

Washington Conservation Markets Study

Final Report



Prepared for the Washington State Conservation Commission
By Evergreen Funding Consultants

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Introduction

Purpose of this Report

This report evaluates the feasibility of establishing conservation markets in rural communities in Washington to pay farmers and foresters for environmental benefits from conservation projects on their land. The conservation markets project originated in a bill passed by the Washington State Legislature in 2008 that directs the Washington State Conservation Commission to perform a two-part study of the potential for rural conservation markets in Washington. As defined in the bill¹, a conservation market is a “farm or forest-based market for selling credits for wetland or habitat restoration or water quality cleanup to agencies in need of such credits to fulfill mitigation, compliance requirements, and other environmental needs.”

While the primary focus of the project has therefore been on markets created to fulfill mitigation and compliance needs, the legislation also states that conservation markets “shall also be broadly interpreted to include any program that provides ongoing revenue to sustain the long-term viability of farms and small forestry operations as a result of maintaining or enhancing environmental benefits.”

The legislation directs the Conservation Commission to produce a report by December 2008 that evaluates the feasibility of conservation markets in Washington. The bill specifies that the evaluation include an analysis of other rural conservation markets in the United States, an assessment of market supply and demand, consultation with key stakeholders, and consideration of options for design and management of the market. If the outcome of this study indicates that conservation markets are feasible and desirable for use in Washington, the legislation directs the Commission to initiate at least two pilot market projects in the state and report on the results of the pilots by December 2009.

Due to budget and contracting issues in state government, the project was delayed until November 2008 and findings were presented to the Legislature in January 2009.

About Conservation Markets

Most of the existing conservation markets in the United States are known by other names, including mitigation banks, conservation banks, in-lieu-fee programs, greenhouse gas (GHG) allowance trading, and water quality trading programs. These markets share the following characteristics:

1. They involve rural landowners in supplying conservation “products” of various sorts, including wetlands, fish and wildlife habitats, GHG offsets, or water quality improvements;

¹ Substitute Senate Bill 6805.

2. They result in direct payments to the landowner for supplying the conservation products;
3. They are voluntary for all participants;
4. They are driven in whole or in part by a mitigation or compliance requirement under federal, state, or local environmental regulations.

While conservation markets that meet all of these criteria are few in number – with perhaps 60-70 examples nationwide - there is wide and growing interest in these mechanisms. In part, this interest is fueled by the potential of land management to improve water quality, provide habitat, sequester carbon, and otherwise provide environmental benefits in a cost-effective way. In addition, there is a growing recognition of the importance of maintaining the rural landscape and rural communities for their environmental, social, and economic values. Conservation markets may provide a sustainable revenue source for rural landowners.

About the Project

The conservation markets study has been conducted by Evergreen Funding Consultants on contract to the Washington State Conservation Commission, with the support of Cascadia Consulting Group and American Farmland Trust. The consultants have been advised by a committee with members from farming, forestry, environmental, and regulatory interests. The study included the following tasks:

- An analysis of existing conservation markets in the United States and internationally, with implications for Washington markets (documented in Chapter 1 of this report);
- A brief assessment of supply and demand for conservation market products in Washington (Chapter 2);
- An analysis of the opinions and concerns of key stakeholders, including permitting staff, rural landowners, and potential credit buyers (Chapter 3); and
- An evaluation of organization models for conservation markets (Chapter 4).

Each chapter begins with a summary of key findings, followed by further explanation.

Executive Summary

Conservation markets are a bit like skydiving or polygamy: lots of people talk about them but few participate.

People talk about conservation markets because they offer a way to pay for things that people value but can't always afford – things like keeping farmland in production, restoring entire ecosystems, and reducing global warming. Since the dawn of the U.S. environmental movement in the 1970's, the American public has demanded more and more out of the environment – cleaner air and water, larger parks and preserves, better management of fish and wildlife. Spending on the environment matched this trend for more than thirty years, waxing and waning a bit according to the administration but always progressing upwards.

