERSONAL MOTIVATION to make environmental change can effectively boost our movement. There are already examples of this, and we're working to make more of them. Businesses can also support environmental values by committing to environmentally-friendly practices in return for economic advantages—for example, the FSC system, in which I have participated over the last seven years, works this way. Individuals can also participate in lobbying through regional public councils associated with government structures.

TRANSBOUNDARY COOPERATION



Speaking a Common Language of Conservation

The endangered Oriental white stork has rebounded since conservation leaders from four Asian nations met two decades ago on a boat in the Amur River and agreed to expand protected areas, improve fire-control practices, and build new nesting platforms throughout the bird's range.

PHOTO by
Jonathan C. Slaght,
Wildlife Conservation
Society–Russia.

Stork Rebound

TWO DECADES AGO, AS THE POPULATION OF the Oriental white stork was dropping dramatically, conservation science experts from four Asian nations met on a boat on the Amur River between Russia and China, near Khabarovsk. They agreed on a series of initiatives to revive this endangered species—expanding protected areas, improving fire-control practices, and building nesting platforms, designed in China's Heihe National Nature Preserve, throughout the bird's range.

The stork has since rebounded, its population climbing from 2,500 to 3,000 in ten years, thanks in part to these conservation programs and favorable climatic factors.

Russian scientist Eugene Simonov, who works with Rivers Without Boundaries, says “You miss the story if you don't take into account the huge increase in newly protected wetlands in both countries.” Between 1997 and 2005, 8.6 million hectares of new protected areas were established in Russia's Khabarovsk, Primorye, Amursky provinces, and China's Heilongjiang.

Now there are well-funded efforts underway to reintroduce the stork in Japan and Korea, where it had gone extinct. In 2005, Japan's Prince

Akishino released storks into the skies of Toyooka. Five year later, there were 40 storks counted.

The Oriental white stork is but one of many endangered or threatened species in the Amur River basin, most of which have not benefited from similar transboundary collaboration. Other species, like the red-crowned crane and Amur leopard, are struggling despite transboundary initiatives.

Pollution doesn't stop at border checkpoints. Nor do tigers.

The recovery of the stork, however, demonstrates that it can be done. And that international cooperation is the way forward. For some species, like the Amur and kaluga sturgeon, it may be the only way, says Simonov.

2. SPEAKING A COMMON LANGUAGE OF CONSERVATION

- 2.1 Stork Rebound
- 2.2 Growing Need for International Cooperation
- 2.3 Rivers Without Boundaries
- 2.4 Building Transboundary Ecological Networks
- 2.5 Speaking a Common Language

• CASE STUDY 2—TIGER DAY

Today, most of the cooperation among Russia, China, and Mongolia is based on trade and extraction of natural resources. The long-term health of the region depends on expanding that cooperation to conservation.

Growing Need for International Cooperation

THE HEADWATERS OF THE AMUR RIVER RISE in Russia, China, and Mongolia, and for more than two-thirds of its 4,444-kilometer journey to the Sea of Japan, the river forms the border between Russia and China. Dams and dikes in one country impact water flow in another. The Mongolian gazelle migrates between Russia and Mongolia. Birds fly over national borders. Salmon swim thousands of miles from the ocean to their spawning streams, sometimes through several countries. Pollution doesn't stop at border checkpoints. Tigers jump over barbed wire fences or crawl under them.

Transboundary cooperation is especially important in the Amur Basin, home to vast wetland complexes, millions of migrating birds, like the Oriental white stork and the red-crowned crane, and endangered fish like the taimen and kaluga sturgeon. (For an in-depth look at the Amur Basin, see [One River, Three Countries](#).)

It also comes into play in the Arctic, where Chukotka and Alaska are in some places separated by only a few dozen miles. U.S. multinational ExxonMobil is partnering with Rosneft, Russia's state-controlled oil conglomerate, to drill for oil in the Chukchi Sea. (As of September, ExxonMobil is no longer involved because of sanctions.) The exploratory wells are near Wrangel Island, a haven for Arctic wildlife. About 500 polar bears give birth there every year, earning it the nickname, "polar bear maternity ward." (For more on Chukotka and drilling in the Arctic, see [Icy Riches](#).)

World Wildlife Fund recently hosted an exchange program that brought indigenous hunters and a marine mammal scientist from Chukotka to Alaska. Chukotka had recently been experiencing massive walrus haulouts, and had been experimenting with protective measures to prevent human activity from causing stampedes. The Chukotkans met with indigenous peoples in Alaska, as well as regulators from U.S. Fish and Wildlife Service and other agencies. When enor-

mous walrus haulouts appeared off Point Lay in subsequent years, locals encouraged a careful approach, and regulators restricted flights and boat trips to the area to prevent a stampede. They attribute this care to the lessons they learned from their Russian partners. This was especially helpful in 2014, when a haulout of more than 30,000 walrus appeared along the coast of Alaska, and local regulators immediately banned overflights.

Other problems that demand transboundary cooperation include dams, dikes, gold mining, poaching, overfishing, agricultural runoff, wildfires, loss of habitat, and, especially, climate disruption.

Rivers Without Boundaries

THIS IS THE CENTURY OF WATER, INCREASINGLY scarce water. Preserving natural rivers and their ecosystem services can only be done with transboundary cooperation. The Amur Basin is a classic example.

The first attempt to bring Russian, Chinese, and U.S. conservationists together to protect this transboundary river was the Sustainable Land-Use Plan for Ussury-Wusuli Basin in the late 1990s. Many conservation ideas and objectives developed then have been implemented in China and Russia and continue to be pursued by conservationists today.

Perhaps the biggest concern, one that is certainly going to become bigger, is the demand for water and hydropower.

Unfortunately, all three countries have incentives to build water infrastructure at the expense of natural ecosystems and free-flowing rivers. Dams are seen as the quickest and most obvious tool to regulate natural floods. In the eyes of Russian and Chinese water authorities, "water management" means building and operating dams and dikes: If you don't build them, you're not managing water.

The Amur separates increasingly thirsty northern China and Mongolia from water-abundant Russia. As the water crisis intensifies, pressure to withdraw and transfer water southward is likely to increase dramatically.

One recent example of transboundary NGO work was the campaign to stop TransSibirskaya Hydro on the Shilka River, a tributary of the Amur. The project was halted at early stages, in part, by a protest campaign targeting investors led by WWF-Amur, and stakeholders in five Amur River provinces ranging from government officials to green journalists. The Rivers without Boundaries Coalition raised issues of improper disclosure at the Hong Kong Stock Exchange when Russian aluminum tycoon Deripaska tried to launch an initial public offering for his Sino-Russian hydropower joint venture.

When the company proposing the project failed to be listed on the Hong Kong Stock Exchange, the Russian partner, EN+Group,

took to promoting it domestically and to specific Chinese investors. Opponents gathered evidence of negative impacts and public discontent from the project and shared them with the Chinese audiences. The project was removed from the investment priority list and EN+Group started discussion with WWF on environmental criteria for hydropower development.

Building Transboundary Ecological Networks

CREATING NEW PROTECTED AREAS AND

improving management of existing ones is the first choice among all transboundary conservation strategies, especially for ecosystems like the Amur River Basin. Expanding protected areas was a key factor in the stork rebound.

There are about ten binational or trilateral protected area agreements, but most of them exist only on paper. There are four active ones:

- Sino-Russian Strategy of Transboundary Protected Areas Network Development

In 2011, Russia and China adopted this agreement, which outlines 12 groups of common objectives from cross-border exchange of information, joint planning conservation areas, joint research and monitoring programs on protected areas, as well as a variety of education measures. On the Russian side, the official expert group preparing the strategy was coordinated by WWF-Russia and Rivers without Boundaries.

“One central theme underlying the strategy is creation of the Amur-Heilong Green Belt, a transboundary ecological network of protected areas, connected by buffers zone and corridors, with special emphasis on ecosystems adjacent to international borders,” says Yury Darman, director of WWF-Amur. “We’ve been pushing forward since 2003.”

- “Source of Amur” International Protected Area

In 2014, Mongolia and Russia signed an agreement to protect the Upper Onon River, a breeding area for white-naped cranes and bustards. It unites Onon-Balj National Park, the birthplace of Genghis Khan, with Sokhondinsky Zapovednik in Russia, with a wide buffer zone stretching across the border.



The Argun River, a main tributary of the Amur, is the largest watercourse in the Daurian steppe and breeding habitat for red-crowned and white-naped cranes.

PHOTO by Oleg Goroshko.

- Daurian International Protected Area (DIPA)

Established by Mongolia, China and Russia in 1994 to protect and study biodiversity of the region, DIPA united Dalai Lake in China, Mongol-Daguur in Mongolia, and Daursky in Russia, all protected areas with Ramsar status. A campaign is underway to name this international protected area a united World Heritage Site.

“DIPA is likely the most successful transboundary nature reserve in Russian Asia,” asserts Dr. Oleg Goroshko, vice-director for science in Russian Daursky Zapovednik. “Every year, there are two to five joint research and monitoring expeditions organized and there are also educational activities like children’s picture contests that have now been going for more than a decade.”

- Beringia International Protected Area

The Amur River is not the only place where transboundary work is progressing. Russia and the United States negotiated for almost 20 years to create Beringia National Park on almost 2 million hectares of the Chukotka peninsula coastline and sub-arctic tundras. The park is habitat for more than 100 species of animals and plants including the polar bear, snow sheep, walrus, and gray whale.

The Amur Coalition, a forum of conservation organizations from five provinces, recently adopted a 2014-2025 Draft Conservation Action Plan (2014-2025), which lists 55 priority areas to be protected in Russia, many of them on borders with China or Mongolia.

One overarching idea that WWF is promoting is an Amur-Heilong Green Belt, an ecological network of protected areas, connected by buffers zone and corridors, with special emphasis on ecosystems adjacent to international borders.

Perhaps the most visible and colorful transboundary campaigns is saving the Amur tiger. Most of its habitat is in Russia, but it wanders into China and North Korea, and two protected area corridors are designed to ensure tiger passage.

More important, however, is addressing the trafficking of dead tigers—due to demand for whiskers and bones that drives these cats to extinction in China and other countries of Asia. For the

past 20 years, WWF-Russia has cooperated with customs and enforcement agencies of the two countries to reduce smuggling of wildlife parts across the border and introduced special curriculum at Customs Academy.

“Saving 15 tigers in China is great progress, but stopping smuggling of bones is real trans-boundary conservation,” says Simonov.

(As this assessment nears completion comes a report that Kuzya, an Amur tiger personally released into the wild by President Putin in the spring of 2014, swam across the Amur from Russia to China, setting off concerns that it would be killed by poachers.)

Tiger Day, Russia’s biggest and brightest wildlife conservation holiday, was launched in Vladivostok in 2000 and is now celebrated in China as well, in the city of Hunchun. (See [Case Study 1—Tiger Day](#).)

Speaking a Common Language

IT’S DAUNTING ENOUGH THAT SO MANY languages are spoken among the Russians, Chinese, Mongolians, and indigenous peoples. In the Dauria International Protected Area, all parties had Mongol-speaking staff and for many years Mongolian was the key tool for communication, although in 1994, English was proclaimed as official language for the trilateral agreement.

“There’s a need for information in all languages,” says Simonov, who has been advocating for a “Environmental Superpowers” clearinghouse and web-portal in three languages that can engage a meaningful constituency in all participating countries.

There’s also a need for a common language of conservation. For example, the three countries do not share a common norm of environmental flow, which refers to the quantity, quality, and timing of water flows necessary to sustain freshwater and estuarine ecosystems, as well as the people who depend on them.

In 2009, studies and independent monitoring on the Argun River introduced some of these norms into bilateral discussions.

A common language and shared environmental norms are not ends in themselves, but important steps at getting more people—governments, scientists, NGOs, and citizens in all three countries—to be engaged in the decision-making, data-sharing, management, and monitoring of natural resources.

CASE STUDY 2—TIGER DAY

Tiger Day Becomes Regional Holiday, Crosses Border to China

LAUNCHED IN 2000 IN VLADIVOSTOK TO HONOR the beloved Amur tiger, Tiger Day has expanded to towns in Khabarovsk, Amur, Primorye, and Jewish Autonomous regions, and even become an official regional holiday. It’s also celebrated at the zoo in Moscow. Now it’s crossed the border to China—Hunchun has hosted Tiger Day festivities since 2009.

There are about 500 Amur tigers living in the forests of the Russian Far East and northeastern China. The Amur is the largest of the six big cat sub-species that still survive in the wild.

The idea of Tiger Day, generally celebrated in September, came from game manager and writer Vladimir Troinin, who wrote “The Year of the Tiger.” In Vladivostok, thousands of spectators line the sidewalk of the main street to cheer on dancers, musicians, skateboarders, and people of all ages dressed as tigers. Some parade participants roar like tigers too.

The festival was initiated by the Phoenix Fund, with support from regional and local government and business, and



During the 2012 Tiger Day celebration in Vladivostok, volunteers collected more than 15,000 rubles for Cinderella, an orphaned Amur tiger cub who was released into the wild in the spring of 2013. PHOTO by [International Fund for Animal Welfare](#) © [Creative Commons](#).

Vladivostok's annual Tiger Day is Russia's biggest and brightest wildlife conservation

holiday, attracting thousands of participants and spectators to celebrate the Amur tiger and learn how to protect its habitat.

other NGOs. In Vladivostok, it is now organized by the city administration.

From the beginning, the festival has focused on attracting as many children as possible, says Sergei Bereznuik, director of the Phoenix Fund, in the hope that, by capturing their interest early in their lives, they have the opportunity to make a difference that will last for generations. (Bereznuik and the Phoenix Fund have been working to save the Amur tiger for almost 20 years, through anti-poaching brigades and public education.)

In addition to the parade, the festival features contests, quizzes, arts and crafts classes, musical and theatrical performances, photo shoots, and face painting. Tiger conservation organizations set up pavilions along the perimeter of the square. Children win tiger paw magnets or other small prizes for correct answers to quizzes. High school volunteers run the contests. Tiger Day also presents an opportunity to collect signatures for important conservation causes, as well as recruiting volunteers.

The festival also celebrates wildlife rangers from Primorye and Khabarovsk, who devote their lives and careers to the conservation of Amur tigers and leopards. Every year at the festival, International Fund for Animal Welfare (IFAW) leaders announce the Best Ranger winners, who receive paid exchange

trips to tiger reserves in India.

Tiger Day has not been without its snafus.

In 2006, city officials reversed their decision to pay for a billboard space after the promotional materials had been printed because of a new law prohibiting such advertising. In 2008, the festival committee learned at the last minutes that it didn't have a stage. City administrators removed the permanent stage with no notice to the festival committee, and required anyone hosting a public event to rent a stage at their own expense. The Phoenix Fund stepped in to cover the cost. In both cases, the festival went on as planned, but had to trim back some of its activities.

These problems have led to closer communication between the festival committee and local authorities. Solid backing from local and regional governments has been key.

Tiger Day would not be succeeding, says Bereznuik, if not for the be support from reliable partners, especially major wildlife conservation foundations, such as the IFAW and WWF-Russia.

Bereznuik cautions, however, that organizers diversify their funding. The Phoenix Fund has gained some financial support from local businesses, and hopes to expand that support. A few years ago, Phoenix Fund found a local event company that organizes the Tiger Day festival for free.

Gaining government support for the celebration has been possible, says Bereznuik, because Tiger Day does not have a political agenda and it allows local authorities to promote themselves as friends of wildlife.

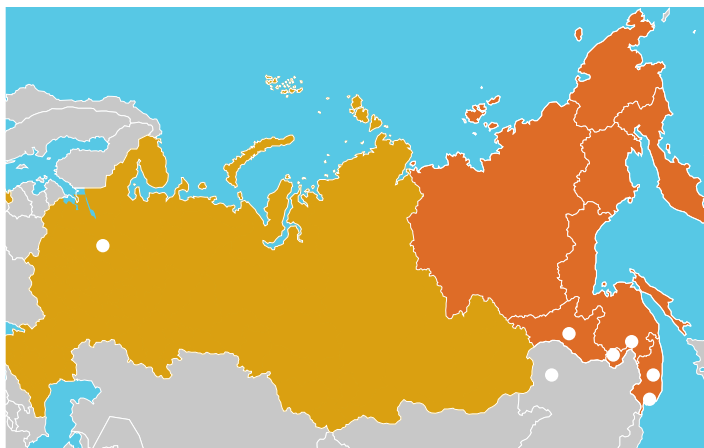
Tiger Day Partners and Locations:

Partners:

- Phoenix Fund
- WCS Russia
- World Wildlife Fund (WWF)
- International Fund for Animal Welfare (IFAW)
- Far Eastern Development Fund (AzArt)
- City of Vladivostok and other regional and local governments and businesses

Locations:

- Vladivostok
- Khabarovsk
- Amurskaya
- Evreiskaya
- Primorye
- Moscow
- Hunchun (China)





History and Future of Conservation Investment

FINANCIAL UNCERTAINTY HAS LONG BEEN the norm for Russian Far East conservation organizations.

With the collapse of the Soviet Union came new promise for the rise of civil society, for advances in conservation. Recognizing the rich biodiversity of the Russian Far East, Western foundations and international funding agencies began investing in projects like protecting salmon habitat and bringing the Amur tiger back from the brink of extinction.

While Russia has a rich ecosystem of non-profit/non-governmental organizations working on the environment, including international groups like Greenpeace and World Wildlife Fund, they tend to be concentrated in and near Moscow, and those that aren't rely on support from outside Russia.

The Trust for Mutual Understanding (TMU) began investing in Russian conservation work even before the end of the Soviet Union. After TMU, a diverse group of philanthropies became

interested in conservation in Russia, including the U.S. government through USAID, private foundations like Hewlett Foundation, and the international community through the United Nations Development Project (UNDP).

In 2005, President Putin tightened the rules for domestic organizations receiving funds from outside Russia, and international conservation funding in the Russian Far East has fallen since. Some funders have withdrawn for strategic reasons within their organizations. Others, such as the Ford Foundation, cited negative political trends in Russia.

Conservation Financing Today

TODAY, EVEN WELL-CONNECTED AND ESTABLISHED organizations sometimes struggle to fill out their budgets.

Fortunately, several funders understand that time and persistence is necessary to achieve change in the Russian Far East. The Trust for Mutual Understanding and the Mott Foundation have been investing in the region since 1985 and 1997, respectively, and both intend to continue.

Other current funders include the Gordon and Betty Moore Foundation, the Oak Foundation, the Walton Family Foundation, and the David and Lucile Packard Foundation. Moore has been funding salmon work in Kamchatka

3. HISTORY AND FUTURE OF CONSERVATION INVESTMENT

- 3.1 Conservation Financing Today
- 3.2 Lessons from Two Decades of Russian Far East Philanthropy
- 3.3 Downward Trend for Funding
- 3.4 Prospects for Domestic Philanthropy
- 3.5 Positive Trends
- 3.6 How Can the Conservation Movement Become More Stable?

since 2001 and will conclude in 2016, as the result of an internal shift in strategy. Oak, Walton, and Packard have focused their funding more thematically, on the Arctic and fisheries, as opposed to specific ecosystems, so their support is expected to continue.

Pacific Environment and Global Greengrants Fund have been active in the Russian Far East for decades, and have directly supported community organizations with small grants, as well as serving as intermediaries for bigger funders like Rockefeller.

The Oregon-based Wild Salmon Center, which has also served as an intermediary, has been promoting wild and sustainable salmon across the North Pacific for the past two decades. It's been experimenting with different strategies to engage the private sector in the Russian Far East, including support of the Sakhalin Salmon Initiative and the Sustainable Fisheries Program. Most private sector businesses still have little experience working with NGOs.

The World Wildlife Fund operates offices in several Far Eastern cities and raises funds from international and domestic sources.

Regardless of where the support comes from, says Leah Zimmerman, author of the May 2014 report, "Environmental Conservation in the Russian Far East: Best Practices for Philanthropy," the change must come from within Russia. "Russian leaders and Russian organizations across a range of sectors are the key to achieving conservation goals. These organizations need support from outside Russia, but Russians must set the agenda and drive the change."

Lessons from Two Decades of Russian Far East Philanthropy

THE ROCKEFELLER BROTHERS FUND WAS ONE OF THE FIRST international foundations to make a major commitment to Russia. Rockefeller originally focused on protecting salmon habitat in the Russian Far East, building on work it had already been supporting in Alaska and British Columbia. This allowed for collaboration and mutual learning across the North Pacific. Between 1995 and 2005, the fund made 32 grants totaling more than \$3 million, with a heavy focus on civil society development and strategic collaboration as a precondition for success.

After a thorough evaluation of its investments, Rockefeller pulled back from the Russian Far East in 2005. One of the most important legacies of its support has been the thriving community of high-capacity conservation and indigenous organizations, represented by the Sosnovka Coalition. Rockefeller credits its success to hiring staff with direct knowledge of Russia who built lasting relationships and networks to support local conservationists. Its focus on building grassroots capacity over strict conservation metrics set the foundation for many subsequent conservation successes.