At some point, it was inevitable that the money for environmental improvements would get tighter. After all, many of the quick and inexpensive things – eliminating the worst polluters, setting aside headwaters for parks and preserves, and the like - have been done. But few could have expected the economic crunch that the nation is currently experiencing. For the first time in the thirty-five-year history of the American environmental movement, it seems quite possible that spending on the environment will face a serious long-term decline.

Conservation markets offer the promise of squeezing more out of each dollar spent on the environment. They do so first by applying economic values to resources that have long been considered immeasurable, such as a block of riparian forest, a functioning wetland, or an undeveloped farm. Then, by encouraging voluntary investment and allowing people to opt for improving these resources in their mitigation and compliance plans, conservation markets provide a way to focus environmental dollars on the most efficient and effective solutions.

This concept – using markets to get more value out of spending on the environment – has proven irresistible in national policy discussions. An entire sector of agencies and think tanks has sprung up to focus on conservation markets in all their guises, including, in recent weeks, the development of a brand new Office of Ecosystem Services and Markets in the U.S. Department of Agriculture.

The reason why these markets are much discussed but little practiced is simply that creating a working conservation market is extremely difficult to accomplish.

What's a conservation market?

A conservation market is a program that facilitates payments to landowners for environmental improvements. The focus of this report is on markets designed to meet federal and state environmental regulations. In a regulatory context, conservation markets provide a way to fulfill mitigation and compliance responsibilities by paying landowners for conservation projects. Conservation markets are also known as ecosystem service markets, conservation and mitigation banks, and water quality trading programs.

The full study report includes a selective profile of operating conservation markets in the United States, with a particular focus on those used in regulatory programs. At first glance, it is impressive in the number of markets that are operating, with a wide range of water quality, air quality, habitat, and wetland applications. But it is also important to remember that this is the culmination of more than a decade of discussion, incubation, and active financial support. Thought about this way, the number of successful markets is modest.

The few really successful regulation-driven models in the U.S. tend to have an unusual combination of features, including:

- A well-defined environmental standard to meet, such as a specific temperature or nutrient requirement;
- A flexible regulatory scheme for attaining that standard, and particularly one that allows for consideration of an unusually wide set of alternatives;
- A highly motivated buyer, most often a large agency seeking environmental permits;
- Lots of individuals and groups interested in creating, marketing, and selling credits from conservation actions;
- A platform for valuing credits, brokering transactions, and accounting for trades; and
- A political environment that supports the development and implementation of the trading program.

The two features that are hardest to find – and the most constraining to markets generally – are **flexibility in regulations** and **motivated buyers**.

With regard to **regulations**, conservation markets and the individual transactions under markets are regulated by a variety of federal, state, and local agencies using a regulatory scheme that has its foundations in the 1970's. The scheme emerged from laws focused on individual resources (endangered species, wetlands, and wastewater) and on the biggest environmental threats of the day, particularly polluted industrial and municipal discharges and smokestack emissions. Many of these regulations were remarkably successful at addressing these problems, but do not lend themselves well to the consideration of a wide variety of conservation actions, including a mix of end-of-pipe treatment and landscape source control, that could be offered through conservation markets.

The problem with **buyers** is linked to the regulatory issue. Research and interviews indicate that many agencies and private entities would be enthusiastic about market solutions that reduce regulatory costs or increase their compliance options, and some have suggested that they would pay more for quicker resolution of permitting issues. However, participation in markets is the “road less traveled” toward compliance and few buyers have the luxury of extra time or money to work through the uncertainties and risks of a market solution.

Washington State has been neither a leader nor a laggard in the creation of conservation markets. The state made an early foray into wetland banking in the

1990's, then put its program on hold in 2002 due to budget constraints, and has recently revived it through publication of a draft banking rule and implementation of pilot projects. The first salmon bank is nearly permitted and work is underway on cap-and-trade concepts for addressing greenhouse gas emissions through the Western Climate Initiative. In addition, there are many examples of incentive programs that have supported conservation work on private farms and forest parcels.