The UNDP Global Environment Facility has invested \$5 million, with a focus on creating and strengthening protected areas in Kamchatka, specifically Nalychevo Nature Park, Bystrinsky Nature Park, Kronotsky State Biosphere Reserve, and the South Kamchatka State Sanctuary. The UNDP project cooperated with high-level officials in the regional government to achieve expected results. This proved to be a double-edged sword—it was important to engage government to achieve big results, but over-reliance on one person or institution could cause a loss of achievements when government changes. It is important to build a diverse coalition of stakeholders to ensure project durability.

The UNDP-GEF project also demonstrated the importance of building and maintaining local conservation and technical ca-

Select Investments in Russian Far East Conservation

Funder	History	Future
Rockefeller Foundation	\$3 million, 32 grants (1995-2005)	Withdrew in 2005.
UNDP-GEF	\$5 million, focus on protected areas in Kamchatka	Limited-term project ended.
Moore Foundation	\$27 million in Kamchatka (2001-2014)	Withdrawal from Kamchatka planned for 2016.
Mott Foundation	Investing in Russian Far East since 1997	2 years support for Sakhalin Environment Watch, 2-4 years for salmon councils.
Global Greengrants Fund	\$450,000 (since 2001)	Continue annual small grants (15-40 percent of \$180,000 to Russian Far East).
Trust for Mutual Understanding	Annual contributions of approximately \$200,000 annually for exchanges	Continue to fund exchanges indefinitely.

capacity. During the project's duration there was a minimal focus on building technical capacity of staff or partners. The lack of qualified managers and technical experts threatened the durability of UNDP-GEF's achievements after the project's conclusion.

The Gordon and Betty Moore Foundation devoted \$27 million over 15 years for wild salmon conservation in Kamchatka, taking a rigorous outcome-based approach. The Moore Foundation has demonstrated the importance of adaptive management to seize promising opportunities. Although beginning with a strategy focused on creating protected areas, Moore Foundation pivoted in the late-2000s as market-based attempts to establish sustainable fisheries proved more likely to deliver success.

Because of the complexity of working in Russia, the Moore Foundation found it useful to work through intermediaries with cultural and regional expertise, such as Pacific Environment,

program into Ocean Outcomes (O2), a business-friendly consultancy focusing on improving the sustainability of commercial fisheries in Russia, Japan, and around the Pacific Rim.

Downward Trend for Funding

OVER THE NEXT FIVE YEARS, SAYS ZIMMERMAN, A FEW KEY funders intend to continue working in Russia, but the total amount of support for conservation initiatives is likely to be reduced. Moore plans to end its support for salmon conservation in Kamchatka in 2016.

The Trust for Mutual Understanding intends to continue funding exchanges with the Russian Far East indefinitely, with annual contributions totalling around \$200,000. Mott expects to continue to support, for at least two more years, Sakhalin Environment Watch, as well as the Wild Salmon Center's work creating and strengthening watershed councils on Sakhalin and Kamchatka. Oak is expected to continue its support in Chukotka through its Arctic Program.

Key to long-term success in the Russian Far East is financial support that builds healthy organizations and networks at the same time as advancing conservation.

Wild Salmon Center, and World Wildlife Fund. These organizations have staff in the United States and Russia, and bridge the geographic and cultural gap between international foundations and Russian stakeholders. They provide Russian partners and subgrantees with a wide array of support services, including scientific data collection and interpretation, strategic planning and organizational capacity, domestic and international network building, campaign-planning, and report preparation and writing.

Most recently, the Wild Salmon Center has found that conservation success is achievable when the goals of for-profit businesses, ranging from local commercial fishing companies to international oil companies, align with conservation objectives. Especially at a time of political uncertainty, the support of business can be a key pillar of project sustainability in Russia. Personal relationships are very significant in Russia, and since few Russian business leaders have experience working with non-profit organizations, future conservation initiatives can focus on building collaborative conservation partnerships with for-profit stakeholders. It's worth noting that Wild Salmon Center is spinning off its Sustainable Fisheries

Prospects for Domestic Philanthropy

AS CIVIL SOCIETY IN RUSSIA HAS EVOLVED OVER THE PAST 20 years, so has domestic philanthropy. Up until now, however, institutional donors have almost exclusively focused on public health. Conservation is seen as too complex. More problematic is the common perception among domestic donors that wildlife and ecosystems can only be protected at the expense of jobs and the economy. Reframing this is key to growing domestic support. Individual giving is still in its embryonic stages, though Greenpeace and WWF have developed membership and fundraising bases in European Russia.

Even with reframing, expanding internal financing is expected to be a challenge. The financial instability of the conservation organizations is mirrored by similar instability in the society as a whole. Other factors include:

- There are few Russian philanthropic institutions, and Russian legislation does not facilitate philanthropic giving.
- There is no historical tradition of philanthropy in Russian society, and it was ideologically unacceptable during the Soviet period as hypocritical contributions of the enablers of a classist society. Similarly negative perceptions continue today, although Russia's youth, middle class, and business magnates generally have a more positive view of the practice.
- Russian philanthropists tend to focus on projects that show immediate results, like supporting orphanages or resources for se-



niors. Conservation investments can take a long time to produce results, making it difficult to present a strong case for donations.

- Resources are highly centralized in Moscow, and those organizations with headquarters in Moscow get a disproportionate amount of the limited resources. Many Muscovites perceive the Far East as a limitless wilderness, and do not understand conservation needs there beyond a few keystone species (like the Amur tiger).
- Many environmental NGOs have little experience or skills in media promotion, and subsequently, many people don't even know they exist, let alone who they are or what they do.
- NGOs themselves have not attempted coordinated fundraising initiatives that could be more successful than individual collection drives.

Positive Trends

ALTHOUGH THERE ARE CHALLENGES TO SCALABLE domestic fundraising, Russian NGOs have identified several trends that they believe will lead to a growth in domestic giving:

- A growing middle class of active, intelligent, and involved people, particularly in large cities, is taking an interest in philanthropy and civil

society activities.

- It's easier than ever before to share information and mobilize people to act. Technology advances also improve connections between community organizations and funders, creating more rapid and powerful opportunities to demonstrate results and potential.
- Environmental conservation NGOs have greater expertise and more partnerships and coalitions than organizations focused on other topics.
- Positive corporate and collaborative fundraising efforts have yielded positive results and provide best practices for future efforts. WWF-Russia has led a successful corporate and individual giving campaign for more than a decade. ALTA (Amur Leopard and Tiger Alliance) is a coalition of 15 Russian and international organizations, including the Phoenix Fund, Wildlife Conservation Society, as well as zoos from London, Minneapolis, Helsinki, and Moscow. Foreign partners are raising funds in their home countries.
- Another promising development is the growth of private foundations and endowments. Among Russian business, philanthropy is becoming fashionable, a sign of success. Maxim Nogotkov, the head of the Russian mobile



Dancers in Kamchatka. PHOTO by Olga Moskvina.

communication company Svyaznoi, created the Yopolis social network to support a more engaged civil society. The Kudrin Foundation has similar aims, and the Potanin Foundation is focusing on getting young people more involved in civic affairs.

- Private Russian companies are also beginning to fund conservation directly. WWF-Russia has had a successful corporate philanthropic outreach program since 2001. WWF began by recruiting international companies working in Russia that were familiar with the WWF brand from their work with the organization in other countries. As time passed, Russian companies also began participating, particularly in projects where their employees could see a real result.

According to Ekaterina Ivanova, Corporate Partnerships Coordinator at WWF's Moscow office, Russian businesses like their employees to see firsthand the effects of their philanthropy. In the Russian Far East, for example, one local company supported monitoring of endangered cranes. One day, the company took a field trip to meet with WWF employees working on crane research and preservation and saw first-hand the results of their work. "When people see how they have helped, they are inspired," Ekaterina explained, "and it is much easier to explain to

them why this work is important."

When recruiting Russian companies, WWF has found the greatest success reaching out to companies with a record of philanthropy, even if not conservation philanthropy. And, according to Ekaterina, preparation is key: "People in business like to meet people who work in the field," she explained, "they always have lots of stories that get people excited." It also helps to have a proposal ready that includes the expected benefits of a donation, and to find out in advance what interests the businesses' leadership. "Planting forests is the most popular," laughs Ekaterina, "and people really like big cats." But several companies that started out planting trees moved on to weightier conservation issues.

That's why at public events and festivals like Tiger Day, volunteers are soliciting contributions individually with increasing success. They are also raising money through auction and lotteries. The campaign "Dobryi gorod" (Kind City) is currently raising millions of rubles this way. It's labor-intensive, but engaging volunteers is sometimes as important as raising funds, and raising visibility with the public is critical in the long run. These more grassroots fundraising activities are especially important because the funds can be used for operational and administrative costs, whereas many grant funds are tied

to specific initiatives.

In the last years there has been a boom in crowdfunding and online charitable donations. There has been an explosion of Internet resources to raise funds—sites like Blago.ru, Smiruponitke, Global Giving, Planeta.ru. The foundation Pledge raised more than 9 million rubles to help the victims of the flooding in Amur. The site amur13.ru was created by volunteers for flooding victims. Two projects of the Phoenix Fund were advertised on Global Giving and are collecting funds for the protection of the tiger, as well as for responses to forest and steppe fires.

While the volume of money provided by the government is also growing, conservation advocates continue to express disappointment with the closed-mindedness, lack of transparency, favoritism, and stifling bureaucracy they must deal with on a regular basis. There are attempts to improve the situation. There have been competitions to consolidate budgets of ISAR-Siberia in four different Siberian regions, which have been successful. Also successful was a partnership in Kamchatka between local fisheries and NGOs that actively participate in the salmon councils and finance anti-poaching raids, as well as yearly salmon festivals.

How Can the Conservation Movement Become More Stable?

THE FIRST STEP TOWARD GROWING FINANCIAL

stability of Russian conservation groups is to better define the role of NGOs in Russian society. Conservation leaders must better define their successes and communicate their positive impacts on society. With better communication

will come increased donations.

Conservation NGOs in the Russian Far East have established the following important recommendations for increased fundraising efforts:

- Create NGO coalitions to undertake joint fundraising campaigns or conceiving and implementing large joint projects.
- Build strong, recognizable brands that are respected for their trustworthiness and ability to produce results. (For example, WWF, Sosnovka, or Ecodepo.)
- Understand target audiences and develop compelling narratives for presentation to potential donors. Demonstrate success directly through field trips or meetings with practitioners.
- Present options that interest individual donors, even if such programs are not a high organizational priority, as it could lead to future support for more diverse projects.
- Widen the space for civil society by establishing more partnerships with more stakeholders, at all levels—local, regional, and national. Increased support from the business and government sector will lead to new fundraising opportunities.
- Reach out to companies and individuals with a track record of giving, even if not to conservation causes.
- Develop new communications strategies—leveraging new media to share compelling stories about the successes and current priorities of conservationists.

There is no one-size-fits-all strategy—each organization will need to find its own path to greater visibility and financial stability. There's rarely going to be a single answer—the wisest strategy is diversity of approaches.

The Russian Far East is home to seven species of Pacific salmon, including the iconic sockeye (mature female at right), which have large, commercially valuable populations in Kamchatka and Chukotka. Salmon are central to the diet of the top of the food chain—bears, owls, eagles, and humans—and an important food source for other salmon as well.

PHOTO by [Elaine R. Wilson](#)
 [Creative Commons](#).



Salmon Strategies

Revered, Iconic, and Central to Diet

EVERY SUMMER, TENS OF MILLIONS OF WILD salmon in the Bering, Chukchi, Okhotsk, and Japan seas find their way to the mouths of the Anadyr, Amur, Bolshaya, Kol, Nabil, and other rivers of the Russian Far East and swim upstream to their birthplace, where they lay eggs that will hatch the next generation of salmon.

The Russian Far East is home to almost half the world's wild Pacific salmon ecosystems, and nothing defines the natural richness of the region and demonstrates its ecosystems' health (or lack thereof) more than salmon. Salmon are

central to the diet of the top of the food chain—bears, owls, eagles, and humans, and they are an important food source for other salmon as well. The Siberian salmon, known as taimen or “river wolf,” eats smaller Pacific salmon as they swim toward their spawning streams.

Pacific salmon also bring marine nutrients into coastal and river ecosystems when they spawn. This supports dozens of other fish species, as well as mammals and birds.

There are opportunities for significant advances in sustainability by harnessing market forces and consumer demand, and initiatives like the Marine Stewardship Council's certification of

SALMON STRATEGIES

4.1 Revered, Iconic, and Central to Diet

4.2 Healthy Ecosystems Face Looming Threats

4.3 Kamchatka Key Salmon Region

4.4 Rebound for Salmon on Sakhalin

• CASE STUDY 3—UST-BOLSHERETSK SALMON COUNCIL

4.5 Coal Mines New Neighbors for Chukotka Salmon

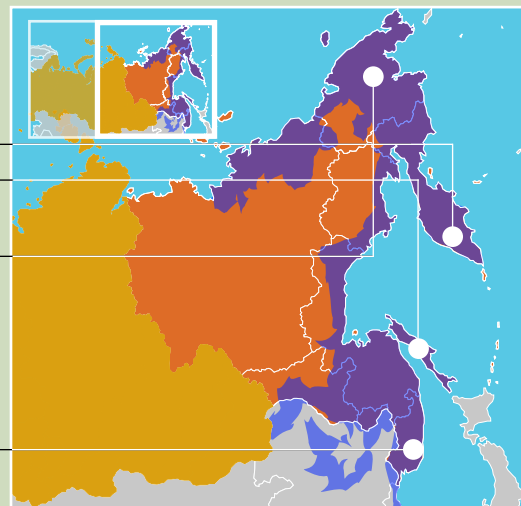
4.6 Sea of Japan Coast Faces Threats from Oil and Gas Terminals

4.7 Salmon Diversity in Mainland Russia

4.8 Salmon Conservation Strategies

• CASE STUDY 4—VOSTOCHNY RESERVE

• Q&A—SERGEY RAFANOV



Salmon river ecosystems in blue/purple.

wild salmon are already demonstrating measurable progress.

The seven species of Pacific salmon (*Onchorynhus*) in the Russian Far East are:

- Sockeye (*O. nerka*), the most iconic salmon species, with commercially valuable populations in Kamchatka and Chukotka;
- Pink (*O. gorbusha*), the largest commercial species by harvest volume in the Russian Far East;
- Cherry (*O. masou*), also known as masu, a relatively rare species native only to the Western side of the Pacific;
- Chum (*O. keta*), the second largest commercial species by harvest volume in the Russian Far East;
- Chinook (*O. tshawytscha*), the largest of the Pacific salmon by size and weight, but more rare than most other species;
- Coho (*O. kisutch*), a popular commercial species found in Kamchatka, Sakhalin, and the mainland; and
- Steelhead (*O. mykiss*), an iconic sport fishing species found on Kamchatka.

Healthy Ecosystems Face Looming Threats

BECAUSE SO MANY OF THE SPAWNING RIVERS in the Russian Far East flow through remote, uninhabited, and often inhospitable regions (for humans, that is), many salmon runs are healthy and thriving.

There are exceptions, like the Sakhalin taimen, not a Pacific salmon but part of the same salmonid family. The taimen is perilously close to becoming extinct within our lifetimes, and the steelhead is currently red-listed in Kamchatka. Several iconic rivers and whole regions are facing severe declines in abundance as poaching, overfishing, and industrial development threaten to destroy salmon habitat.

These exceptions foreshadow the wide range of threats that even the most healthy salmon systems may face in the coming years—climate disruption, massive coal mining projects, oil and



Salmon are scored and hung to dry in a Chukotkan village.
PHOTO by National Park Service (Beringia National Park)

gas exploration, gold mining, logging and forest fires, commercial fishing, hatcheries that can dilute the wild genetic pool, tourism, poaching, pollution, and ineffective fisheries management.

Climate disruption is the toughest to address because the causes are global, not local, and because the impact of today's carbon emissions may not be felt for decades.

Fisheries scientists have documented long-term cycles in north Pacific salmon productivity and, because of a cooling cycle since the late 1970s, salmon runs have been stronger. But climate disruption will stress *all* salmon ecosystems across the Russian Far East, in a variety of ways that will be hard to pinpoint—higher ocean acidity, change in peak river runoff, degree and intensity of ocean water mixing.

High flows may sweep away eggs deposited in river gravel. Low flows can lead to eggs drying out. As global temperature climbs, forest fires will become more common, which will generate more

soil erosion into salmon rivers.

The effects may be positive for some species and watersheds and negative for others.

Scientists predict that the impacts will be greatest at the southern end of the range (Primorye, Khabarovsk, and western Sakhalin) and for the least abundant species (cherry, Chinook, and coho). Salmon are adaptable and may move northward into the Arctic as sea temperatures rise, but, of course, that could have a dramatic impact on the humans and other species that depend on the salmon.

Addressing the root cause of climate change is, of course, critical, but there are also ways to maximize the resilience of salmon. Preventing overharvesting and habitat damage will help maintain natural diversity among, and within, salmon species, making them more resilient to changing conditions.

Fortunately, salmon are officially a “strategic resource” within Russia, meaning that many highly-trained and experienced

The salmon industry in the Russian Far East is a lucrative business and, if operated sustainably, can continue for hundreds of years. Fishers already see that ecosystem health and profitable fishing go hand in hand.

IDENTIFYING PACIFIC SALMON

The sign at right, designed to help Kamchatkans recognize the cultural value of salmon, lists the anadromous Pacific Salmon present in the Russian Far East. On the left, it shows how the fish look in the ocean, on the right when they are spawning in fresh water. The project was developed by the Kamchatka League of Independent Experts, a Kamchatkan NGO that no longer exists, with the support of Pacific Environment and other organizations.

CHUM (O. KETA)

(second largest commercial species by catch in RFE)

PINK (O. GORBUSHA)

(largest commercial species by catch in RFE)

SOCKEYE (O. NERKA)

(large populations in Kamchatka and Chukotka)

COHO (O. KISUTCH)

(popular commercial species found in Kamchatka)

CHERRY (O. MASOU)

(native only to the Western side of the Pacific)

CHINOOK (O. TSHAWYTSCHA)

(grows larger than any other Pacific salmon)

The chart does not include steelhead, a high-value species present on Kamchatka, but not always considered salmon.



Russian scientists study salmon, and map out strategies for sustained ecosystem health. Salmon are also important to residents of the Far East, who value them for as an important food and cultural resource. Local salmon councils, experienced resource managers, environmental educators, domestic and international NGOs, and a significant number of government entities are already working together to address existing threats and plan for those ahead. On Sakhalin, Kamchatka and parts of the mainland, there are protections in place that, with enough resources, can keep salmon ecosystems healthy far into the future.

The salmon ecosystems in the Russian Far East are not one unbroken ecosystem or one contiguous political body, but thousands of square miles of territory, extending from Chukotka's forbidding Arctic tundra to the rich deciduous forests of Sakhalin and the volcanic peninsula of Kamchatka. Because salmon habitat is stretched across a vast territory controlled by several provincial governments and containing diverse salmon ecosystems and populations, there are major differences in the threats, opportunities, and strategies for long-term salmon ecosystem health.

Rivers flowing through remote and sparsely inhabited areas, like northern Kamchatka and most of Chukotka, face far fewer pressures than those close to cities and industries. It's often not the industries themselves that impact the salmon as much as the roads and other infrastructure that come with them. Access to river sites is thereby increased, and the risk of poaching and pollution along with it.

These watersheds are not just distant from the seat of federal government in Moscow, but often distant from each other. This is due not only to geography, but also to the absence of convenient transportation or well-developed communication channels. While this poses problems, it also means that, as communication improves, there are opportunities for successful projects in one territory to be introduced and expanded to others.

The regional differences also allow conservation groups to test solutions in one region and then scale successes to other regions. That's why there is great value in supporting initiatives throughout the salmon ecosystems, not simply in one subregion.

There are several opportunities for short-term wins for high-value salmon ecosystems, most involving sustainable fishing initiatives and the creation of new protected territories. Full sustainability for Russian salmon will require a concerted, long-term effort to engage the business, government, civil society, and indigenous stakeholders that depend on salmon for their livelihoods in cooperative efforts to ensure rational management and habitat protection for salmon fisheries.

Kamchatka Key Salmon Region

ABOUT THE SIZE OF CALIFORNIA BUT WITH a population of just over 300,000, the Kamchatka peninsula separates the Sea of Okhotsk from the Bering Sea like a big thumb. (If you squint hard enough, it's also the shape of a salmon.)

Fishing has long been the backbone of the region's economy, and Kamchatka's catch from the highly productive Okhotsk and Bering seas makes up between 40 and 60 percent of the annual Russian catch. Kamchatka boasts the largest wild pink salmon runs in the world, and the second-largest sockeye runs. Most are harvested in an environmentally friendly manner, in coastal trap nets and beach seines.

Kamchatka is home to seven species of salmon, five of which are healthy enough to harvest commercially (pink, chum, sockeye, coho, and Chinook), and two others that sometimes support recreational fishing (cherry and the red-listed steelhead).