The state is in a good position to become a leader in the new generation of U.S. conservation markets. The economy, while battered by the recession, is still fundamentally strong and able to support new development activity, the engine behind conservation markets. State government is progressive and focused on efficiencies, and both the Governor's office and the Legislature seem open to market-oriented changes in regulation. There are also some major prospective buyers, including agencies responsible for major highway and utility improvements in the state.

The remainder of this executive summary identifies the overall findings of the conservation markets study and recommendations on how to facilitate markets in Washington.

Summary of Study Findings

1. Private farms and forests could supply substantial conservation gains in Washington. Existing conservation markets in the U.S. indicate that conservation actions on private farms and forests can be a viable, sustainable, and cost-effective way to achieve a wide variety of environmental goals. Existing incentive programs and markets are leaving most of this potential untapped. Contacts with landowners and farm and forest organizations indicate that there will be strong interest in participating in markets if the price is right and if removal of land from production is minimized.
2. Markets at greenhouse gas emissions (or carbon markets) appear to be the most promising for early implementation. It is widely predicted that the Obama administration will take a more energetic stance on greenhouse gas emissions, including establishment of a national cap-and-trade system. The state has been actively engaged in the Western Climate Initiative and its cap-and-trade policies, which should fit well in the national program. All signals are pointing to active greenhouse gas emissions markets within a few years, and this is an excellent time to consider an expansive role for farmers and foresters in creation of GHG credits.
3. Water quality markets are also somewhat promising, but will take longer to develop. Of the more than forty existing markets investigated in the study, many of the most energetic and successful focus on water quality compliance. Nonpoint source control on private farms and forests has promise as a tool to reduce temperature, dissolved oxygen, and nutrient pollution, all significant issues in Washington waters. However, there is a well-developed regulatory system aimed at end-of-pipe solutions that is widely considered to be successful, and it will take time and further work to determine how to

integrate use of source control and point/nonpoint trading into this regulatory scheme.

4. The growth in conservation markets in Washington would be stimulated by more energetic governmental leadership and coordination of efforts. No fewer than eight state agencies and offices have conservation markets within their purview, including the Washington State Conservation Commission, the Departments of Ecology, Agriculture, Natural Resources, and Fish and Wildlife, the Puget Sound Partnership, the Washington Biodiversity Council, and the Recreation and Conservation Office. It would be helpful to establish a nucleus of market activity in Washington government to coordinate efforts and stimulate the creation of markets, much of which has been done recently at the federal level with the creation of the Office of Ecosystem Services and Markets in USDA.
5. Attention is needed to establish the appropriate market institutions before new markets take off. Conservation markets are complicated to establish, administer, and monitor and it makes little sense to have many different markets operating in Washington, each with different procedures and organizations. Some level of centralized organization and functions will be useful in ensuring the accountability and efficiency of new markets.

Summary of Study Recommendations

1. Establish a center for state efforts to stimulate the creation of new conservation markets. At the moment, it is unclear where the center should be. The Washington Department of Ecology would make the most sense from a regulatory purview standpoint, although the Washington State Conservation Commission has a longer track record with state farmers and the Department of Natural Resources has stronger relationships with foresters. What is important is that the state move forward decisively on this promising new concept, and the Governor and Legislature should determine who should lead this work.
2. Develop a template for structuring new regional or statewide conservation markets, potentially based on the in-lie-fee program being developed by the Puget Sound Partnership. Many of the aspects of markets, including maintenance of credit registries, fiscal accounting, and credit tracking, should be centralized to avoid duplication of costs and effort. The Puget Sound program is likely to be the full functional multi-credit trading program in the state and should be investigated as a model for a trading institution.
3. Pursue a strong role for farmers and foresters in production and marketing of greenhouse gas credits. There appears to be an excellent opportunity for landowner involvement in this incipient market. Agencies, farm and forest organizations, and individual farmers and forester should test methods for producing, aggregating, and marketing GHG credits based on the work of the Northwest Natural Resources Group, the Pacific Northwest Direct Seed Association, and others. The Governor's office and others engaged in the

Western Climate Initiative should ensure that farmers and foresters have a voice in discussions of GHG markets.