The Kamchatka salmon conservation plan targets two key salmon species—Chinook and coho—and three rivers—the Kol, Kamchatka, and Bolshaya.

Kol River Salmon Preserve

FOUNDED IN 2006 AS THE RESULT OF EFFORTS BY THE WILD Salmon Center, the Kol River Salmon Preserve is the only preserve in Russia created specifically for salmon conservation. The 544,000-acre preserve protects the Kol River from its headwaters in the mountains in Kamchatka's center to its mouth on the Okhotsk Sea. Pink salmon are the predominant species, numbering in the millions in the early 2000s, but trending downward.

Several commercial fisheries are active on the river, with an estimated annual harvest value of at least \$1 million. There's also a biological research station on the main stem of the river that brings students learning field skills each summer.

The preserve is home to brown bears, minks, wolverines, and 127 bird species.

The challenge with protected areas is ensuring they are more than boundaries on a map—that they are backed up with sufficient operating funds and committed staff that have authority to take action against potential threats. The Kol River Preserve has only a few rangers to patrol hundreds of thousands of acres. Over the past several years, conservation organizations on Kamchatka, such as Lach, have recruited public inspector brigades to help those few rangers act as eyes and ears on the rivers.

Founded by Nina Zaporotskaya, a teacher from a prominent indigenous family in Kamchatka's remote north, Lach's focus has been on preserving and celebrating indigenous culture and



Kamchatka is known for its volcanoes as well as its salmon and grizzlies. PHOTO by [Igor Shpilenok](#).

A teacher from an indigenous family in Kamchatka's north, Nina Zaporotskaya founded Lach to celebrate indigenous culture and support subsistence salmon fishing. Lach has recruited and organized public inspector brigades to help rangers combat poaching.
 PHOTO by Lach Ethno-Ecological Information Center.



supporting traditional subsistence practices like salmon fishing. But even in protected areas like the Kol River Preserve, commercial-scale poaching of salmon—primarily to harvest roe for making caviar—has been devastating key stocks and damaging salmon-spawning rivers.

Because maintaining healthy populations of wild salmon is a life-and-death matter to indigenous communities, Zaporotskaya has focused Lach's work on combating poaching.

She knew, however, of the tension between indigenous communities and state park officials. Too often, well-intentioned park rangers went after the indigenous subsistence fishers instead of the big poaching operations. So Lach organized a pilot program within the preserve, teaming up park rangers with indigenous Ivanovi guides, who led rangers to known poacher hideouts and patrolled remote stretches of the river. As the number of poachers on the river has decreased, a growing trust has built up between local communities and park staff, which has helped facilitate legal subsistence activities along the Kol. As one park official said: "Without the Ivanovi co-operation, our park would just not work."

Kamchatka River

HOME TO SOME OF KAMCHATKA'S FIRST settlements, the Kamchatka River is one of the largest and most commercially significant rivers on the peninsula, and its sockeye runs have been strong enough that even with big harvests, an average of half a million salmon "escape" to spawn the next generation. (Fishery scientists measure salmon through a variety of metrics, including "escapement"—those fish that "escape" harvest and successfully head upriver to spawn.)

The smaller runs of Chinook on the Kamchatka have not fared as well. The escapement has declined precipitously while the harvest rate has in-

creased dramatically. The escapement goal was set at 60,000 in the 2000s, but in 2011, only 4,000 escaped, and in 2012, only 7,000.

Bolshaya River

THE BOLSHAYA, WITH ITS HEADWATERS IN THE PENINSULA'S central mountains, flows through the Elizovo and Ust-Bosheretsk districts before emptying into the Okhotsk. It's one of Kamchatka's largest and most diverse salmon rivers—six Pacific salmon species spawn in the Bolshaya.

During the Soviet period, the Bolshaya was the site of several large state-supported fishing collectives, which have been replaced by commercial operations that primarily employ seasonal migrant labor and bring little economic benefit to the local residents.

As is the case on the Kamchatka River, the once strong Chinook run has experienced a steady decline. The escapement goal of 35,000 has not been met once since 2005, largely the result of poaching and poor fishery management.

Poaching is widespread on the river, especially near roadways and larger population centers, like Ust-Bolsheretsk.

(For more information on Bolshaya River conservation initiatives, see [Case Study 3—Ust-Bolsheretsk Salmon Council](#).)

Chinook and Coho

IN ADDITION TO TARGETING THE THREE RIVER BASINS, conservation efforts are focusing on Kamchatka's Chinook and coho for additional attention because their populations are declining in a number of rivers. By comparison to the more abundant pink and chum, these two species have more genetically distinct populations that do not interbreed and more life history diversity. Different populations use different portions of the river (tributaries, upper main channel, lower main channel) for spawning and rearing, and vary in the timing of their ocean migrations. Their longer life cycles also make them more vulnerable to changes in the environment.

Rebound for Salmon on Sakhalin

BECAUSE IT'S A MOUNTAINOUS ISLAND WITH A WET, MONSOON sea climate, Sakhalin has more than 60,000 rivers and streams. Pacific salmon spawn in almost all of them. Only Kamchatka, with 8 to 10 times as much spawning habitat as Sakhalin, has a greater variety and volume of salmon. Yet the salmon catch on Sakhalin is comparable.

Sakhalin is also rich in oil and natural gas, with Soviet-era industries still operating (and still polluting). The newer larger-scale operations on the northeastern shelf of the islands are also a concern, though they abide by stricter environmental standards. They are less of a threat to salmon because they are offshore and do not directly pollute salmon spawning rivers. Their infrastructure like roads and pipelines, however, can have serious negative consequences by polluting and providing access to poachers.

One pipeline spans the entire island north to south, and several others cross from east to west near the top of the island. Coal

mining is growing too. Sakhalin's economy, the strongest in the Russian Far East, used to be dominated by agriculture and forestry. Today, it's primarily fisheries and the oil, gas, and coal industries that pose a threat to them.

Over the past century, Sakhalin has experienced far more impacts from humans and infrastructure than most of the Russian Far East. Forests have been felled. Weirs blocked rivers. Paper mills and oil and gas operations contaminated the soil and water. All these things hurt the salmon.

But the political and economic upheaval following the fall of the Soviet Union led to the decline of the logging and agricultural industries and to massive depopulation, except for the capital city of Yuzhno-Sakhalinsk. That has helped the salmon recover. The main salmon species on the island—pink—has grown in abundance in the past two decades. The rare and endangered Sakhalin taimen continues to decline. The abandoned industries, combined with a new wave of conservation and better laws, have contributed to the improvements.

The decline of the logging industry has been especially significant. Healthy forests are a precursor to healthy salmon. Today, the greatest threats to salmon are overfishing, poaching, and the increasing production of salmon in hatcheries.

Conservation opportunities for Sakhalin are focused on three targets—the Vostochny Reserve, the cherry salmon, and the Sakhalin taimen, which is critically endangered.

Vostochny Reserve

THE 170,000 ACRE VOSTOCHNY RESERVE, ON the central eastern coast, is a series of river basins flowing west to east to the Sea of Okhotsk. It's home to pristine ancient forests and an intact salmon ecosystem, completely free from industrial-scale fishing. The protection measures are strong and not currently under threat. The Vostochny's populations of cherry, coho, chum, and pink are healthy, even more today that they used to be. Between 1995 and 2000, the area was heavily logged and experienced frequent forest fires, but the forests have restored themselves since and salmon populations are up. Pink salmon are ten times more plentiful than a decade ago. (For more, see [Case Study 4—Vostochny Reserve](#).) Locals envision the Vostochny and relatively pristine, adjacent areas to the north and south of the reserve as a “wild salmon area” that merits particular focus from the conservation community.

Sakhalin Taimen

IN CONTRAST TO THE HEALTHY SALMON SYSTEMS IN VOSTOCHNY is the plight of the Sakhalin taimen. Its populations have dwindled dramatically throughout their habitat range, which includes the rivers of Sakhalin, Hokkaido, Kunashir, and Iturup islands. Some studies estimate they are disappearing at a rate of 15 to 20 percent a year.

The taimen begin reproduction at the age of nine, and spawn once every two years in the spring. Only a little more than a quarter of the males participate in breeding, so overfishing can have a disproportionate impact on the next generation.

The Nabil River, especially the southern part of its basin, with its healthy forests and minimal fishing and poaching, is home to the largest number of healthy taimen.

It appears that the main threat to taimen is overfishing and poaching, especially trophy sport fishing. There's little solid evidence of what's going on. There are anecdotal reports of small-scale poaching operations—groups of two to four poachers working together. There are also incidents of sport fishers catching taimen without realizing it. Even when fishers are practicing catch-and-release, the released fish often die.

There are some legal tools available. Poaching, sale, and transportation of endangered species, including the taimen, now has criminal penalties comparable to selling hard drugs. Yet the local people are not aware of these tough sanctions, nor are the local police. Or if they are, they aren't enforcing the laws.

Cherry Salmon

CHERRY SALMON HAVE A SMALL POPULATION ON SAKHALIN and their numbers are dropping. They face the same threats as the taimen, primarily overfishing and poaching, though they are not in danger of extinction.



Brown bears await the start of the pink salmon run along the coast of the Vostochny Reserve, Sakhalin. PHOTO by Alexander Kolgin.

On the Banks of the Bolshaya

SINCE THE COLLAPSE OF ITS AGRICULTURE

sector, the economic mainstay during the Soviet era, the Ust-Bolsheretsk district has become increasingly dependent on salmon fishing in the Bolshaya River basin and adjacent ocean. But salmon populations are down, and the once thriving commercial fishing industry is struggling.

The Bolshaya is particularly special because it hosts spawning beds for six species of Pacific salmon.

The main culprits in the declining salmon

effective at building stakeholder unity.

They cobbled together funds from local fishing companies and municipalities, as well as international conservation organizations, and focused first on stopping illegal fishing.

Despite the sharp rise in poaching and depleted fishing stock in the Bolshaya, authorities punished only about 3 percent of poachers. It didn't help that the number of government fisheries inspectors kept going down. In 2013, each fisheries inspector on Kamchatka was responsible for an average of 698 kilometers of rivers, far too much for one inspector.

To combat rampant poaching on the Bolshaya River, the Ust-Bolsheretsk Salmon Council has brought together all the local stakeholders to make salmon fishing sustainable and develop a flourishing ecotourism industry.

catch are poaching and driftnet fishing, whereby commercial fishing vessels release long nets into the ocean, often leaving them for days, and then often only harvesting the most commercially valuable species, like sockeye and Chinook, throwing tons of dead pink and chum (known as “bycatch”) back into the ocean.

Most illegal catch used to come from commercial fishing companies. Now it's more likely to be done by small groups of fishermen scattered along the river basin who sell their take to fish processing plants.

According to Kamchatka's Fisheries Research Institute, the poaching of Chinook salmon in and near the Bolshaya is four to five times more than the legal limits.

To address these unsustainable practices, deputy director of Ust-Bolsheretsk municipality partnered with Sergei Vakhrin, a fishing industry expert and conservationist, to create Kamchatka's first salmon council in 2011, bringing together the indigenous Itelmen, other local residents, government agencies, and commercial fishing companies to seek broad support for salmon conservation.

Salmon councils on Russia's Sakhalin Island and in the U.S. Pacific Northwest have proven

To supplement state fisheries inspectors, Russia restored the public inspector title in 2011, allowing concerned citizens to assist law enforcement by spotting and reporting poachers. The following year, the Ust-Bolsheretsk Salmon Council hired patrolmen from local military veterans, gave them basic training and equipment, and provided a spartan camp on the banks of the Bolshaya near Ust-Bolsheretsk. They work closely with state inspectors. This is important because, even though they don't have law enforcement authority, they can call upon police or fisheries inspectors who do have that authority. They have played a crucial role in reducing poaching on the Bolshaya.

When the Ust-Bolsheretsk administration first offered the public inspectors to the local branch of the Federal Fisheries Agency's fisheries inspection unit as reinforcements or additional scouts, the FFA inspectors refused to work with them.

That didn't dissuade the public inspectors. But when they began photographing incidents of poaching, the FFA inspectors censured them for “illegal use of radio communication devices.”

But when the widely read website FishKamchatka.ru published an account of the FFA's actions, it resulted in the replacement of the local FFA director and the beginning of a cooperative relationship between the local police and public inspectors, who not only served as extra eyes on the river, but also as reinforcements in raids against large groups of poachers.

The 2012 anti-poaching season demonstrated the value



Bolshaya River (Kamchatka)

of public inspectors as a tool to oversee local law enforcement and force state agencies to take action. In 2013, the second year, the public inspector brigade split up into three or four independent, mobile groups equipped with land and water vehicles, video cameras, navigation tools, and satellite communications. It cost the salmon council 10 million rubles to employ 20 public inspectors for the May-15-to-November-15 salmon season.

Funding came from local businesses, with additional backing from international conservation organizations and domestic supporters. The support of commercial fishing companies has been especially important, for the credibility as much as for the money.

In the coming years, the center hopes to engage more public inspectors, volunteers, and ecotourism guides, who will receive rigorous training that includes ecology theory, wilderness survival, and an overview of fish protection laws.

One key to success so far has been the council imposing a ban on fishing with nets in the river and delta, which makes it easier for inspectors to spot poachers. So has setting up a system of pass-through days, where fishing is banned so the salmon can reach their spawning grounds.

Possibly the most important factor, however, has been unifying the diverse group of stakeholders behind the goal of building a tourism economy as an alternative to poaching.

The recreational tourism potential of the region is tremendous. The landscape and biodiversity is magnificent and there are opportunities for summer and winter activities—boat trips and rafting, snowmobile safaris, dog sledding, and ice fishing.

The river is easily accessible from any point between Ust-Bolsheretsk and Kavalerskoe, allowing for the creation of visitor centers and tourist attractions that could even utilize current poachers' trails, a strategy that council members hope will drive poachers farther afield and make poaching less attractive.

The council also envisions a "scientific tour," where visitors serve as research assistants on local salmon populations, and an "adventure tour," where participants help public inspectors with river surveillance.

The southern part of Sakhalin island is an important breeding ground for the cherry salmon. One group of cherry enters the river during the spring floods, primarily in the west, and another enters later, from the east. When they enter the river, they turn red, thus the name.

According to fishers and scientists, the cherry go for tackle enthusiastically when in the rivers, so it's no surprise they are overfished.

Educating the local population about the value of the cherry salmon and encouraging them to be judicious in their fishing could go a long way. There's currently a high demand for cherry in the markets and people have no qualms about buying poached salmon, although they may not be aware that they are doing so.

The key to getting the cherry on the path to sustainability is more scientific research and oversight, increased enforcement against poaching and overfishing, and ongoing education.

Coal Mines New Neighbors for Chukotka Salmon

IN JUNE, WHEN THE ICE OF CHUKOTKA'S rivers thaws, millions of salmon surge upriver to spawn in the flowing lakes they were born in. But more and more often—four times since 2008 in the case of the region's largest run of sockeye—too many salmon are taken for fishing, and the long-term health and sustainability of the salmon is becoming endangered.

In addition, threats from existing and planned coal mining and the heavy industrial equipment that accompanies it are likely to negatively impact the future health and populations of the salmon.

Pacific salmon, especially the sockeye, play an integral role in the Chukotka ecosystem. All populations in Chukotka are wild—that is, not produced by hatcheries.

The most studied species, the sockeye, numbers between 300,000 and 400,000 in the Meinypilgynsky river and lake system, while the most numerous species, the chum, numbers between 2 and 3 million in the Anadyr river basin. Their abundance, plus their proximity to populated areas, make sockeye and chum the mainstay of the fishing trade in Chukotka. They're also an important food source for the local people and wildlife like the brown bear, fox, silver gull, and grayling. It's an optimal target for conservation work because protecting the salmon protects the ecosystem as a whole, including



Most fishing in Chukotka is done on a small scale by local indigenous people, though there are also some commercial harvests. PHOTO by Konstantin Savva, U.S. National Park Service. Berengia National Park

habitat for the endangered spoon billed sandpiper.

Most of the fishing is done on the local level by the indigenous people, but there are also some commercial harvests.

Other species of salmon in Chukotka include pink, coho, Chinook, and cherry.

Salmon specialists say that no more than 30 percent of the Meinypilgynsky sockeye population should be taken for fishing, but that was exceeded in 2008, 2009, 2010, and 2012.

Because of Chukotka's remote location and sparse population, its salmon suffer less negative impact from human intervention compared to other regions. There are no fish processing facilities in Chukotka, and the only gas pipeline in the region does not cross a major river.

But the mining industry, with its bulldozers, haulers, and other heavy equipment, as well as large structures and electric power infrastructure, poses a significant threat to the ecosystem.

Currently, a trio of mining companies (Australia's Tigers Realm Coal, Canada's Nagornaya Investments, and Russia's North Pacific Coal) are involved in a long-term coal mining project that aims to develop two new sites at Amaam and North Amaam, which are in the Meinypilgynsky watershed.

In June 2014, Tigers Realm purchased the Beringovsky Port and Coal Terminal northeast of the two coal coking projects and plans to build a new port at Arian. Construction begins this year, and mining is projected to last for 20 years. The overall potential for coal, which will be exported to Asian markets, is estimated to be at 4.5 billion tons.

According to assessments, the numbers of sockeye salmon in the Amaam River do not exceed 10,000, which makes the population more vulnerable. However, there is currently no public information about the potential impact of this project on sockeye salmon. Deleterious impacts of mining upon salmon have been illustrated elsewhere—for example, in Alaska, mining in the earliest 20th century wiped out entire salmon runs in the Matanuska-Sustina basin. Meanwhile, to date, mining impacts upon salmon in Chukotka have not been well-documented.

The other threat to the salmon is poaching, which takes three forms—illegal industrial-scale fishing in seas and rivers, poaching for caviar in salmon breeding grounds, and small-scale subsistence fishing by local people.

While poaching in Chukotka is less severe than in other regions, there have been some cases in which poachers have taken 30 to 50 percent of the fish from their breeding grounds.

Officially, local residents' annual catch is estimated at 3 tons or less, which would not make a significant dent in the salmon population. But the accuracy of the official assessments is questionable. There are no organizations addressing salmon sustainability in Chukotka or demanding transparency from mining companies. The poverty and weak economy in the region make it difficult to keep poaching to a minimum. Salmon councils in Kamchatka have raised awareness about the importance of salmon ecosystems and conducted comprehensive economic assessments of the fishing industry. Creating organizations like those in Kamchatka could go a long way to protecting Chukotka's salmon. Furthermore, supporting such organizations in efforts to preserve the Meinypilgynsky watershed would help not only salmon, but also the endangered spoon-billed sandpiper and Pacific walrus that have key habitat in the region.

Sea of Japan Coast Faces Threats from Oil and Gas Terminals

THE COASTAL ECOSYSTEMS OF THE SEA OF JAPAN, IN SOUTHERN Primorye, are home to the Amur tiger and leopard, as well as the highest diversity of terrestrial and marine species. Dozens of small rivers flowing to the Pacific are habitats for cherry salmon and Sakhalin taimen. Ports, pipelines, railroads, and refineries are the greatest threats.

Local NGOs and scientists united by the Public Environmental Committee of Primorye Province have recently stopped placement of oil and gas terminals in the most vulnerable locations on the coast. Now as cooperation between Russia and other Asian countries accelerates, a more holistic approach is needed to guide placement of growing number of export-oriented facilities along the coast—through zoning plans, “no go areas,” and designated areas for fishing and recreation.

Salmon Diversity in Mainland Russia

SAKHALIN AND KAMCHATKA ARE THE MOST well-known and least degraded of Russia's salmon habitat, but there are several thriving salmon population centers on Russia's mainland as well. Con-

ies into sustainability certification. A FIP is an alliance of stakeholders—fishers, processors, producers, and retailers—that comes together to address problems within specific fisheries, identifying data that needs to be collected, and developing action plans to make improvements.

While the ultimate goal for many FIPs is MSC certification, for

Half of the wild salmon fisheries in Kamchatka are now MSC-certified, in an MSC certification assessment, or in a Fisheries Improvement Project.

servation of this habitat is addressed in [One River, Three Countries](#), using the taimen as a focus species and a holistic conservation approach that includes salmon. Several of the salmon conservation strategies recommended below are already being applied with success on several key salmon rivers on the mainland, such as the Tugur and Koppi rivers, and should be considered as additional protection measures to the recommendations in the Amur chapter.

Salmon Conservation Strategies

Leveraging Demand for Wild,
Sustainably Sourced Salmon

THE WORLD'S APPETITE FOR SALMON IS STRONG, and growing. With a global middle-class becoming more interested in food safety and sustainability, there's a huge opportunity to strengthen salmon ecosystems by leveraging the demand for wild-caught salmon—in Russia and in the global market.