4. Provide stronger incentives for conservation actions on farms and forests. The Washington Department of Ecology, the Washington Conservation Commission, and the Washington Department of Natural Resources should collaborate to identify meaningful incentives to farmers and foresters to encourage conservation actions on their land. Ecology in particular should consider ways to more routinely consider payments for farm and forest source control in permitting of point source discharges in the same watershed. In doing so, the agency should continue to develop a workable definition of baseline conditions to allow participation of rural landowners in markets.
5. Pursue pilot projects to continue development of conservation market policies and procedures. The Conservation Commission and Department of Natural Resources should lead efforts to identify and pursue pilot projects in farm and forest communities. As stated in the enabling legislation for this study, the Department of Ecology should support this effort by clarifying their standards and conditions for approval of market pilots. Particular attention should be focused on pilots that could demonstrate the potential of greenhouse gas and water quality markets.

Chapter 1: Analysis of Existing Markets

This chapter summarizes a review of over forty representative conservation market programs in operation and under consideration in the U.S. to determine relevant lessons for Washington conservation markets. Given the emphasis of the enabling legislation on markets driven by regulatory compliance, the study focused on markets used in regulatory processes², including:

- **Water quality** markets that typically trade in nutrients and temperature.
- **Habitat** markets that protect or restore habitat for species that are endangered, threatened, or otherwise of interest to buyers.
- **Wetland** markets that preserve, restore, enhance, or create wetlands, typically for mitigation purposes.
- **Carbon or greenhouse gas** markets that store or reduce the emissions of greenhouse gases to be sold as offsets.

Lessons learned from this review include factors affecting successful conservation market conditions, structure, contracts, and credits. Further details regarding each type of market are discussed in the following sections.

Key Findings on Existing Markets

- There are a wide variety of conservation markets operating on working lands in rural areas in the United States that can serve as models for similar markets in Washington. This review encompassed over forty programs.
- The most vigorous markets in rural America are those focused on water quality. This appears to be due to the strong regulatory context for water quality regulation and early initiatives to stimulate water quality trading.
- Greenhouse gas markets are becoming vigorous, and are thought to be very promising as tools for addressing climate change in the future.
- Most of the vigorous markets feature one or more highly motivated credit buyers, often industries or municipalities that face strong regulatory burdens.
- Successful conservation markets rely on a strong technical basis to inform the quantification of credits.
- Many successful markets employ aggregators to assemble many small transactions into larger, market-significant deals for large buyers, thus

² There are many programs that provide incentives for landowner conservation outside of regulatory processes, particularly the Farm Bill programs. Readers should consult the Washington Biodiversity Council for information on landowner incentives.

- making transactions more manageable for large buyers and helping individual sellers reach larger markets.
- Commitments for landowner participation typically range from 3-5 years in length for wetland and habitat programs to the 50-100 years often required for forest carbon credits.
 - While conservation markets can theoretically trade in multiple resources, operating markets tend to focus on one resource only (e.g. carbon, habitat, and water quality).

Methodology

This review encompasses existing or developing programs in each of the four market areas which involve the purchase of credits from farmers, ranchers, and foresters. Information on transaction methods, how credits are created and valued, typical sellers and buyers, and the level of market activity, was used to identify specific lessons learned from existing markets. Markets considered highly relevant to Washington included those in which:

- Land used to create credits remains in production;
- Practices can be undertaken in Washington;
- The program involves numerous sellers conducting small projects; and
- The market structure is simple, with transactions either directly arranged among buyers and sellers or brokered by a single community institution.

Details on the type and format of information gathered on each program are included in Appendix A.

Summary of Programs Reviewed

Water Quality

Conservation markets for water quality are typically housed in water quality trading programs. Since the publication of their Draft Framework for Watershed-Based Trading in 1996, the Environmental Protection Agency has supported water quality trading to address sediment and nutrient pollution in selective cases, particularly where a Total Maximum Daily Load (TMDL) assessment has been completed and where there is a significant difference in cost and effectiveness of various source control and treatment alternatives. The policy (updated in 2003) allows trades between a permitted point source and other point or nonpoint sources to achieve permit compliance. For a more complete discussion of trading, see the following EPA trading website: <http://www.epa.gov/owow/watershed/trading/tradingfaq.html>).

EPA has funded and otherwise supported more than a dozen pilot water quality trading programs in the U.S., and this study looked at several that use nonpoint source control actions on farm and forest lands in the trading scheme.

Most of the examples, including the more vigorous markets, feature one or more highly motivated credit buyers, often industries or municipalities that face strong regulatory burdens. In typical circumstances, the buyer pays nearby or upstream farmers and ranchers to implement best management practices, such as larger stream buffers, that reduce nutrients or temperature in the affected streams. These markets are justified by a strong technical and scientific basis that translates these best management practices (BMPs) into the quantified outcomes (e.g. reduced nutrients) needed to address permit conditions.

Many water quality markets incorporate trading ratios that require greater application of BMPs to reduce uncertainty in long term performance. Even with ratios, credits can provide a less expensive alternative to installing technological solutions or may be used to improve water quality beyond what can be achieved through technology alone.

In the active markets reviewed, buyers tended to be wastewater treatment plants or food processors.³ Sellers typically interacted with a single point of contact, either the sole buyer in the market or a broker. In many vibrant markets, even where there is one regulated buyer there is frequently also a strong community partner to help arrange transactions, such as a conservation district, farm bureau, or watershed council, whose primary interest is the farmers and the BMPs.

Landowner participation in these markets tends to be sensitive to price. Several programs piggyback on existing USDA programs such as the Conservation Reserve Enhancement Program (CREP) by providing enhanced payments. Currently CREP in Washington is undersubscribed, reportedly due in part to low rental payments. New York City's Watershed Program has reportedly achieved 85-90% participation among targeted farmers by paying 100% of implementation costs.

It is worth noting that a recent EPA-funded study concluded that there have been relatively few transactions in many trading programs. It can be difficult to orchestrate the combination of motivated credit buyers, flexibility in regulation, and an approved trading framework necessary to support an active trading program. Interviews conducted in this study indicate that there are a couple of areas in Washington in which circumstances may be promising for trading, including the Spokane River watershed and south Puget Sound, but that widespread water quality trading is unlikely.

Habitat Conservation

Most market activity for habitat conservation purposes has occurred through conservation banks. In a typical conservation bank, a piece of intact habitat for the target species is preserved, funded by the sale of credits to agencies and other permittees who disturb habitats for the same species on their development sites.

³ In one unusual program a group of irrigation districts under a joint cap on selenium discharge traded credits among themselves. Trades were made at the district rather than farmer level. See Appendix A for details.

Conservation banks typically operate under state and federal endangered species legislation.

As with water quality trading, conservation banking is governed by federal policy, in this case a 1995 US Fish and Wildlife Service guidance document. California has a similar policy that has been influential in the creation of conservation banks in that state. According to a 2004 study, there were 76 conservation banks in operation in the U.S., with the majority in California.

Several conservation banks were evaluated in this study and presented in Appendix A. Most programs reviewed here kept the bank site in agricultural production (grazing, selective harvest, and crop rotation). To sell credits into a regulatory system, landowners generally have established a permitted conservation bank in perpetuity, either independently or through an experienced conservation banking firm. Contracts for habitat or species mitigation credits tend to be perpetual. Credits are commonly certified by the U.S. Fish and Wildlife Service and relevant state and local permitting agencies.