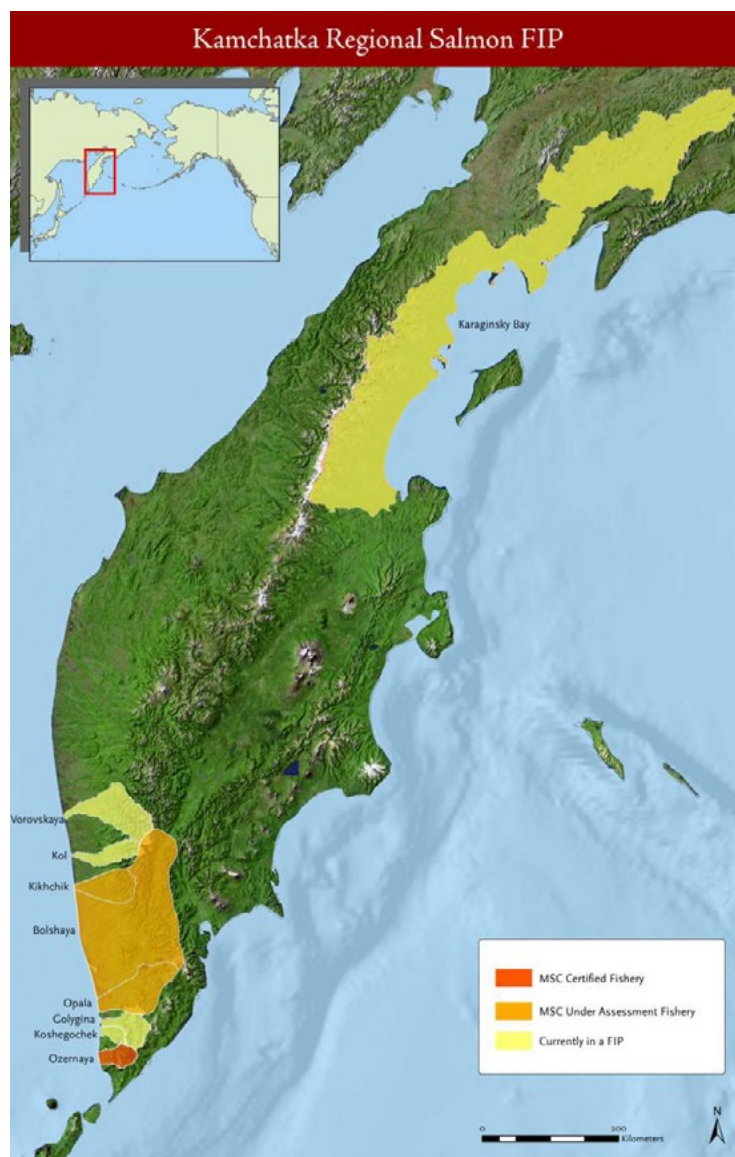
The Wild Salmon Center, WWF, and the Marine Stewardship Council (MSC) are making significant progress getting more Russian fisheries certified for the global and Russian market for wild salmon. Once certified, Russian fisheries gain access to international markets, where they often receive a price premium for their product—making money while keeping the salmon ecosystems healthy.

MSC certification involves an independent audit of stock status, fishery management, and fishery impacts to the ecosystem, which amounts to a verification of a fishery's sustainability. Fisheries that receive certification generally do so on a conditional basis, and must demonstrate continual improvement in order to maintain certification.

Wild Salmon Center is also developing Fishery Improvement Projects (FIP) to fast-track fisher-

ies that are not in a position to achieve the MSC standard in the short term, FIPs offer a mechanism to engage and encourage as many salmon producers as possible to make improvements. This strategy has already resulted in demonstrably healthier salmon ecosystems.

In September 2014, the Wild Salmon Center reported that two new fisheries improvement projects in Kamchatka now bring half of the peninsula's wild salmon fisheries into a FIP or MSC certification process.



Half of Kamchatka's fisheries are now in a FIP or MSC-certification process. MAP by Wild Salmon Center.

The Karaginsky Bay salmon fishery launched the first-ever Fishery Improvement Project in Eastern Kamchatka, bringing new sustainability targets to fisheries that produced more than 22,000 tons of salmon in the first eight months of 2014. In Western Kamchatka, the existing Western Kamchatka Regional Salmon FIP expanded to four additional watersheds, which doubles the volume of salmon under improved status.

The new FIPs are part of a larger trend of increased engagement of Russian salmon fisheries in sustainability and certification efforts. This is especially true in the Kamchatka peninsula, where efforts have been gaining momentum over the past decade as fishermen, government officials, and seafood businesses work to blend resource protection and development needs.

Other successful projects that have led to MSC certifications include the Ozernaya sockeye fishery in Kamchatka and the Northeast Sakhalin salmon fishery. These certified Russian salmon fisheries have gained access to high-end markets in North America and Europe, which in turn drives additional interest in certification and FIPs. Major seafood buyers such as Nestle, Gorton's, and High Liner Foods have become partners in the Wild Salmon Center's FIPs.

"We have a new generation of leaders coming up in Russian salmon fisheries," said Igor Redkin, the General Director of Vityaz Avto, one of the already certified companies that is leading the expanded West Kamchatka Salmon FIP. "Before, people were living day by day, but now they are thinking about the future—understanding that protecting nature means protecting your business."

There are additional opportunities throughout salmon ecosystems to use market and enforcement incentives to stop the harvest of endangered species. Endangered masu salmon are frequently sold in open markets in the capital of Yuzhno-Sakhalinsk. A small investigation group, similar to those that have patrolled for poachers along Sakhalin's rivers, could identify endangered species and notify law enforcement to punish the offender with a stiff fine. Such a strategy would deprive poachers of their income and should lead to a reduction in poaching.



With the help of Wild Salmon Center, Karaginsky Bay salmon fishery recently launched the first Fishery Improvement Project in Eastern Kamchatka. Meanwhile, the Western Kamchatka Regional Salmon FIP expanded to four additional watersheds, which doubles the volume of salmon under improved status. PHOTO © Denis Semenov, courtesy of Wild Salmon Center.

Protecting Wild Salmon Habitat

CREATING AND SUPPORTING PROTECTED TERRITORIES CAN be an effective way of preserving salmon populations and habitat. Although this tactic has achieved mixed results in recent years, there are several opportunities to gain real territorial protections over the next few years.

On Kamchatka, the Kol River Preserve is due to close in 2016, part of a sunset agreement created at the time of the preserve's founding. Losing the protected territory would be a devastating blow to the Kol River and to conservation on Kamchatka. Making the Kol Preserve permanent is a major conservation goal, and should be combined with efforts to strengthen the preserve's capacity to provide meaningful protections against poachers and other threats.

On Sakhalin, the Vostochny Preserve has gained widespread support from local stakeholders by protecting one of the island's wildest and most biodiverse areas. Conservation leaders, including Dima Lisitsyn and Vladimir Smirnov, have now set their sights on creating a marine protected area off the coast of Vostochny.

The nearby ocean is an important migration route for salmon returning to Vostochny. In recent years, Sakhalin Environment Watch has observed illegal fishing operations just offshore of Vostochny.

Sakhalin Environment Watch is confident it can create a marine protected area within 2-3 years, which would provide leverage to stop poaching of Vostochny salmon.

Because the creation of protected areas depends on political will at the regional or national level, conservation organizations

CASE STUDY 4—VOSTOCHNY WILDLIFE REFUGE

Regular People Making a Difference on Sakhalin

THE SEEDS FOR THIS WILDLIFE REFUGE

were planted when Dima Lisitsyn, a carpenter from Siberia, moved to Sakhalin and teamed up with British environmental leader Emma Wilson.

Lisitsyn cared deeply for the environment, but at the time he moved to Sakhalin and started a family, the economy was in turmoil and he saw little opportunity for political action within the rigid Soviet system. With the fall of the Soviet government, however, came dramatic changes and new opportunities for political reform. Still, Lisitsyn didn't believe regular people like him could make a difference.

Wilson changed that—telling him how



Before he launched a campaign for government protection of Vostochny Reserve, Dima Lisitsyn recruited a team to patrol for poachers and illegal loggers, and organized the indigenous villagers and local communities who opposed commercial fishing in the area. PHOTO by Goldman Environmental Prize.

Dima Lisitsyn had long cared deeply for the environment, but even after the fall of the Soviet

Union, didn't believe a regular person like him could make a difference. But he could and did.

people like him in other parts of the world won environmental victories through grassroots activism. She founded Sakhalin Environment Watch in 1995, and Lisitsyn began leading the organization the next year when she returned to England.

He began by recruiting a team to patrol for poachers and illegal loggers, and followed with a campaign for government protection of the reserve, lobbying public officials and organizing the indigenous villagers and local communities who opposed commercial fishing in the refuge.

In 2007, Sakhalin Governor Alexander Khoroshavin officially established the refuge, banning hunting, logging, fishing, and commercial activity. The regional government

appointed rangers for the reserve two years later.

An organization of local commercial fishing companies, Smirnykhovskiy Regional Association, led by Vladimir Smirnov, has been an important partner in protecting the refuge. Member businesses are built on wild salmon, and they have established excellent relationships with local authorities. There's also a strong salmon council under Smirnihovsk Mayor Nikolai Kozinskiy.

"Healthy salmon ecosystem," says Smirnov, "can sustain local communities and regional governments long term, and also serve as living genetic banks for restoring depleted fisheries elsewhere on Sakhalin." In that way, Vostochny is protecting even those salmon elsewhere on the island, as well as on the mainland.

Smirnov's fishing company was one of the first in the Russian Far East to be certified by the Marine Stewardship Council.

should be opportunistic about creating new protected areas. The creation of the Shantar Islands National Park and Tugur Preserve in recent years demonstrates that territorial protections can effectively set aside priority salmon habitat. A great deal of high-quality

work has been done by WWF-Russia, Wild Salmon Center, and others to prioritize high-value salmon ecosystems, and these should be given protections if possible. In particular, Kamchatka's legislature is considering approval of a plan for long-term territorial protection that could open the door for the protection of additional salmon habitat.



Brown bears and salmon are plentiful in Kamchatka. PHOTO by [Igor Shpilenok](#)

Sport Fishing Offers Opportunity

WITH THE FALL OF THE SOVIET UNION, A NEW elite sport fishing class has risen—people who fish for fun, not subsistence. Because the salmon runs are so spectacular, they have attracted more sport fishers, from Russia and internationally.

There are now an estimated 15 to 20 million anglers in Russia, who have spawned a whole new industry of fishing gear and boats and sonar. High-quality rods and sleek boats have become status symbols, as have trophy fish like the endangered Siberian taimen and Sakhalin taimen.

While sport fishing poses an intermittent risk for salmon, the impacts are usually reversible, and the emerging sport fishing community offers considerable opportunities for conservation. Successful sport fishing businesses depend on healthy salmon runs, and the people who sport fish tend to be wealthy and spend lavishly on fishing. With the right mix of education, fishers and the lodge operators and sports concession owners can become effective advocates and promoters of strong salmon conservation standards. International fishing tourists bring visibility as well as cash. The Moscow-based NGO Russian Salmon Fund is working to represent the conservation views of organized sport fishing interests.

Making Salmon Matter

THE BEST STRATEGY TO PROVIDE LONG-TERM DURABLE protections for wild salmon populations is an engaged, informed, and motivated citizenry. Dozens of stakeholder groups in the business, government and indigenous communities rely on salmon for income or survival, and coordinating smart management practices among these stakeholders is vital.

Salmon councils, also known as watershed councils, have become a model for protecting salmon ecosystems. Though they take a variety of shapes, most are government-plus-grassroots hybrids that bring together all the stakeholders in the river basin and serve as advisory bodies to local and regional governments.

Oregon-based Wild Salmon Center helped create the first public salmon council on Sakhalin (Smirnykh) and six more that have evolved from that first effort, including four more on Sakhalin (Aniva, Nogliki, Ulegorsk, and Poronaisk) and one each in Kamchatka (Ust-Bolsheretsk) and Khabarovsk (Koppi).

The councils must navigate the tricky balance of acting as open civic groups providing a forum for collaboration without becoming captive to local governments. Council strategies include community presentations, environmental education, anti-poaching raids, salmon festivals, and recruiting volunteer patrols for salmon-protected areas.

One way these salmon councils can make a huge contribution to long-term salmon sustainability is in mediating disputes among stakeholders. Because the government allows certain groups, such as indigenous people and commercial fisheries, preferential access

Q&A



Sergey Rafanov

As Kamchatka Program Director for World Wildlife Fund–Russia, Sergey Rafanov helps commercial fisheries implement sustainability measures to meet Marine Stewardship Council standards. He also works to develop markets for wild Kamchatka salmon, within and outside of Russia.

Q: Salmon play a major role in the local economy, and I understand that it is a major priority of yours to make sure that salmon are being harvested sustainably. Why is this important and how are you doing this?

SALMON ARE THE BIOLOGICAL FOUNDATION, OR KEYSTONE SPECIES,

of coastal ecosystems and human economies in the Pacific Rim. It connects ecosystems and human livelihoods across the Bering Strait. Annual salmon migrations are a miracle of nature; they feed us and their presence tells us that our rivers are still healthy. More than 60 per cent of Russian fish are caught in the Kamchatka region. The increasing demand for salmon and salmon caviar, a delicacy in Russia and Japan, is reducing salmon populations beyond the point which they can naturally recover. Over the last two decades, some of the relatively well-protected Kamchatka fisheries have deteriorated along with the capacity of management agencies to enforce laws regulating harvest.

We are working with fishing companies operating on the Kamchatka peninsula. We are helping commercial fisheries to develop Fishery Improvement Plans to implement sustainability measures on important rivers, and we assist harvesters to meet MSC sustainability standards. We also work with buyers in Japan, China, and the West to ensure a market for sustainable Kamchatka salmon within and outside of Russia. This way there is a strong economic incentive to adopt MSC-sustainability standards.

Q: You also lead a project to help local students and scientists better understand salmon management. Why is this relevant on Kamchatka?

WE ARE COLLABORATING WITH KAMCHATKA STATE TECHNICAL

University to develop a new program to ensure that each year a cohort of scientists and natural resource managers have the best tools and knowledge on ecosystem-based salmon management. Graduates of this program will enter government, scientific institutes, civil society and business with a knowledge of the scientific tools and management approaches used around the globe to manage Pacific salmon, including data collection systems, salmon biology and productivity, salmon life history models, spawning recruitment analysis and harvest strategies, international salmon markets and finance, etc.

Q: Have any alumni of this program gone on to become allies of yours in salmon conservation?

EVERY YEAR SINCE 2012, WWF INVITES STUDENTS FROM THE

university to work as independent observers at MSC-fisheries sites. We developed Independent observer work-plan. The main goal of alumni and students—to check if MSC-involved fishing companies meet the requirements of certification procedures, identify gaps in meeting MSC conditions and inform stakeholders of these gaps.

to salmon, those denied access are often resentful. Councils have been most effective where there is strong leadership from the nongovernmental sector.

The Ust-Bolsheretsk Council on Kamchatka has a history of success—it has given local stakeholders a forum to implement changes in local fisheries management. (For more, see [Case Study 3—Ust-Bolsheretsk Salmon Council](#).)

Salmon councils are not without their drawbacks. Territorial government is not always supportive, and when it is, it can be uneven. Most councils rely on a small core of dedicated leaders. Building a consensus is slow and difficult work. But salmon councils give local stakeholders an opportunity to play a direct role in the conservation and management of salmon populations, a rarity in Russia's top-down political culture. Salmon councils benefit as well from an infusion of international knowledge and expertise in areas like salmon management, land reclamation, and sustainable tourism. With appropriate long-term support, salmon councils can serve as a powerful mechanism to achieve durable sustainability for Russian salmon.

New Generation of Salmon Champions

THERE'S BEEN A BRAIN DRAIN ACROSS THE Russian Far East in the past few decades.

Since the fall of the Soviet Union and the subsequent turbulence in the economy, there are fewer opportunities for scientists to make a living except by moving west. Long-term success in sustainable salmon systems depends on

attracting young people to science and conservation careers and creating opportunities for the next generation of salmon champions. This means more investment in environmental education and more training in sustainable fisheries management.

The Russian “Gen Y,” born in the last two decades of the last century, have come of age during a time when survival and money came first, and the environmental ethic has not been so prominent. There are exceptions, like the young people working with Dima Lisitsyn at Sakhalin Environmental Watch or with Dale Miquelle and his colleagues at Wildlife Conservation Society in Russia. These organizations recognize promising young scientists and enthusiasts and provide them opportunities to continue their education in real-world settings, helping them make a living in the region and remain in the conservation movement. More programs should focus on supporting young conservation and scientific talent.

Another good sign is the partnership between Kamchatka State Technical University (KSTU) and WWF to develop a new fisheries management curriculum for the university and train new cohorts of scientists and natural resource managers in sustainability and ecosystem-based salmon management. They are tailoring classes to address conditions in local fisheries, as well as bringing in international experts.

The revamped Aquatic Biological Resources Management and Conservation Department is growing in popularity. In 2013, there were eight students in the Master's program—twice the usual number. The Bachelor's program has also seen greater interest from incoming students.



Rhododendrons bloom at South Kamchatka Nature Park. PHOTO by [Igor Shpilenok](#)

Some Chukotkan villages are so remote that the people there have never had their photos taken before. That is, until photographer Sasha Leahovcenco, born in the former Soviet republic of Moldova and raised in California, journeyed to what he called “the end of the earth” to photograph nomadic reindeer herding families. His photos and video are available at sashaleahovcenco.com.

CHUKOTKA

Icy Riches



Frozen, But Alive

LEGEND HAS IT THAT THE BLACKFISH, a nondescript bottom-feeder that lives in the lakes and rivers of eastern Chukotka, can stay alive even while frozen.*

In a similar way, the unique ecosystems of Chukotka have stayed “alive” because of its long frigid winters.

It’s an imperfect analogy—Chukotka’s storied natural resources face dire threats from climate change, mining waste, development pressures, and more—and its remote location has kept its ecosystems intact as much as its harsh weather.

Yet ice does define this region. In the Arctic spring thaw, when ice sheets break apart and blocks of ice plunge into the cold ocean water,

it creates rich nutritious phytoplankton and zooplankton that feed the fish, birds, seals, and whales. The ice blocks also serve as a hunting base for the polar bear and Pacific walrus. The combination of the Northern Arctic and the Pacific oceans nurture an unusually high level of marine productivity and make Chukotka a crossroads for migrating fauna.

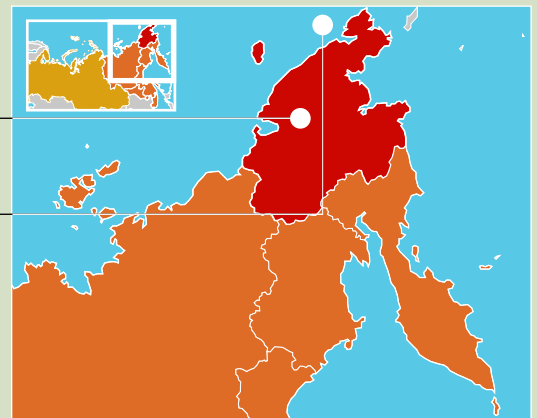
But even in winter, the ice is shrinking, and the ice sheets where the polar bear and Pacific walrus hunt are getting smaller. Chukotka is an integral part of the Bering Sea region, one of the most biodiverse parts of the Arctic, and also one of the most threatened by expanding industry and shipping. Chukotka’s remote location at the top of the world does not protect it from climate change, which is affecting the habitat and migration routes

ICY RICHES (CHUKOTKA)

- 5.1 Frozen, But Alive
- 5.2 Top of the World
- 5.3 Polar Bears No Match for Climate Change
- 5.4 Walrus Woes
- 5.5 Rush to Drill the Arctic

• Q&A—EDUARD ZDOR

*Scientists dispute that the blackfish can actually survive being fully frozen. The blackfish can withstand partial freezing of some body parts, however, including the head, and survive at lower levels of dissolved oxygen than other fish.)



of its fish and wildlife. Meanwhile, as shrinking sea ice makes the Arctic Ocean more navigable, companies are increasingly seeking to mine and transport coal, oil, and gas in this region.

The lowly blackfish is one of 40 kinds of freshwater fish found in the region's rivers. Others include the chum, pink, and sockeye salmon, which are a central part of the local people's diet.

Other imperiled wildlife include the reindeer, long-tailed ground squirrel, collared lemmings, Arctic fox and wolf, Northern hare, yellow-bellied and nesting tundra partridge, and the spoon-billed sandpiper. Especially important are the polar bear and Pacific walrus, which are subsistence resources for local people.

Top of the World

THE CHUKOTKA AUTONOMOUS TERRITORY is the northeasternmost part of Asia, only 85 kilometers across the Bering Strait from Alaska. More than half of its territory is above the Arctic Circle.

Almost as large as Texas, Chukotka has only 51,000 residents, half as many as it did 25 years ago. That's a population density of 0.7 persons per square kilometer. Stretching 718,200 square kilometers, the territory comprises 4.2 percent of Russia. It's certainly not crowded.

About a third of the population is indigenous, including the Chukchi, Eskimo, Even, and Chuvan peoples. Chukotka was established as a region in 1930 and became an autonomous entity within the Russian Federation in 1992. Chukotka is the only subregion evaluated in this assessment that is entirely contained in just one federal-level administrative district, providing a consistency of governance that can be advantageous for building stable local relationships with government leaders and agencies.

Chukotka is found at the intersection of three climatic zones, which makes for its rich and unusual diversity of terrain, flora, and fauna. Approximately half of the land is high mountain tundra and rocky desert.

The northernmost area is the Arctic tundra, which includes Wrangel and Herald islands as well as the narrow Northern coastal area—there are a variety of tundra zones, including Arctic tundra, forested tundra, and northern woodland tundra.

In the plains are shallow frost-thaw lakes

that melt in June and carry massive amounts of ice, which form blocks and flood fields. When the water levels fall, the fields are alive with sedge (water grass) and grains for a short period. There are also more permanent lakes, such as Elgygytgyn Lake near Chaunskaya Bay in northwestern Chukotka, an extremely old body of water that is home to endemic species of Arctic char (i.e. *Salvelinus elgyticus*).

One area where leafy forests and willows and other rich vegetation flourishes is on the plains of the Anadyr River valley, where

Conservation priorities in remote and mostly pristine

Chukotka include protection of the polar bear and Pacific

walrus, and preventing harmful effects of oil drilling in the

Arctic. And climate disruption is bringing dramatic change.

there is also a unique wooded area 15 to 20 kilometers wide.

In parts of the region, like central Wrangel Island, the vegetation and landscape has changed little since the times of the mammoth and woolly rhinoceros thousands of years ago.

The coastal areas are the most rich in flora of the entire Arctic region, with 1,140 kinds of plants, 400 kinds of moss, and as many kinds of lichen. There are approximately 400 species of fish native to the Bering Sea, and 40 kinds of freshwater fish in the region's rivers. Remote and uninhabited Wrangel Island is home to 40 species of plants, insects, birds, and mammals not found anywhere else in the Arctic, and is important habitat for polar bears.

The drop in Chukotka's population coincided with the decline in government subsidies to the region after the fall of the Soviet Union, and the abandonment of many of the mining and processing facilities, which were not profitable in Russia's new market economy.



Forget-me-nots (*Myosotis alpestris*), Asiatic dock (*Rumex acetosa*), and Valerian (*Valeriana capitata*) root in the crevice between rocks in Chukotka. PHOTO by Konstantin Savva.

While those industries were active, however, they disrupted the traditional hunting, fishing, and reindeer-herding economy. The departure of heavy industry in the 1990s resulted in a renewed focus upon the subsistence economy and resources (e.g., walrus and whale meat), which have historically sustained local indigenous populations. Chukotka's indigenous hunters, who rely on clean ecosystems and predictable weather patterns to provide a steady supply of marine mammals, provide some of the region's strongest conservation voices.

Climate change is a major threat to the people and wildlife of Chukotka, changing ecosystems and migration patterns in ways that are difficult to predict. Oil, gas, and mineral extraction that contribute to climate change through associated transportation infrastructure also provide a direct and immediate threat to the region's ecosystems. The Bering Strait, to Chukotka's east, is expected to become an increasingly busy global shipping lane as sea ice recedes more and more each year. U.S. and Russian oil companies are eyeing rumored deposits on both sides of the strait. Oil drilling and shipping not only cause climate change, but also result from it—as the Arctic becomes more navigable because of melting ice, there are more opportunities for industry and infrastructure to move in.

In recent years, indigenous hunters, local scientists, and conservationists have joined forces to address direct threats to Chukotka's ecosystems and wildlife through innovative projects like polar bear patrols and data collection on walrus populations. Chukotka's proximity to Alaska creates opportunities for robust transnational cooperation: coastal communities in both regions are in regular contact and international conservation organizations facilitate joint meetings and exchanges.

Chukotka's local conservation community is today in its infancy. Hunter-conservationist and Alaska-Chukotka collaborations, described above, are presently too few to match the scale of the problems that they address. Long-term support is required to achieve effectiveness locally, nationally, and internationally. Conservation investments can speed this process by supporting increased local capacity to undertake complex conservation projects. Several international conservation organizations, like World Wildlife Fund, Wildlife Conservation Society, and Pacific



Summer in Chukotka is short. PHOTO by Pacific Environment.

Environment, maintain close relationships with Chukotka conservation groups, and are working nationally and internationally to mitigate climate-related threats to the region.

A team of Chukotka scientists, indigenous people, and conservationists have chosen three priority targets based on the conservation value of expected improvements, potential for positive impact within the next five to ten years, and the severity of the threat:

- Protection of the polar bear
- Protection of the Pacific walrus
- Protecting high-value Arctic ecosystems from oil drilling

(Conservation of Chukotka's high-value sockeye salmon habitat in the Meinypilgynsky river and lake system, which overlaps with habitat of the endangered spoon-billed sandpiper and important walrus haulouts, is covered in Salmon Strategies.)

The strategies this coalition developed seeks to support the local communities in their efforts to preserve subsistence resources and healthy ecosystems so they can adapt to changing conditions. The goal is to strike a balance between protecting the ecosystems for their long-term sustainability and for the subsistence needs of the local communities.

This might take the form of direct intervention to protect threatened species, like polar bear patrols; stopping or blunting the impacts of the most harmful industries in the region, like the Amaam coal mines; or ensuring best practices, like shipping codes and regulations to protect marine mammals and birds.

Given the relatively low conservation capacity locally, a long-term strategy is necessary to achieve significant conservation gains. But a long-term, targeted investment will protect untouched ecosystems from the consequences of a changing climate and encroaching industry while protecting local indigenous cultures and communities.

Polar Bears No Match for Climate Change

POLAR BEARS HUNT BEST ON ICE, WHERE they move faster than seals, their primary prey. With ice sheets shrinking, however, the bears have nowhere to hunt. And though the bears are strong swimmers—the largest of them can swim 100 miles in the open water—they are beginning to drown on the long swims between prime hunting ground on sea ice.

Despite their lofty post at the top of the food chain, polar bears are no match for climate change. Not only has warming led to smaller ice floes, requiring the bears to swim greater distances between them, but because the bears are eating less fatty seals, they have less body fat and insulation for long swims.

When polar bears are hungry and exhausted they can become agitated, and they may venture into populated areas and attack people. There were three accounts of polar bear attacks from 2003 to 2005, resulting in two deaths. In 2006, a bear killed a girl in Riyркаipiy, an indigenous Chukchi village. This has led to more killing of bears in self-defense, and contributes to the misperception that the polar bear population is increasing, when the opposite is true.

To prevent future incidents like this, WWF-Russia has worked with hunters in Chukotka to set up the Umky Patrol. (Pronounced Um-kha, Umky is the Chukchi word for polar bear.) The patrols drive off bears before they get close to villages and educate villagers about how to avoid bear encounters. One of the food sources for the bears near these villages are walrus, which have also been forced ashore by melting sea ice. One task of the patrol has been to clean up walrus carcasses that wash onto the shore near villages.

Effects of climate change has been documented in the region since the 1990s—the edge of the drifting ice is significantly farther north than in the past. The formation of the ice cover and movement of the drifting ice also takes place a month later than normal. This both diminishes habitat for the bears and limits their access to the shore, where they mate as well as scavenge for food, such as dead marine mammals. By end of summer, the drifting ice is moving too far north into nutrient-poor waters.

At the same time that the polar ice has been



Though polar bears sit at the top of the food chain, they are no match for climate change. As ice sheets shrink, so do their hunting grounds.

PHOTO by [Alan D. Wilson](#) © [Creative Commons](#).

disappearing, there has been a rise in poaching. There are no official data on illegal hunting and killing in Chukotka, only circumstantial evidence, like an increase in online sale of furs and taxidermy orders.

The Chukchi/Bering Sea polar bear population numbered between 2,500 and 7,000 at the end of the 1980s, but its abundance has since dropped to an estimated 2,000. By the end of the 21st Century, polar bear abundance is estimated to decrease by 68 percent in the Arctic region, potentially even more in Chukotka. However, recent studies by U.S. Fish and Wildlife indicate that the Chukchi/Bering Sea population is currently performing better in terms of average cub mass and female reproductive indices than the neighboring Southern Beaufort Sea population. These results have generated hope that impacts of receding sea ice on Chukchi/Bering Sea polar bears are not as severe as feared.

With the decrease in polar ice has also come increased human activity, like barges and cruise ships, which break the polar ice and pollute the water, exacerbating the bears' woes.

Predicting the impact of these threats on polar bears is murky—reliable research data about the current population is in short supply, and there is little historical data.

In the Russian Red Book, polar bears are classified as Category 5 (population rehabilitating), but the data are not current. They need to be reassessed to Category 4 (the state of the population is undetermined; more research is necessary). More efforts are needed both to study these magnificent animals and to ensure that they continue to thrive in a region transformed by industrialization and climate change.

Walrus Woes

ONE OF THE MOST IMPORTANT ANIMALS IN

the marine ecosystem of the Bering, Chukchi, and Eastern Siberian seas is the Pacific walrus, which depends, like the polar bear, on polar ice as a base for hunting and resting. The walrus spends its winters and springs in the Bering Sea, near an area with an ice hole. In the summer, many of them migrate to the Chukotsky and Eastern Siberian Seas, where they feed in shallow waters. In the fall, they follow the ice back to the Bering Sea.

Climate change and the resultant decrease in polar ice has hurt the walrus like it has the polar bear. There are far more walruses, however. The last assessment, in 2006, put their population at 129,000. This assessment used satellite technology and aerial observations, but the accuracy was questionable because there were few survey days with optimal visibility.

The walrus population has declined since the 1970s, when there were estimated to be more than 200,000 walruses. One study from 1990 found a 25 percent drop over a ten-year period.

Stampedes are one consequence of shrinking ice floes. In 2007, when polar ice was at a record low, large numbers of walruses had to leave the ice and swim to shore for rest, and the crowded conditions led to a panic and stampede where several thousand walruses, including many young ones, died.

Forseen increases in shipping activity and offshore oil and gas extraction could also contribute to the walruses' declining numbers, destroying habitat, polluting local waters, stirring up bottom sediments that make it difficult for walruses to find food, and causing stampedes by sailing too close to walrus colonies.

Because walruses and polar bears rely on similar resources and inhabit similar habitats, the strategies to improve and stabilize the Pacific walrus population are similar to those for polar bears.

One initiative that holds promise is involving Chukotka's indigenous communities in monitoring walrus haulouts. Hauling out refers to the practice of pinnipeds (seals, sea lions, fur seals and walruses) leaving the water and gathering on land or ice in between periods of foraging, often in large groups.

The project, started by a group of indigenous



Like the polar bear, the Pacific walrus has been hurt by climate change and melting sea ice. Now there's a promising new initiative teaming up scientists with Chukotka's indigenous hunters to monitor walrus hangouts and assess how climate change is affecting their behavior and habitat. PHOTO by Captain Budd Christman, NOAA.

leaders, is engaging the local people in conducting the monitoring and helping scientists assess how climate change is affecting walrus behavior and habitat.

It has also engaged the indigenous community in developing their own rules to reduce human harassment of walruses while on shore, and has successfully lobbied for the creation of a local protected area (Vanakarem Nature Monument) with a government-funded warden.

Project leader Eduard Zdor has recruited and trained eight observers, including indigenous hunters as well as scientists from the Chukotka branch of the Pacific Scientific Research Institute for Fisheries and Oceanography (ChukotNIRO), to collect data at six targeted haulouts, and provided them with the necessary equipment, such as binoculars.

In 2011, during peak season, observers estimated 120,000 walruses gathered at a single haulout. It is unclear whether this represents a population increase from the 129,000 total population estimate of 2006, or is merely a function of the difficulty of accurately assessing population size (and resultant large survey error). Observers also identified two human factors causing walrus disturbances—traditional indigenous hunting activities and tourism, notably sea vessels approaching too closely to the shore, and the use of flash cameras by tourists.

Better regulation of shipping activity and education of local hunters can help prevent mass walrus deaths.

Preserving the walruses is not just important from a conservation standpoint for the people of Chukotka, but is a matter of life and death. "The Chukotka winter is severe," explains Zdor, "and without the fat of walruses to sustain them, many people in Chukotka would not survive."

Experts and practitioners on Chukotka designed the following strategies to preserve populations of polar bears and walruses on Chukotka:

- Support partnerships among local indigenous communities, scientists, and conservationists to conduct additional research about polar bear and walrus populations, habits, and habitats through capture and marking, satellite tracking, or monitoring of haulouts and dens. This information will contribute to our understanding of the animals' adaptations to climate change, and will help establish best practices to protect the polar bear and walrus in perpetuity.
- Support existing and foster new collaborations with Moscow- and Alaska-based science institutions in order to train local youth in conservation biology and fieldwork techniques, with the overall goal of rearing a cadre of qualified conservationists in Chukotka.
- Prevent needless bear deaths by making local villages bear-secure. Help local populations remove sources of food and conduct "bear patrols" to chase away encroaching animals.
- Ensure that ships entering sensitive polar bear and walrus habitat take steps to mitigate threats to these animals. In particular, ships should avoid sensitive marine mammal habitat (like walrus haulouts), minimize dumping of effluent in the Arctic, refuse to carry black oil (which would cause a catastrophe if spilled), follow established routes to minimize breaking of polar ice, and develop robust emergency response plans for vessel accidents.
- Create new protected territory or limit access to industries that can harm polar bears and walruses. The Beringia National Park presents a particular opportunity to expand a protected area to include increased habitat for these species. Wrangel Island, important habitat for female polar bears with cubs, must be protected from dangerous oil and gas development.
- Conservationists, specialists, and indigenous peoples in Chukotka should coordinate their efforts with their counterparts in Alaska to ensure smart management of migratory resources, share best management practices, and unite to introduce necessary protection measures.



The port town of Anadyr, the easternmost town in Russia, is the administrative center of Chukotka. PHOTO by Michele Whaley.

The Rush to Drill the Arctic

BECAUSE CHUKOTKA'S NORTHERN COAST IS SO REMOTE AND the climate so harsh, the coastline and neighboring marine waters remain pristine, despite pressures to drill for oil there. The Russian conservation movement has won some important victories in the area, with the creation of the Wrangel Island Zapovednik and the Beringia National Park, which together encompass more than 37,000 square kilometers of protected habitat for northern species, especially marine mammals and migratory birds.

With the melting ice and the opening of the Northern Sea Route, there is renewed interest in oil and gas exploration in the region.

Drilling in this region is expensive and not as profitable as in other areas, but it would allow Russia to further stake its interests and ownership over Arctic resources. That goal is explicitly stated in the 2008 government plan for socio-economic development of Russia through the year 2020—expanding the competitiveness of the Russian oil and gas sector.

In 2013, the state oil company Rosneft received rights to multiple blocks along the Russian shelf, including three in the Chukchi Sea: North Wrangel-1, North Wrangel-2, and South Chukotka. The North Wrangel-1 block is located 36 kilometers from Wrangel Island, while the South Chukotka block is not much farther from the borders of Beringia Park. In 2014, Rosneft began aeromagnetic and seismic tomography surveys of the blocks, followed by exploratory drilling. Should the area be deemed worthy of further development, drilling for extraction would be the next step. Due to the technological and economic challenges, extraction would likely not be initiated before 2030.

U.S. oil company ExxonMobil had signed on as a partner and investor with Rosneft for this project, and was to provide technology and technical expertise. ExxonMobil has experience in challenging Arctic conditions from its exploration and drilling off the

coast of Alaska. (And, of course, the company has “experience” with oil spills as well, like the massive 1989 spill of the Exxon Valdez in Alaska’s Prince William Sound.)

This partnership has been suspended because of the recent sanctions leveled by the United States against Russia.

Nevertheless, Rosneft took the lead to begin exploratory drilling without Exxon in 2014. Experts in Russia suspect that Rosneft will move ahead with the project, even without Exxon’s expertise and technology, which creates greater risks of a spill or other catastrophe.

The project entails numerous environmental threats, starting with the exploration and surveying. The impacts of seismic tomography—whereby seismic waves are generated to image sub-surface geological characteristics—on marine animals are not well understood.

Marine mammals are particularly sensitive to underwater noise, because it interferes with their communications with each other. Studies of seismic tomography impacts upon marine mammals show evidence of disrupted navigational capabilities, potentially causing changes to migration patterns. On Sakhalin Island, environmentalists have advocated, with some success, to prevent construction of oil and gas infrastructure within a gray whale habitat zone, because of the noise impact.

What is much better understood is how dangerous a major oil spill can be, either during drilling or transport. Oil spills change the chemistry, color, taste, and smell of water, and poison aquatic organisms. Oil forms a skin on the surface of water that prevents penetration of the

water’s surface by the sun, limiting photosynthesis. Even small quantities of oil are toxic to flora and fauna. The Valdez spill in Alaska demonstrated how recovery of some species can take decades. An oil spill in the pristine waters off Wrangel Island would be catastrophic for the whales, polar bears, and walrus that call the region home.

It is necessary to ensure that any industrial activity in the north of Chukotka completely mitigates risks to whales, polar bears, and surrounding ecosystems. Such reassurances are best guaranteed by ensuring that project plans are shared transparently and conform to all applicable Russian laws and regulations.

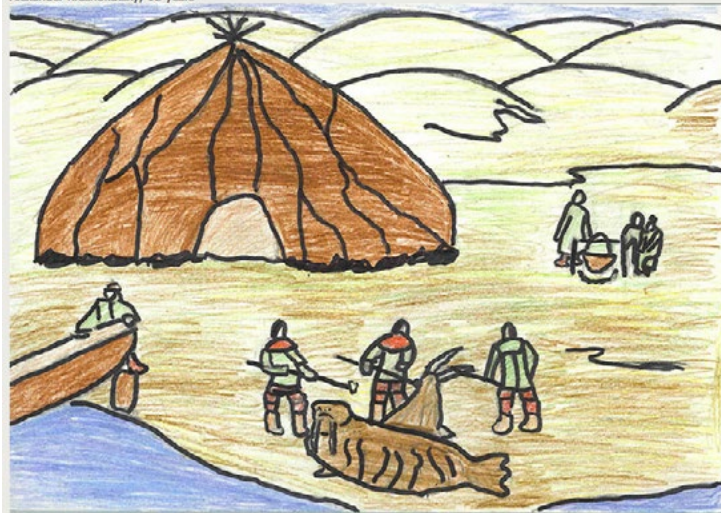
Facing similar threats over the past two decades, conservationists on Sakhalin Island, with the assistance of the IUCN and other players in the international conservation community, have achieved some success in engaging oil and gas companies in a dialogue focused upon mitigation of impacts on the critically endangered Western population of gray whales. A similar approach is warranted on Chukotka.

The following recommendations are offered to the Russian conservation community interested in preventing harmful environmental impacts of the project:

- Conduct a public environmental assessment of every stage of the project, beginning with the seismic tomography surveys, which have not yet been completed in all blocks.
- Ensure that the government environmental impact assessment process proceeds in accordance with Russian law.
- Create a compensation fund for potential oil spills occurring in this and similar projects.
- Create a public working group that can establish a constructive dialogue with RN Shelf Dalnyie Vostok, Rosneft’s sub-contractor for the current surveys.
- Carry out public monitoring of the work of RN Shelf Dalniye Vostok, placing monitors aboard ships conducting seismic tomography surveys and exploratory drilling. Document impacts upon marine mammals, birds, and other fauna.

Walrus and nature through the eyes of children in Chukotka

Alexander Krasnokutsky, 12 years



One promising project in Chukotka, started by a group of indigenous leaders, is engaging the local people in monitoring walrus haulouts, and helping scientists assess how climate change is affecting walrus behavior and habitat. DRAWING by Alexander Krasnokutsky, from Haulout Keepers.

Q & A



Eduard Zdor

As executive director of the Association of Traditional Marine Mammal Hunters of Chukotka, Eduard Zdor works to preserve the indigenous people's subsistence marine hunting and protect marine mammal populations and marine diversity.

Q: How does the shrinking arctic ice affect polar bears and walrus?

ARCTIC ICE PROVIDES KEY HABITAT TO THESE SPECIES throughout their lives, and also provides a surface where they can rest after swimming. Due to the receding ice, the animals need to make it to shore in order to rest, and with the increasing distance between the shore and the ice, many die en route or arrive tired and hungry. The weak animals develop various illnesses. The mortality rate is also growing due to stampedes at gathering places.

Q: What can we do to improve the situation?

IT IS PRACTICALLY IMPOSSIBLE TO DIRECTLY INFLUENCE CLIMATIC processes, but we can and must adapt to new conditions and take measures to prevent negative impacts. Changes in habitat locations need to be consistently tracked and protected status conferred to key areas. It is also important to introduce new shipping regulations to prevent catastrophic spills. Another key direction is work with the local public, informing them of breeding locations of marine mammals and how to interact responsibly with these animals.

Q: What needs to happen for the Chukotka ecosystems to be healthy and sustainable?

IT'S IMPORTANT TO TAKE A COMPREHENSIVE APPROACH that addresses not only environmental issues, but also economic development of the region and the traditional lifestyles of our people. It is possible to preserve the environment without unduly harming the economy by developing effective models of environmentally responsible business, particularly in the extractive industry sector.

Q: How do we persuade people who are eking out a subsistence living about the importance of conservation?

NATIVE PEOPLES OF OUR REGION LIVE VERY CLOSE TO NATURE, depending upon it and understanding its value and importance for survival of their communities. This understanding is passed between generations as traditional knowledge, although this process needs to be facilitated. The grounds for collaboration between conservationists and native peoples are clear. There just need to be dialogues in order to identify commonalities and work toward common goals. There is a history of successful collaborations between Chukotkan natives and environmental NGOs at the Far East and national scales—for example, with WWF.

Q: What do you consider to be the greatest conservation advance in Chukotka?

FIRST IS THE CREATION OF THE BERINGIA NATIONAL PARK, second is collaboration between native peoples and the environmental movement to influence Rosneft's oil exploration project on the Chukotka shelf, and third is the general achievement of a more active civil society.

AMUR RIVER

The broadleaf forests of the Amur River Basin are the last stronghold for the endangered Amur tigers.

There are only about 500 left in the wild, but they are rebounding and have returned to three provinces in the past 12 years.

PHOTO by David Lawson, World Wildlife Fund—UK



One River, Three Countries

Basin of Biodiversity

FROM ITS HEADWATERS IN MONGOLIA AT the birthplace of Genghis Khan, the Amur River winds 4,444 kilometers before it empties into the Tatar Strait, across from the island of Sakhalin.

(The Chinese name for the Amur, Heilong Jiang, means “Black Dragon River,” and its Mongol name, Kharamuren, means “Black River.”)

For more than 3,000 of those kilometers, it forms the border between Russia and China, making it one of the world's longest border rivers. It's also one of the world's longest free-flowing rivers, with no dams on its main stem. It drains a watershed of more than 2 million square kilometers.

More significant than its length is its biodiversity. The river basin is home to the largest species in the salmonid family (the Siberian taimen), one of the largest freshwater fish (the kaluga sturgeon), and rare and world-renowned species such as the Amur tiger and Amur leopard. Within its watershed is the legendary taiga of Siberia and the Russian Far East, and the unique Daurian steppe, with its multi-year climate cycle.

Its global significance is also due to its enormous wetland ecosystems, which serve as habitat for the diverse bird species, like the Oriental white stork and several critically endangered cranes. Major bird migration flyways cross the region with stopover sites in the wetlands. The basin is home to 130 fish species, 200 mam-

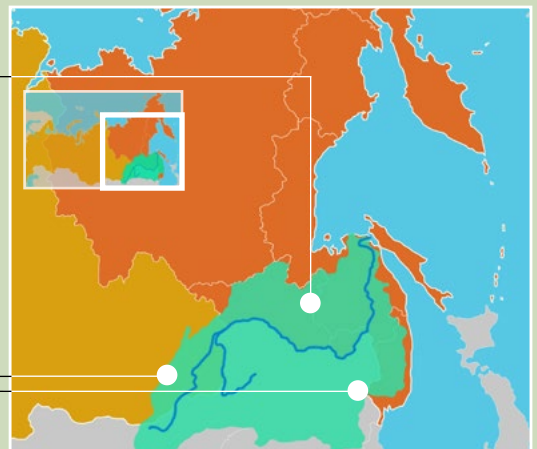
ONE RIVER, THREE COUNTRIES (AMUR RIVER BASIN)

- 6.1 Basin of Biodiversity
- 6.2 Russia + China + Mongolia = Cooperation?
- 6.3 Amur River Conservation Targets
- 6.4 Signs of Free-Flowing Amur

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- 6.5 Birdland
- 6.6 Daurian Steppe Characterized by Climate Cycle
- 6.7 Big Cat Forests
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- 6.9 Strategies for Conserving Biodiversity

• Q&A—EUGENE SIMONOV



Amur River Basin in green.

mal species, at least 600 bird species, and about 6,000 species of vascular plants.

According to World Wildlife Fund's Global 200 Study, the Amur Basin is one of the world's 200 most valuable wilderness places. "Four or five Global 200 ecoregions overlap Amur Basin territory," says Simonov, "including one called Rivers and Wetlands of the Russian Far East, which essentially unites the Amur Basin with the other salmon regions."

Because the Amur ecosystem and its unparalleled biodiversity includes territory in Russia, China,

The number of species is not as singular as the way they meet and mix. Nowhere else in the world do tropical liana vines climb the trunks of boreal conifers or do northern anadromous salmon stare at Chinese soft-shelled turtles.

The eastern basin has a humid monsoon temperate climate and is an area where monsoons reach their northernmost latitude on earth. The western headwaters (Dauria) is sheltered from monsoon influence by mountains and is arid.

Along with this diversity in species, habitats, and natural processes comes a wide range of threats—due to a combination of history and development, proximity to the growing Asian markets, and the radical transformations of ecosystems in adjacent China.

Russia + China + Mongolia =
Cooperation?

THE LARGEST PORTION OF THE AMUR BASIN, about 1 million square kilometers, lies within Russia. Almost as much is in China (.9 million km²), and a smaller fraction in Mongolia (.23 million km²). (Several square kilometers of the basin are in North Korea, which shares the "Pool of Heaven"—a spectacular lake on the top of the Chanbaishan Volcano, the source of the Amur's largest tributary, the Sonhuajiang.)

Though none of the basin is part of Japan or South Korea, the fishing economies of those countries depend on the Amur more than many rivers inside their own borders. This is because the nutrient-rich Amur empties into the Sea of Okhotsk and affects the bioproductivity of those fishing grounds.

In nearby rural Japan, traditional coastal fisher-

men collaborate with local farmers to preserve "fish-breeding forests"—landscapes that ensure that runoff benefits coastal fisheries.

Japanese researchers coined the phrase "giant fish-breeding forests" to characterize the crucial role that the terrestrial ecosystems in the Amur Basin played in providing nutrients that sustain the rich Pacific fisheries.

As for the human population in the basin, while it numbers about 75 million people, that doesn't get at the truth, which is the uneven distribution among the three countries and the contrast in economic and environmental footprints. The population ratio

and Mongolia, meaningful progress on conservation

depends on cooperation across national boundaries.

Leopards, sturgeons, cranes, and gazelle all cross borders, and water

flows into the Amur from three countries that compete for resources.

But the Amur Basin also boasts a strong civil society and a wealth

of conservation expertise, as well as many promising examples

of government and organizations working together effectively.

for China, Russia, and Mongolia is 400:25:1. Almost 70 million of the people there are from China and only a few million from Russia. The indigenous people inside the Russia border include the Nivkhi, Nanai, Ulchi, and 20 other aboriginal peoples.

What Russia and China have in common are similar settlement histories in the basin—migrants from the more populated areas of their respective countries have settled here, and recent migrants make up the majority of the population. In Russia and Mongolia, there has been pronounced migration out of the basin in the past decade, while in China there are more people moving in.

The Chinese provinces of the basin, particularly Heilongjiang and Jilin, have well-developed agricultural and industrial areas and a higher per capita GDP than the national average. There's still lots of state-owned heavy industry, which China is now attempting to revitalize. That is resulting in more pollution, more depletion of natural resources, and more demand for raw materials from Mongolia and Russia.

The only part of the basin where traditional land use remains dominant is the Daurian steppe, where sheep, cows, horses, and camels have grazed for centuries.

Small herding camps dot the landscape, and the conditions for wildlife, particularly the marmot and the bustard, depend largely on the herders. Some have protected them. Others have destroyed their populations.

Mongolians tend to treat their environment with more care, and their population is so spread out. Their impact on the land is dwarfed by their larger neighbors.

The Amur region is one of the cradles of the Russian conser-

vation movement, with a history of active conservationists stretching back to the early 1980s. For this reason, conservation civil society is more mature here than in other regions and has a stronger history of cooperation with government and other stakeholders.

There's a strong presence of skilled and capable professionals and local organizations. Like Yury Darman and WWF-Russia, Yury Gafarov and the Amur Socio-ecological Union, Dale Miquelle and Wildlife Conservation Society, the Rivers Without Boundaries International Coalition, and many student conservation groups.

Two other significant factors to note: (1) the high number of skilled conservationists in the region is reflected in the conservation plan described below, which is more heavily detailed and precise than other plans, and (2) WWF's Conservation Action Plan for the Russian Far East Ecoregion has been successfully driving complex terrestrial conservation strategies for more than ten years, but has not effectively addressed conservation of freshwater systems. This plan is designed to fill that gap.

Amur River Conservation Targets



BECAUSE THE AMUR BASIN IS SO DIVERSE, HOME TO SO MANY ecosystems and species, the conservation targets are grouped into four broad (and inter-connected) priorities:

- Keeping the river free-flowing.
- Maintaining the lakes and floodplains of the eastern part of the basin.
- Protecting the Daurian Steppe and its dynamic wetlands and grasslands.
- Retaining healthy forests, for their value to the freshwater ecosystems as well as for habitat for endangered Amur tigers and leopards.

Signs of Free-Flowing Amur

KEY TO KEEPING THE RIVER FREE-FLOWING IS PREVENTING DAMS and other disruptive development at several iconic stretches of the river

- Confluence of the Shilka and Argun (multiple river gorges threatened by hydropower plans).
- Hingan Gorge, the most scenic part of Middle Amur (called Three Gorges of Dragon River in Chinese, where a dangerous dam was proposed decades ago).

Amur River Basin Conservation Targets	
Priority Keep river free-flowing for entire 4,444 kilometers allow for unobstructed migration of fish.	Conservation targets <ul style="list-style-type: none"> • Gorgeous river gorges, iconic river stretches • Siberian taimen • Kaluga and Amur sturgeon • Chinese soft-shelled turtle
Maintain lakes and floodplains of eastern basin. 	<ul style="list-style-type: none"> • Floodplain complexes at mouths of Amur tributaries • Forest-river nexus • Khanka Lake, shared by Russia and China • Red-crowned crane • Oriental white stork
Daurian steppe-wetland complexes 	<ul style="list-style-type: none"> • Argun, Ulz, and Upper Onon river valleys • Lakes of Dauria (Torey, Buir) • Forest-steppe areas with high biodiversity • White-naped crane • Swan goose • Mongolian gazelle • Eastern great bustard • Siberian marmot • Saker falcon
Taiga (forests)	<ul style="list-style-type: none"> • Ussury broadleaf and mixed forests • River valleys in Eastern Siberian boreal taiga forests • Hooded crane

- Amur Liman at mouth of Amur, key migratory and feeding habitat for many fish species, is in need of urgent protection due to threats of overfishing, shipping and offshore oil.
- Ussury River Basin, the best spawning grounds for chum salmon.

Siberian Taimen

THE SIBERIAN TAIMEN DOES NOT MIGRATE from the ocean like Pacific salmon. The largest of the salmonid family, it can weigh up to 90 kilograms and reach 2 meters in length. Because it's at the top of the food chain in the river, its health is an indicator of the river's health. It's also highly valued by sport fishers.

Its population is small due to its size, high level of activity, and gluttonous eating habits. Its diet includes other, smaller species of salmon. For optimal health, it needs rivers with a significant food supply, a place for hibernation, and spawning grounds.

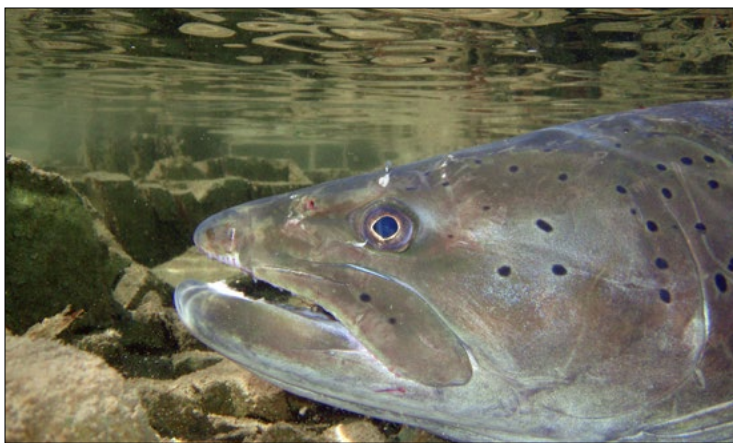
While the main stem of the Amur is not obstructed by dams, many of its tributaries are, and that fragmentation hurts the taimen, which seeks out the shallow and narrow channels when spawning or feeding. Pollution and sediment also negatively affect the taimen. Its numbers and density in the Amur are down, and in 2012, it was listed as endangered in the IUCN Red List. (It is also listed in the Red Book.)

In many smaller, local channels, it has already died out due to overfishing and pollution from mining.

According to the Wild Salmon Center, the Tugur River is one of the most important rivers for the protection of the taimen. Fishing on the Tugur, which flows through a mostly unpopulated landscape, is managed by a private tour company that promotes "catch and release" practices and provides protection from poaching.

Similar principles are in place on the Mongolian portion of the Onon River. A local government teamed up with U.S. fly-fishing experts and WWF-Mongolia to create a 200-kilometer catch-and-release zone. This is bringing income to local people working as guides, rangers, or tourist camps operators.

Because of its vast habitat and low population density, specialists see a total ban on Siberian taimen fishing as unrealistic. But embracing the catch-and-release model and harnessing the



Siberian taimen can weigh up to 90 kilograms and reach 2 meters in length. PHOTO by Clemens Ratschan.

market potential of taimen holds promise for health of the fish and the local economies. If local people are earning income from the sport fishing of taimen, that's likely to cut down on poaching.

River of Caviar

THE AMUR IS KNOWN AS THE "RIVER OF CAVIAR" BECAUSE OF ITS sturgeon—their eggs are cured with salt to make caviar, highly valued in Russia and around the world. But the Amur and kaluga varieties of the sturgeon, which live only in the Amur basin, are endangered. The river may be losing its celebrity status. Kaluga populates the Amur River system from the Onon on the Mongolia-Russia border to the Amur-Liman River mouth in the Tartar Strait, where young fish migrate to feed in the extremely productive brackish waters.

The kaluga is among the world's largest freshwater fish, weighing up to 1,000 kilograms and reaching up to 5 meters in length. The Amur sturgeon is smaller and less well-known, but equally endangered.

Both are threatened by licensed fishing on the Chinese side—they harvest fish before they breed to supply fry for fish farms—and poaching on the Russian side. By some estimates, up to 95 percent of the spawning population is taken by legal and illegal fishing.

Anti-poaching efforts are weak, but the situation has improved. In 2013, Russian law was revised so that poaching of kaluga or Amur sturgeon became a criminal offense.

The decline in sturgeon is another demonstration of the importance of transboundary solutions. "Unless an effective joint Russia-China program of sturgeon conservation is implemented in the near future," says Simonov, "the commercial fisheries (legal or not) are doomed and the species might face extinction."

Chinese Soft-Shell Turtle

AT ONE TIME, THE CHINESE SOFT-SHELL TURTLE LIVED IN RUSSIA, China, the Koreas, Japan, and Indochina. Now its wild population has one of its last strongholds in the Amur Basin, and even there its numbers are declining.

Since 2000, the species has been recognized by IUCN as vul-

CASE STUDY 5—WILDFIRE BRIGADES

Fire Prevention Projects Blossom in Rural Russia

WHEN EUGENE “ZHENYA” STOMA

returned home to southern Siberia after serving in the military in the 1990s, he became a park ranger. Drawing on his skills as a special ops soldier, he patrolled the forests for poachers who were killing tigers, leopards, and bears.

But poachers were not the only threat to these predators. Wildfires were. In 2009, Zhenya began working on a groundbreaking project to address wildfires, 97 percent of which are human-caused, mostly by farmers burning their harvested fields.

Burning crop waste is a deeply



Khasan fire brigade in the field. PHOTO by Phoenix Fund.

Burning crop waste is a deeply ingrained custom in rural Russia, but all too often fires escape to nearby forests. Recent pilot projects combining mobile fire brigades with fire education

and community involvement have made dramatic gains.

ingrained custom in rural Russia, but is frequently done without proper containment measures and spreads beyond the plots to adjacent fields and forests, threatening public health and safety.

Wildlife Conservation Society, Phoenix Foundation, and Greenpeace-Russia had been working for years to reduce human caused fires and stop them from escaping into tiger habitat. In 2011, they were joined by Pacific Environment and the U.S. Forest Service International Programs to launch a series of pilot projects aimed at decreasing the number and acreage of human-caused wildfires in targeted regions.

The project has been a wild success, albeit on a small scale. After four years, some of the target areas have seen a 90 percent reduction in burned acreage, with local citizens leading a promising change in community behavior. The effort has also started a necessary national conversation about the connection between intentionally set fires and catastrophic wildfires, like the hundreds

that raged through western and central Russia during the scorching summer of 2010.

Just four years ago, when the program launched, authorities refused to admit this was even a problem, and even falsified official data in reports. There were also major gaps in firefighting jurisdictions and little integrated planning. City firefighters only fought fires in buildings. Park rangers only addressed fires in the parks. Towns had firefighters who could protect the town, but not the forests.

More recently, however, government agencies of all levels began to speak publicly about fire prevention. Regional governments have begun issuing new burning bans and an April 2013 presidential decree called for stricter management of open burning.

Newly created mobile fire brigades have been a key to success.



In addition to leading mobile fire brigades Zhenya Stoma spreads the word about the risks of crop burning and asks farmers to sign documents stating they understood setting fires is dangerous and illegal. Now if someone starts a fire, the hope is that the community leader will confront the arsonist and contact local law enforcement.

This project was successful because we partnered with local leaders and worked directly with local citizens. NGOs can and should play a leadership role, but they are only truly effective when they work in concert with a diverse group of stakeholders, including elected leaders, state agencies, and local citizens. This broad involvement not only facilitates greater conservation victories, but also builds active citizen engagement in management of common resources. More importantly, this project demonstrated how grassroots solutions to vexing social and environmental problems are possible in Russia's traditionally top-down political system.

Zhenya and his colleagues established a wildfire prevention brigade in the Land of the Leopard National Park, the first of its kind in the region. The team hired young, local military veterans and gave them the equipment and training necessary to battle escaped fires. Firefighters are equipped with backpacks containing hoses or blowers, and heavy cloths to beat out the fires. They take water from tanks they bring with them, or from nearby lakes or wells. They also monitor local villages for burning activity, and construct firebreaks around sensitive habitat. Other communities have followed their lead.

Pacific Environment's Russia Program Officer Audrey Wood says that fire programs are more likely to succeed "when they are a local initiative, owned by the community." She adds that recruiting village fire monitors to do fire prevention and education work has paid off. "Monitors distributed information at town meetings about the human and ecological damage that fires cause, which spurred more farmers to burn only when implementing necessary safety practices. Peer pressure made a difference. Soon villagers themselves began to confront their neighbors for setting fires."

Zhenya has been extremely successful. Last year, the total burned area in the territory he and his team monitored decreased by 90 percent. Not a single fire escaped into nearby forests.

Promoting alternate ways to clear fields is also an important part of the project, but poses challenges for struggling farmers. It can cost them about \$130 more per hectare if they don't burn. One option is promoting no-till farming, which can require heavy use of fertilizers. Another is to do additional passes over the fields with the thresher. The waste can also be gathered and used as bedding and fodder or turned into fuel pellets.

nerable, and it is protected in four provinces in Russia and one in China. This turtle is the only reptile specifically covered by the Russia-China Agreement on Amur Fisheries as a species in need of protection.

It lives in rivers, lakes, ponds, and reservoirs where water flows slowly, and is partial to quiet, clear, sunlit shores with gentle slopes. Soft-shell turtles feed on snails, mollusks, fishes, shrimps, crabs, insects, frogs, and earthworms.

Reasons for the species' decline include limited breeding habitat, flooding, predation of eggs and young by foxes, raccoons, waterbirds, and people, as well as accidental take in fishing nets. Agriculture pollution is also a factor.

China has been successful at breeding millions of turtles on farms. Wild turtles are still considered superior for their medicinal qualities, however, so they continue to be in demand.

There are also instances of farmed turtles escaping into the wild, creating confusion about the genetic status of local populations.

The turtle is a powerful indicator of cultural differences in the basin—it a common food for Chinese, while Russians view it merely as an exotic tropical reptile.

Birdland

WITH ITS MULTITUDES OF LAKES, WETLANDS, rivers, and floodplains, the eastern part of the Amur basin is an important habitat for water birds and major stopover for migrating birds to feed and nest.

The largest lake, Khanka Lake, shared by Russia and China, is especially important for migrating birds. The largest protected area in the region is the International Nature Reserve uniting Lake Khanka National Nature Reserve in China and Khankaisky Zapovednik in Russia. But only a fraction of the wetlands are unaltered by human activity, and some of the wetlands that are pristine are not in the reserve. The area is also characterized by intensive rice cultivation—around 80 percent of lowland wetlands have been converted to farmlands, and runoff from fertilizers, pesticides, and animal waste drains into Lake Khanka.

Important priorities here are improving transboundary cooperation to protect the

whole lake, and promoting organic rice farming to reduce pollution.

Of the many wetland birds, the most populous are geese, ducks, and swans. Endangered species such as Far Eastern curlew (*Numenius madagascarensis*), swan goose (*Anser cygnoides*), and Baikal teal (*Anas formosa*) also depend on the Amur to replenish themselves for their long voyages. Other wetland birds that live or stop over in the

Over a period of 25 to 40 years, the climate alternates between wet cool periods and dry hot periods, between floods and droughts. In wet periods, ducks, grebes, and water hens make their homes in the lakes and dirt banks. The sandpipers move in as the drought takes hold. At the height of the dry season, larks nest on the parched lake bottoms.

The change in water levels and flow create dra-

The climate cycle is especially pronounced in the Daurian steppe, where the alternating wet and dry phases and the diversity in water bodies creates a dynamic mosaic of habitats that triggers migration and changes in species populations. In 1999, Torey lakes yielded a thousand tons of fish. In 2011, the meadow at Barun-Torey Lake bottom was a pasture for Mongolian gazelle.

basin include the divers (*Gaviiformes*), grebes (*Podicipitiformes*), Pelicaniformes, cranes (*Gruiiformes*), gulls (*Laridae*), and terns (*Sternidae*). Six species of cranes migrate through the area and four of them nest there. Fish-eating birds of prey such as osprey, sea-eagles, fish-owls nest and live along riverbanks.

Of special note are the Oriental white stork, the largest stork found on Russian territory, and the red-crowned crane, also the largest crane, which has populations in the Amur basin and on the Japanese island of Hokkaido. Only the whooping crane in North America is rarer.

With the exception of a stable population in Primorye, the red-crowned crane of the mainland is losing population, though data is incomplete. The crane is particularly vulnerable because it does not start laying eggs until three or four years of age, and then only two at a time, one of which typically survives.

Its main threats are from conversion of habitats to farmland, diversion of water, harassment during spring hunting season, and grass fires.

Daurian Steppe Characterized by Climate Cycle

IN THE WESTERN PART OF THE AMUR BASIN LIES the Daurian steppe, which boasts a tremendous diversity of plants and animals because multi-year climatic cycles are more pronounced than anywhere else in the basin. That also shapes the economy and lifestyle of the region's people. Dauria is also listed as one of Global-200 Eco-regions of the World.

matically different habitats in the same spots.

As the plant life changes, so too do the birds that migrate and nest there. In the peak drought periods, lasting many years, many water birds disappear. Not all the wetlands dry up—some serve as life-support systems for wildlife and humans throughout all the phases of the climate cycle.

When the floods come, they transform the region. (Not only the Daurian steppe, but the Amur at large.) The shaping and dynamics of the vast floodplain wetlands, the major nutrient cycles, and the life cycles of all aquatic flora and fauna depend primarily on the periodicity, volume, and other characteristics of floods. In 2013, the whole Amur Basin experienced severe flooding; however, it was much less devastating to the local population and economy in Dauria. This is probably due to the nomadic nature of the livestock farmers compared to downstream farmers and, in general, better adaptation to the extremes of the climate cycle. The flood did improve water quality and river habitat conditions, which were restored to their 1970s state.

The drought cycle dictates an unceasing succession in plant and animal communities, which increases the number of ecological niches and sustains a high diversity of species and habitats. Wildlife constantly moves between wetland sites in search of water and food. That's why long-term survival of the area flora and fauna depends on preserving many wetland sites within the ecosystem.

The steppe spans northeastern China, western Mongolia, and the Zabaikalsky province of Rus-

sia. It's home to 60 kinds of mammals, 350 species of birds, 3 species of reptiles and 3 species of amphibians.

Twenty-one species are listed as world endangered species, and for six of those, the Daurian steppe plays a key role in their protection—the swan goose, the relict gull, the great bustard, and the white-naped, red-crowned, and hooded cranes. Forty species are listed in the Red Book. For many, the Daurian steppe is their primary habitat.

The Daurian freshwater and steppe habitats are so interconnected that it's difficult to focus on individual conservation targets, but there are three locations of global importance.

The Argun River floodplain, the largest watercourse in the Daurian steppe and breeding habitat for red-crowned and white-naped cranes, is severely stressed by pollution and water withdrawal in China and wildfires and hunting in Russia.

The Upper Onon River is in the “Source of Amur” International Protected Area. In 2014, Mongolia and Russia signed an agreement to establish the “Source of Amur” International Protected Area uniting Sokhondinsky Nature Reserve and Onon-Balj National Park. Onon is the most remote habitat of kaluga sturgeon and prime habitat for Siberian taimen and other salmonids. The river valley is a breeding area for white-naped cranes and bustards.

Of special note is the Daurian International Protected Area (DIPA), established by Mongolia, China and Russia in 1994 to protect and study biodiversity of the region. All the three original protected areas have Ramsar status—Dalai Lake in China, Mongol-Daguur in Mongolia, and Daursky in Russia. In 2012, scientists, conservationists, and government representatives met in the Russian city of Chita to launch a campaign to nominate this international protected area as a united World Heritage Site.

North of the steppe lies forest-steppe frontier landscape marking a boundary of grasslands and Siberian taiga forests. In this hilly country, south slopes are occupied by grassland, and the northern ones are covered by Siberian larch forest with its numerous herb species; mixed forests of birch-pine and birch-larch trees; and birch, aspen and shrub forests. The forests host many species of mammals such as the musk deer, Siberian moose, raccoon dog, and lynx.



The “black dragon” Amur River emblem was designed in 2004 for a Russian-Chinese conservation action and exchange program called “Ambassadors to Amur-Heilong River Wetlands”, which brought together five Russian and nine Chinese student groups in one environmental campaign.

The forest steppe is the most threatened landscape in Dauria because so much of its grassland has been converted to arable land for grain cultivation. Those forests are most vulnerable to wildfires, which are intensifying with global warming.

Species targets in Dauria include white-naped crane (*Grus vipio*), the symbol of the Daurian IPA. It prefers drier marshlands than those occupied by its relative, the red-crowned crane. It is also more tolerant of farmland. The global population is estimated between 5,500 and 6,500. White-naped cranes migrate from the Amur Basin to wintering grounds in China, the Korean peninsula, and Japan.

The large, globally endangered swan goose (*Anser cygnoides*) breeds primarily in Mongolia, Inner Mongolia, and eastern Russia and winters in southern and eastern China. This is the most obvious ancestor of domestic geese.

The Mongolian gazelle (*Procapra gutturosa*) is still roaming Genghis Kahn motherland—around 1 million inhabit the eastern Mongolian steppe, most in Mongolia. Recently the Daurian IPA negotiated opening the border fence between Russia and Mongolia to give way to the 100,000-strong gazelle migration. A small resident herd has been reestablished in Russia after complete local extinction. Gazelles no longer migrate to China because a fence was constructed along the Mongolia-China border.

Unlike its thriving European sibling, the eastern great bustard (*Otis tarda dybowski*), the biggest bird in the steppe, is on the brink of extinction. It's Asia-wide population is about 1,200. A century ago, its breeding range stretched from Transbaikalia to the Pacific, but now is limited to Dauria and Central Mongolia. Renowned Chinese bird conservationists Guo Yumin spent all last winter surveying bustards' winter habitat and still cannot assure that there are more than

800 birds still coming to China.

The bustard is vulnerable because of its late reproduction age (five to six years) and few eggs laid. Its greatest threat is intensive poaching.

Up to a half of Daurian steppe is covered by peculiar round hummocks reminiscent of burial mounds. But the builders of those mounds, Siberian marmots, are rarely seen. Sixty years ago, they were the most important rodents of the grassland, literally shaping its surface. But because of the mistaken concern that marmots carried the plague and would infect humans or cattle, they were eliminated from 90 percent of their range by poisoning. Their numbers have dropped dramatically. Called tarbags in Mongolian, they still live in protected areas of the steppe. (Poisoning them did not reduce infection risks.)

Recently, residents of Krasnokamensk erected a monument to the marmot—as a symbol of the steppe and the victim of pointless extermination.

No grassland would be alive without birds of prey, like the Saker falcon, patrolling the skies in and swooping down to capture small creatures for dinner. Dauria has 3,000 falcons, or 10 to 20 percent of the world population.

The greatest cause of the falcon's decline in Dauria is execution by electric current, when the bird lands on transmission lines. Daurisky Nature Reserve has been working with power providers to install new, safer equipment to prevent bird killings.

Big Cat Forests

THOUGH THE FRESHWATER ECOSYSTEMS ARE ARGUABLY THE most important elements of the Amur River basin, they are not as well known as the legendary forests, home to the largest cat in the world, the Amur tiger.

The most important forest ecoregions in the basin are the mixed broadleaf-coniferous forests and the Eastern Siberian boreal taiga forests—both listed as Global-200 Ecoregions of the World.

It's important to note that forest cover is absolutely critical for healthy freshwater ecosystems, as it affects flow patterns, temperature, nutrient load, erosion and sediment load, and water quality. So, the conservation targets addressed first are those that overlap with the freshwater and steppe realm.

The most species-rich areas are where ranges of northern taiga species overlap with those of southeastern Asian communities, where brown bears coexist with Asiatic black bears, Amur tigers cross paths with lynx, and both Manchurian and mountain hares scurry from predators. Korean pine (*Pinus koraiensis*) and oak provide a steady food supply for forest inhabitants.

The following areas and species have been selected as top priority conservation targets:

- Ussury broadleaf and mixed forests, the last stronghold of Amur tiger, with about 500 animals (90 percent of the remaining wild population) residing within its bounds.

Major threats include logging, hydropower, fragmentation by roads and pipelines. The Ussury basin has some of the least fragmented habitats and the most big cats. Similarly diverse and productive forest areas used to exist in China and Korea, but have been mostly lost. Russia's forest ecosystems should

The Far Eastern leopard, also known as the Amur leopard, the Manchurian leopard, and the Korean leopard, is on the brink of extinction, with only about 40 individuals remaining.

The Land of the Leopard National Park, in southwest Primorye Province, was established to help bring them back.

PHOTO by David Lawson, World Wildlife Fund-UK



therefore be considered, along with China's and North Korea's, as a single ecosystem. Again, this calls for transboundary conservation efforts.

- River valleys in Eastern Siberian boreal taiga forests.

The Siberian boreal forest is the largest tract of unbroken forest in the world, the world's largest remaining wilderness outside of Antarctica, and a place that provides a secure home for brown bears, moose, wolves, reindeer, and many other species of plants and animals.

Species diversity is greatest in the river valleys, which occupy a small fraction of the forest. They also serve as important corridors for wildlife.

Because of its size and inhospitable environment, most of the boreal forest has experienced relatively low levels of human influence, though logging and extensive wildfires are having serious impacts. River valleys are specifically threatened by placer gold mining and hydropower projects.

The one target species in the forest is the endangered hooded crane (*Grus monacha*), which nests in larch swamps in Russia and northeast China. Its estimated population is 11,000. As wetlands are lost and wintering ground degraded, primarily because of development and dams, its numbers have been dropping. Its sedge-grass habitats, where it nests, is vulnerable to wildfires.

Studies in China have shown that placer gold mining can significantly decrease quality and productivity of crane habitat. (See [Case Study 1—Gold Mining](#).)

Development Patterns, Water Management, and Transboundary Competition Major Threats to Amur Basin

THE MANY THREATS FACING THE AMUR BASIN CAN BE GROUPED

under three categories—colonial patterns of development, driven by actors outside the region; water management practices that attempt to control the climatic cycles with unnecessary dams and reservoirs; and the political and economic competition among Russia, China, and Mongolia that hampers transboundary cooperation on conservation matters.

Today, with surging demand for the region's natural resources, come companies from China, South Korea, and elsewhere investing in extraction and processing. Russian state-owned monopolies, which are difficult to challenge, are driving this extraction economy.

Fresh water is key to the area, and while flora and fauna have adapted to the long-term climatic cycles in the basin, human communities, not so much. Nor do local residents seem to appropriately value the basin's ecosystem services. Thus the drive to sequester water behind dams instead of adopting more sustainable planning and adaptation measures.

While the main stem of the Amur is free-flowing, on its feeder rivers, there are approximately 100 active hydroelectric stations, 18 of which are large dams.

Zeiskaya and Bureiskaya man-made "seas" on the Russian side of the basin make up to 45 percent of the entire water surface in the Middle-Amur Ecoregion, and they can store more than 90 cubic kilometers of water and thus completely change the flow of the Zeya and Bureya rivers.

There are about 300 smaller water storage units, used for drinking water, irrigation, and fish breeding. In China, there are more than 10,000 such smaller units. China has built no less than 600 dams over the last 12 years in the Amur Basin. Russia exports its excess hydropower to China.

Russia and China signed several agreements on transboundary water management and use between 1950 and 1990, and have proposed others. Due to the severe flooding during the summer and fall of 2013, the Russian company RusHydro and the Amur Oblast administration have been discussing new dam construction and riverbank revetments (retaining walls, usually concrete) to regulate flooding and protect the local population.

In November 2013, RusHydro put forth plans to build six new hydroelectric projects in the region. These were not new plans, but recycled from the Soviet era, when they were rejected by experts and the local communities.

RusHydro and Evrosibenergo, another large hydroelectric company, have partnered with Three Gorges, the largest Chinese hydropower company, to build these projects. Russia aims to increase exports of power (from hydro, coal, and nuclear sources) from 4 to 60 billion kilowatt hours by 2030.

Amur River Basin Threats

The major threats are listed below in order of decreasing importance. The order reflects expert judgment in the Russian part of the basin today. The sequence would be different if the list were for China or Mongolia or for ten years from now.

Threats (most important first)	Impacts
Hydropower development	<ul style="list-style-type: none"> • Damages or wipes out natural ecosystems, disrupts natural flow pattern in the river downstream.
Lack of adaptive strategies for flood and drought-risk management	<ul style="list-style-type: none"> • Unnecessary construction and embankments in floodplains.
Mining (especially placer gold mining)	<ul style="list-style-type: none"> • Destroys and pollutes natural habitats.
Poaching, overfishing, and overhunting	<ul style="list-style-type: none"> • Spring hunting season disturbs breeding season.
Industrial and municipal pollution	<ul style="list-style-type: none"> • Compromised water quality in transboundary rivers and lakes.
Wildfires	<ul style="list-style-type: none"> • Changes vegetation cover, affects animal breeding, contributing to pollution. Often started by farmers to clear crop, then go out of control. (See Case Study 5—Wildfire Brigades.)
Intensive agriculture	<ul style="list-style-type: none"> • Habitat destruction, increase in water consumption and pollution.
Competition for water	<ul style="list-style-type: none"> • Unsustainable water transfer schemes.
Coal industry	<ul style="list-style-type: none"> • Air and water pollution.
Logging in river valleys	<ul style="list-style-type: none"> • Sedimentation in streams, disruption of salmon breeding.
Cattle overgrazing in wetlands	<ul style="list-style-type: none"> • Nutrient pollution, overconsumption of plant biomass.
Oil and gas extraction, processing, and transportation	<ul style="list-style-type: none"> • Damage to water quality, destruction of habitat.

According to ecologists, existing dams and hydro-projects are already damaging the self-regulating river system. Likewise, plans for building riverbank revetments (dikes) to protect people from flooding would hurt the ecosystem.

On the Russian side, the population is sparse compared to the Chinese side, and so would require fewer revetments. But it's likely they will be built anyway. While China and Russia have an agreement that neither side can build revetments without the other's agreement, China has built revetments along 30 kilometers of the Argun River and 600 kilometers of the Amur. Russia plans to mirror the extent and scale on its side.

The main damage of this infrastructure is destroying wetlands and preventing fish from reaching their spawning grounds, devastating their populations. These impacts can be felt more than a thousand kilometers downstream from the dams.

The dams also destroy nesting habitat for storks,

cranes, and other birds. They change the plant life too. This also has an effect on agriculture. After flooding, naturally fertilized floodplain soil is the most productive. Much of the damage to the ecosystem could be mitigated through releases of water from the dams, but hydroelectric experts staunchly oppose such practices.

On top of all these other impact comes climate disruption, which is especially obvious in the western part of the basin. Temperatures in the eastern basin have risen 0.60° C in the past hundred years, while, in the central and western basins, they've increased 1.70° C.

Ecosystems in the basin are vulnerable to any abrupt changes and are already actively evolving in response to modified climate patterns. Human activities are also changing in response to natural shifts—in China's Heilongjiang Province, the planting boundary for rice has moved north and east, and wheat areas have retreated northward.

Amur Basin Conservation Strategies

BECAUSE THE AMUR BASIN IS SO RICH IN biodiversity, and the region has a strong history of conservation, the action plans for addressing the most pressing threats are far too long and detailed to include here. Below is a distillation of some of the more important strategies.

Protection of Important and Valuable Rivers from Unsustainable Management

GREAT RIVERS DEFINE THE AMUR BASIN, AND keeping them free-flowing is vital to the survival of the region's great wetlands, forests, and marine habitats, not to mention the beautiful gorges that the rivers wind through. Over the past 20 years, a coalition of conservationists has forged partnerships with government leaders and industry professionals in Russia and China to keep dams and other dangerous developments away from these great rivers.

The work is far from finished. The massive floods in 2013 have given new life to dam and levy project to better “manage” water resources in the region. Conservationists like WWF, the Rivers without Boundaries Coalition, and the Amur Socio-Ecological Union are working with local resource managers in Russia and China to promote economically and ecologically safe alternatives to these massive and unnecessary dams.

In addition, there continues to be pressure to dam rivers in the basin for irrigation and hydropower. To keep the Amur and its tributaries free-flowing, Rivers without Boundaries and WWF are working with river ecologists to develop legal norms to preserve natural river flow patterns at all times.

Once these norms are established, the coalition of conservation groups is coalition will work with local government officials in China, Russia, and Mongolia to adopt them.

It's not only the free-flowing rivers that are at stake, but the floodplains and wetlands that would be destroyed by dam and levy construction. To successfully prevent these damaging construction projects and reduce the risks and impacts of future floods, conservationists must partner with local governments and communities to develop a set of best practices to adapt local economies and lifestyles to communities affected by flooding.

Protection of Priority Habitats and Ecosystems

THE AMUR BASIN HARBORS A GREATER diversity of species than all regions of Russia, with rich forests and vast wetlands that harbor endangered Amur tigers and leopards, as well as cranes, storks, salmon, soft-shelled turtles, and Siberian taimen. Unfortunately, this vast biodiversity is under threat from demand for rare animal parts, as well as urban encroachment, logging, and pollution. Expanding the existing network of protected areas is one of the best ways to ensure the continued survival of the region's unique species.

Conservationists, with WWF in the lead, have created several protected areas over the past decade, and plan to create several more in the coming years. The current top priorities for new protected areas are the mouth of the Amur River, the wild and undeveloped gorges of the Amur and Shilka rivers, and the Daurian steppe and wetlands, which provide important habitat for birds and Mongolian gazelles.

Creation of protected areas is only one step in ensuring necessary protections for important species and ecosystems. The Wildlife Conservation Society has instituted dozens of new best practices in protected areas management in the Land of the Leopard National Park. By investing in improving relations between the park and nearby communities, promoting best practices for park rangers, and preventing damaging fires (see [Case Study 5—Wildfire Brigades](#)), the park has created a sanctuary for the region's remaining tigers and leopards. Expanding these efforts to other parks and protected areas is a key strategy to making sure that legal protections are enforced.

Strategic Assessment and Citizen-Monitoring of Mining and Other Extractive Industries

MINING FOR GOLD AND OTHER MINERALS HAS damaged riverine and forest ecosystems. Though Russian law imposes strict regulations on the mining industry, the laws are routinely ignored, particularly at remote mining sites. Fortunately, conservationists are developing innovative methods of monitoring mining projects and cleaning up illegal damage.

Through satellite monitoring, conservation groups like Transparent World can detect dan-

gerous mining practices and pass this information along to local conservation groups and law enforcement. (See [Case Study 1—Gold Mining](#)). Rivers without Boundaries and the Wild Salmon Center are also reaching out to mining industry representatives in Russia, China, Mongolia, and the West and offering assistance with impact reduction and river rehabilitation.

Build a Local Conservation Constituency to Protect Local Fauna and Flora

THE AMUR BASIN IS THE MOST POPULOUS OF the three target subregions in this assessment, and so engagement with local people is critical. Conservation stakeholders in this region range from wealthy timber barons to indigenous herders, and there are many positive examples of community partnerships for conservation to build on.

Activities like Tiger Day annually attract thousands of participants each year (see [Case Study 2—Tiger Day](#)), and organizations like Phoenix Fund and WWF have turned the Amur tiger into a symbol of the entire region. Even Russia's president has taken up the cause. Small investments in these public outreach events can pay huge dividends in the form of increased investment from local government.

There is much more to do to reach out to subsistence resource users. Herders and hunters are natural conservation stakeholders, but they can also do great damage to ecosystems, especially in the Dauria region. A key strategy to protect the basin involved working with these stakeholders to adopt sustainable practices.



Wildfires that were started accidentally by farmers burning their fields after harvest have devastated large areas of the forest habitat of the Amur tiger and leopard. Educating farmers and recruiting mobile fire brigades has cut wildfires dramatically. (See [Case Study 5—Wildfire Brigades](#).)

Equally important is training and supporting young scientists and conservation leaders. Wildlife Conservation Society is identifying promising local scientists and supporting their research or employment, building a cadre of experienced conservationists and experts. These efforts are invaluable to the long-term sustainability of the conservation movement.

Q & A



Eugene Simonov

As coordinator of Rivers without Boundaries, a transboundary arm of the Sosnovka Coalition, Eugene Simonov has a long history of nature conservation work with the Biodiversity Conservation Center, World Bank, Global Environmental Facility, World Wildlife Fund, and Russian Ministry of Natural Resources.

He is presently involved in basin-wide assessments of sustainable development of hydropower and gold mining in Amur River basin.

Q: Why is the Amur River Basin so important for global conservation efforts?

BESIDES ITS OBVIOUS GLOBAL BIODIVERSITY VALUE and outstanding qualities of free-flowing river, the Amur is also an important example of sharp contrasts among countries—natural, cultural, economic, psychological. Russia, Mongolia and China essentially belong to three different civilizational roots and each of the countries dominated the whole Amur Basin at one time in history. You can hardly find another river basin on Earth that is so deeply divided.

You have the country with the biggest appetite for natural resources bordering countries that believe their resources are boundless. Yet they share one river ecosystem and understand they have to protect their common environment, despite the desire to extract and transport natural resources. The future of the Amur depends on where they strike the balance and whether they find adequate common language to agree on rules of cooperation. This is a unique experiment that has a lot to tell us about the solutions to global problems.

Q: The Amur Basin has a well-developed civil society and a wealth of scientists and experts working on conservation. But the region is so vast and there are so many conservation challenges, what is the ultimate priority?

FOR FRESHWATER ECOSYSTEMS, THE GREATEST PRIORITY is to agree on new ecologically sound objectives for common river basin management. Once upon a time, in 1986, Russia and China agreed to ruin this river completely by a chain of hydropower dams in the main stem. The Amur was saved partly because of mutual mistrust, and partly because of a huge educational effort undertaken by conservationists. We have yet to replace the mechanical ideal of artificial reservoirs generating energy with a more sustainable, mutually agreeable management goal.

Q: The 2013 flooding may have been good for the Amur River and its flora and fauna, but it devastated many communities, and resulted in new calls for more dams and flood control infrastructure. How can people value the natural river when it's a threat to their livelihoods, even lives?

PEOPLE OF THEIR FREE WILL HAVE CHOSEN TO SETTLE IN FLOOD-PRONE AREAS because of their proximity to water, naturally fertilized floodplain soil, abundance of fish, and so on. They do value the natural river. Even at the height of the 2013 floods, polls showed that most people didn't see dams as a remedy for floods. Funds that the government is now trying to earmark for building new dams could be better used for modernization and adaptation of riverine municipalities, so new settlement infrastructure and economy is better adapted to floods and droughts. Russian regions along the Amur do not lack land resources so there are opportunities to avoid this conflict just by not building residences and production facilities in the floodplains.

Q: Even if Russian citizens and authorities were to implement the most rigorous conservation standards and practices, won't China's voracious appetites for raw materials still overwhelm the Russian Far East?

THE REAL QUESTION IS WHETHER RUSSIAN AND CHINESE AUTHORITIES and businesses could develop and enforce such rigorous standards and practices. The two countries share many environmental objectives (like tiger protection or river pollution prevention). Success is not granted, but quite feasible.



PHOTO by Goldman Environmental Prize.

CASE STUDY 6—BAIKALSK

Strawberries Kickstart Sustainable Economy for Baikalsk

FOR ALMOST HALF A CENTURY, THE PULP and paper mill in Baikalsk discharged toxic industrial waste directly into Lake Baikal, the oldest and deepest lake on Earth.

During the Soviet era, says 2008 Goldman Prize winner Marina Rikhvanova, the official story was that the lake water was pure enough to drink—because the

Despite chronic pollution and crushing financial losses,

environmentalists were unable to shut down the Baikalsk

Pulp and Paper Mill for decades because there were few

viable economic opportunities. Until strawberries, tourism,

and a new spirit of entrepreneurship came to the fore.

Now there are even plans to open a “Russian Disneyland” on the site of the shuttered mill.

mill’s sophisticated technology cleaned up the effluent. “But all you had to do,” she says, “was go to the outflow and smell the chlorine. Those of us who lived there knew that the stinking and polluted water was impossible to drink.”

But Baikalsk, which sits at the southern tip of the sickle-shaped Lake Baikal, was a company town. It was founded in the early 1960s, at the same time as its economic mainstay, the pulp and paper mill, opened for business. At its height, the mill employed more than 2,000 of Baikalsk’s 14,000 residents.

Rikhvanova has been enchanted by Lake Baikal’s beauty since she was a child—she often accompanied her father, a documentary filmmaker, on his field trips to the lake. Family legend has it she took her first steps there.

Two decades later, as a young scientist at nearby Irkutsk University, she wrote her thesis on the biological effects of mill waste flowing into the lake. “In those times,” she says, “government policy was not to scare the public with negative information. Experts would deal with it.”

But they didn’t. The pollution was ignored—even though the government conceded that the emissions were harming the lake.

Fearful of the fallout from the loss of jobs, the government kept the plant open. But the plant was a money-loser and polluter, and Soviet authorities began taking steps to close it.

After the fall of the USSR, however, the mill was privatized. That’s when the environmental movement—which included Rikhvanova’s organization, Baikal Ecological Wave, and others like Elena Tvorogova of Siberian Land Revival—rose up to close the mill.

In Irkutsk, with its rich scientific environment, citizens rallied and kept the issue in the public eye.

The mill shut down in 2008, but then President Vladimir Putin stepped in to reopen it two years later. Several industrial accidents and damaging fires ensued in the next few years, and finally the mill was shuttered in 2013.

Lake Baikal is not a traditional part of the Russian Far East, but as Russia turns its face to Asia, more and more regions are united by national programs aimed at developing Asian exports. And sustainable economic development is an important strategy for the whole country.

The mother of two children, Rikhvanova has devoted her life to protecting the lake. She won the Goldman Environmental Prize for leading the successful fight against a proposed oil pipeline that would have been built within a half-mile of the lake, and then gave some of her prize money to the effort to close the mill.

More important, she created the context for social entrepreneurship, and inspired the community to get more involved in shaping Baikalsk's future.

Never before in the history of Baikalsk have there been so many new business initiatives—60 projects in a city of 14,000. Baikal Ecological Wave sponsored nine of these projects, most of which are still operating. They include local souvenir production, plastic recycling, and park landscaping. Baikal Ecological Wave also successfully petitioned federal authorities to establish a local fund to support small businesses. It launched in 2012.

Reimagining Baikalsk as an Ecocity

One of the more daunting challenges Rikhvanova and her allies had to overcome was the paternalistic attitudes and hired worker mindset. “The people in Baikalsk did not want to hear about the importance of closing the mill, the damaging environmental impacts, or exploring the city's prospects for a new economic direction. Environmentalists were seen as the enemy. But we were able to move beyond these attitudes once people started imagining a new direction for Baikalsk, as an ecocity, as a tourist attraction.”

Change required building trust and overcoming aggression, social divides, and people's fear of a bleak future for the city.

“We were fortunate to have the support of Baikalsk Mayor Tatiana Glukman, who helped us find the most active people, organize activities, and was the driving force in our organizing the Strawberry Festival.”

Strawberries have long been part of the town's informal economy, with some residents earning up to 150,000 rubles a year (US \$4,400). Now, with the festival and support from the city, strawberries are changing the image of the city. “It used to be that, because of the pollution, Baikalsk strawberries were not labeled as such in Irkutsk,” says Rikhvanova, “but now the reverse is true. Baikalsk's strawberry is now a brand name, and can demand higher prices. One Baikalsk resident



Marina Rikhvanova won the Goldman Environmental Prize for leading the successful fight against a proposed oil pipeline that would have been built within a half mile of Lake Baikal and then helped inspire residents of the former paper mill town of Baikalsk to reimagine their town as a tourist attraction. PHOTO by Goldman Environmental Prize.

recently complained that they were selling ‘Baikalsk strawberries’ in Irkutsk when they hadn’t even been harvested yet.”

She says that the most important effect of strawberries was in people's mindsets. “The strawberry project demonstrated that they had enough resources to sustain themselves without a mill. It made people value what they had.”

[Another important local enterprise, called Trust, bakes healthy wheat bread from local Irkutsk wheat. Though expensive, the bread is in high demand. Trust also produces other baked goods, owns various supermarkets, shopping centers, and a jewelry store, and is a socially responsible company that pays its employees on the books. Rikhvanova partnered with Trust to help them expand and create more local jobs.]

There are also efforts to expand tourism, to capitalize on the fame and beauty of Lake Baikal. A local ski resort has been building new facilities since the mill shut down.

In January 2014, the Strelka Institute, the architecture firm that created Red October Creative Cluster, an entertainment and cultural center on the site of a Moscow chocolate factory of the same name, drew up plans to convert the abandoned Baikalsk paper mill into a “Russian Disneyland.” The project, still in its embryonic stages, would include a nature reserve and other tourist attractions, and would be preceded by the largest environmental cleanup in Russian history.

But Baikalsk residents have heard their share of promises before. There are still many obstacles to realizing the vision of a thriving and sustainable city.

Conservation Strategies and Resources



Strategic Directions Summary

THE LAST STEP OF THE CONSERVATION ASSESSMENT PROCESS, after the team of experts identified the conservation targets and dominant threats, was to develop a set of broad strategies and necessary conditions for protection of these invaluable resources. In many cases, these overlap with specific strategies discussed in the Salmon, Amur Basin, and Chukotka chapters. In other cases, these strategies are intended as overall guidelines for where best to invest conservation funds, expertise, and citizen advocacy.

Strategic Direction 1:

BUILD AND LEVERAGE PUBLIC ENGAGEMENT TO ENSURE BEST PRACTICES FOR NATURAL RESOURCE MANAGEMENT AND PREVENT OR MITIGATE THE MOST DAMAGING IMPACTS OF INDUSTRIAL DEVELOPMENT.

[INVESTMENT PRIORITIES]

1. Engage broad stakeholder coalitions to stop poaching, wildfires, and other widespread conservation threats.
2. Support independent public monitoring of priority watersheds and forests to ensure enforcement of environmental protection regulations.
3. Support independent public assessments of environmental impacts of proposed development projects and wide distribution of results to key stakeholders.

Strategic Direction 2:

LEVERAGE MARKET MECHANISMS TO INCREASE TRANSPARENCY AND INTRODUCE BEST CONSERVATION PRACTICES IN RUSSIA.

[INVESTMENT PRIORITIES]

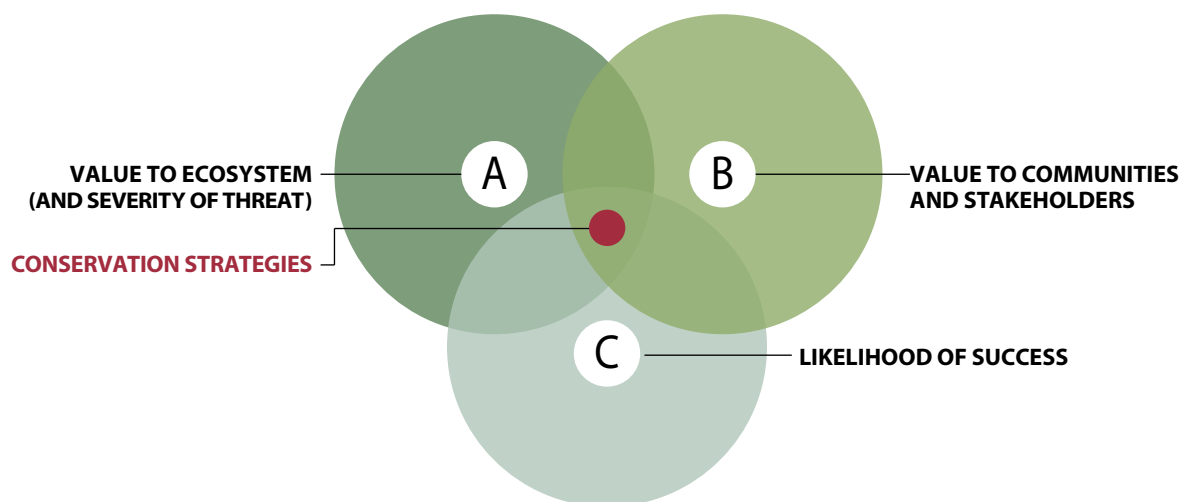
1. Help Russian fisheries and forestry companies implement sustainable sourcing and supply chain practices to gain access to lucrative markets that value sustainability.

7. CONSERVATION STRATEGIES AND RESOURCES

- 7.1 Strategic Directions Summary
- 7.2 Conservation Lessons Learned
- 7.3 List of Literature

Identifying Optimal Conservation Strategies

To produce this conservation assessment, Pacific Environment brought together local and international conservation practitioners to develop the most effective strategies for protecting the last great wilds on earth. These conservation leaders chose targets that reflected the sweet spot of (a) value to the ecosystem (and severity of threat), (b) value to local communities and stakeholders, including economic livelihood, and (c) likelihood of success.



2. Leverage international best practices and reputational risk to encourage sustainable behavior among hydropower, timber, oil and gas, and mining companies active in Russia.

Strategic Direction 3:

PILOT SUSTAINABLE AND/OR ECO-FRIENDLY BUSINESSES, SUCH AS TOURISM AND SMALL-SCALE AGRICULTURE, AS AN ALTERNATIVE TO NATURAL RESOURCE DEPENDENCY.

[INVESTMENT PRIORITIES]

1. Perform analyses of natural capital to understand development tradeoffs and support sustainable development initiatives, and support conservation groups to conduct these analyses independently or assist government agencies.
2. Support implementation of community-based sustainability projects, including sustainable economic development, clean energy, and small-scale resource industries (forests, salmon, etc.)
3. Encourage partnerships between conservation NGOs and small- and medium-sized natural resource businesses to support sustainability of operations.

Strategic Direction 4:

STRENGTHEN AND EXPAND PROTECTED AREA COVERAGE OF PRIORITY ECOSYSTEMS AND TERRITORIES.

[INVESTMENT PRIORITIES]

1. Establish new freshwater and marine protected areas to safeguard high-value, intact ecosystems and geographies.
2. Pilot co-management of protected areas to facilitate public participation in protected area management.
3. Facilitate greater cooperation among protected areas administrators across the region to develop and share best management practices.

Conservation Lessons Learned

Key Recommendations for all Regions

- 1. SUPPORT ORGANIZATIONS WORKING AT DIFFERENT LEVELS OF SOCIETY.** In order to achieve large-scale and complex change, conservationists must address threats at the local, regional, national, and sometimes international levels. An approach that involves working on all three levels is the most likely to achieve durable success.
- 2. MANAGE CONSERVATION PROJECTS ADAPTIVELY,** and be flexible in response to changing circumstances or to take advantage of new opportunities. Conditions in Russia can change unexpectedly, creating new opportunities and shutting down promising pathways to success. By managing adaptively and remaining flexible, conservation organizations can mitigate risk and seize new opportunities.
- 3. SUPPORT CIVIL SOCIETY TO ENGAGE BROAD COALITIONS OF LOCAL STAKEHOLDERS.** The most successful and durable conservation initiatives achieve buy-in from government, business, scientific, and civil-society stakeholders. Broad support ensures sustainability of long-term goals and makes results durable against external changes. Building such coalitions has the added benefit of encouraging de facto co-management of local resources by all relevant stakeholders.
- 4. MAINTAIN A LARGE-SCALE VISION.** The most successful projects have a long-term vision for sustainability and conservation that accounts for human well-being. Stakeholders are more willing to accept short-term discomfort if they will receive long-term benefits. Conservation projects are also more politically acceptable if they are affirmatively for something positive and progressive, rather than simply in opposition to something dangerous.
- 5. PROVIDE SUSTAINABLE ECONOMIC OPPORTUNITIES.** Many Russians, particularly in rural areas, rely on polluting industries or subsistence harvest of overstretched natural resources. Encouraging sustainable alternatives reduces demand for polluting or unsustainable products and builds stakeholder support among people and businesses that benefit from the program.
- 6. WORK WITH SCIENTISTS AND EXPERTS TO ENSURE USE OF THE BEST AVAILABLE SCIENTIFIC DATA.** Scientists are very highly respected by policy-makers and everyday citizens in Russia. Engaging scientists and integrating the best available scientific data and opinions into conservation initiatives provides valuable credibility.
- 7. USE CIVIL SOCIETY ORGANIZATIONS TO MONITOR ADHERENCE TO CONSERVATION LAWS** and guide industry to adopt best practices. Russia has a rich history of volunteerism and engagement of local people in policies affecting nearby communities. Today's highly professional civil society organizations, working together with the scientific and regulatory community, can supplement overstretched regulatory agencies.
- 8. ENCOURAGE TRANSPARENCY BY MAKING INFORMATION WIDELY AVAILABLE.** Russia's regulatory agencies and large companies frequently act without transparency, often providing minimal information only when requested. Conservation organizations can encourage increased public engagement and sustainable policies by collecting, analyzing, and distributing accurate information widely among affected communities.
- 9. LEAD FROM BEHIND.** Russia's government structure traditionally encourages reliance on government for solving problems, even when the government lacks the expertise or ability to do so. Civil society organizations can increase durability of their accomplishments by sharing credit with government agencies and elected officials, thereby buying-in said agencies or officials to long-term success.
- 10. IMPLEMENT DIVERSE AND CREATIVE FUNDRAISING INITIATIVES.** Russian philanthropy is in its infancy, and few Russians give any money to charity. Of those that do, only a small percentage donate to environmental conservation initiatives. However, the percentage of the population that donates grows each year, particularly as economic conditions improve in Russia. Individual organizations have had success fundraising within Russia through crowdsourcing, corporate philanthropy, and leveraging government grants. Conservation organizations should experiment with new and innovative fundraising strategies.
- 11. ENGAGE INTERNATIONAL CORPORATE LEVERAGE MECHANISMS TO IMPLEMENT BEST PRACTICES IN RUSSIA.** Russia relies on international corporations to provide much-needed investment, expertise, and technology for development projects. National and international conservation organizations should leverage international best practices, internal and international policies, and international reputational risk to implement conservation best practices in Russia.
- 12. SUPPORT CONSERVATION ORGANIZATIONS TO REMAIN UP TO DATE AND RELEVANT.** Russia is modernizing quickly, with more than three quarters of the population accessing the Internet every day. Technological developments in recent years empower ordinary citizens to access and distribute vast amounts of information. Conservation organizations must equip themselves with up-to-date conservation and campaigning technology, such as GIS, satellite monitoring, and crowdfunding platforms, as well as staff who understand current demographics and modern campaigning tools.

Strategic Direction 5:

USE INTERNATIONAL AND NATIONAL VENUES TO ACHIEVE CONSERVATION PROTECTIONS FOR THE RUSSIAN FAR EAST.

[INVESTMENT PRIORITIES]

1. Support Russian conservation leaders to engage international decision-making bodies to achieve sustainable practices for international shipping and hydropower development.
2. Integrate biodiversity and ecosystems values into legislation and regional and federal development plans.
3. Facilitate collaboration between enforcement agencies and other stakeholders to stop the sale of endangered and/or illegally obtained species.
4. Facilitate intergovernmental and civil society linkages between Russia and China and Russia and the USA to improve transboundary cooperation in mitigating hydropower threats and facilitating climate change adaptations.

Strategic Direction 6:

BUILD A LOCAL CONSERVATION CONSTITUENCY.

[INVESTMENT PRIORITIES]

1. Support networking opportunities for civil society organizations to engage each other and other key stakeholders.
2. Support increased capacity among conservation organizations to effectively monitor progress and adaptively respond to new threats and opportunities.
3. Ensure that smart, professional conservation practitioners, such as scientists and resource managers, remain in the profession and in the region.
4. Help Russian conservation practitioners keep up to date on international best practices and methodologies.
5. Engage target constituencies in educational events and activities to increase interest in conservation priorities.

Strategic Direction 7:

DIVERSIFY SOURCES OF FINANCIAL SUPPORT FOR RUSSIAN CONSERVATION INITIATIVES.

[INVESTMENT PRIORITIES]

1. Support conservation coalitions to establish and implement cooperative fundraising strategies.
2. Establish partnerships with corporations and businesses as a path to conservation funding.
3. Increase the visibility and brand recognition of conservation organizations through public outreach activities.

Strategic Direction 8:

MONITOR AND ADAPTIVELY MANAGE IMPACTS OF CONSERVATION INVESTMENT ACROSS THE REGION.

[INVESTMENT PRIORITIES]

1. Develop a standard set of flexible evaluation criteria for conservation projects.
2. Engage third-party experts in evaluating conservation impact and project effectiveness.
3. Facilitate regular dialogue among project partners to identify best practices and new opportunities and to adaptively manage ongoing projects.

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Onkotan is an uninhabited volcanic island, part of the Kuril Islands chain in the Sea of Okhotsk.

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