The examples seem to underscore the benefit of a strong state-level endangered species regulation as the foundation for a successful conservation bank program. Washington has no such regulation. There are circumstances, however, where a voluntary conservation bank may be possible, as has recently been discussed for prairie habitats in the Puget Sound region. In an innovative, voluntary transaction in Washington, three farmers jointly created a “walking wetland” for migratory bird habitat that integrates into their crop rotations for three years. The wetland also improves soil and will help one farmer switch to organic production without losing revenue.

Wetlands

Conservation markets for wetlands are generally in the form of wetland banks or wetland-oriented in-lieu-fee (ILF) mitigation programs, although banks are far more numerous. Wetland banks are governed by regulations and policies under the EPA and Corps of Engineers, with the most recent policy a 2008 rule focused on approved practices for compensatory mitigation. Many states also have state wetland laws and regulations, including Washington.

As with other markets, sellers create tradable credits by restoring, creating, enhancing, or preserving resources, in this case wetlands. In the programs reviewed here, landowners typically set up their own wetland bank, worked with a private banking firm, or contracted with an ILF program run by a public agency. Contracts for wetland credits tend to be perpetual. Credits are generally certified by the Corps of Engineers, Department of Ecology, local government, and other relevant state and federal permitting agencies.

The trend in wetland banking has been to convert an entire agricultural parcel to bank use, and it is far less common to maintain part of the property in continuing farm uses. In Washington, the conversion of agricultural land to mitigation banks has become controversial to the point where it should not be considered a viable alternative in permitting. At the same time, it will be difficult to permit

smaller wetland projects on actively worked farm and forest parcels. Until the state sorts out its standards on such activities, wetland banking on working farm and forestland will probably not be viable in Washington.

Greenhouse Gases

Markets exist and are in development in the United States and internationally to pay for activities which reduce the amount of carbon and other greenhouse gases released into the atmosphere. Currently most markets in the United States are voluntary, driven in part by public concern about climate change and in part by industry concern about future regulations of greenhouse gas emissions. The largest voluntary markets in the United States are the Chicago Climate Exchange (CCX) and the California Climate Action Registry (CCAR). However, some regulatory markets exist, such as Oregon's CO₂ standard for power plants and the Regional Greenhouse Gas Initiative (RGGI) cap and trade program for the electricity sector in 10 Northeastern US states.

Due to the emerging state of regulatory markets in the U.S., this review largely focused on voluntary markets in which farmers, ranchers, and foresters sell GHG credits to private aggregators who, in turn, sell the credits on carbon exchanges, to offset firms, or directly to the end buyer. Aggregators include member-based associations, private corporations, and private-public partnerships. End buyers include power plants, businesses, and individuals.

Current forestry offset sellers range from small foresters on working land to large foresters setting aside large tracts of land for preservation. Contracts tend to range in length from 50 to 100 years. Credits per acre vary widely depending on stand characteristics. Major agricultural offset projects include soil sequestration and manure management. Soil sequestration may include conservation tillage, establishment and maintenance of grass, and rangeland management.

Contract lengths range from 5-10 years, but most aggregators sell credits and make payments to farmers annually or semi-annually, using current CCX prices. Prices on the CCX have varied from above \$7/ton to \$1.65/ton most recently.

A recently proposed cap-and-trade program in Washington, if passed by the Legislature and implemented, would create a new regional market in the state for greenhouse gas offset projects. Offsets certified in Washington under the cap-and-trade program would be marketable throughout the Western Climate Initiative (WCI). The Department of Ecology is also looking into linking Washington's standards to the RGGI and the European Union Emissions Trading Scheme (EU ETS), making credits marketable on a global scale. These initiatives and the absence of a constraining regulatory framework make greenhouse gas markets an attractive option in Washington.

Chapter 2: Market Supply and Demand in Washington

As with other economic markets, conservation markets depend on a supply of products from motivated sellers and demand for the same products from motivated buyers, as well as a market framework in which they can transact business. This chapter will address the potential demand for and supply of conservation products that could be exchanged in rural conservation markets in Washington.

Key Findings on Supply and Demand

- There is considerable demand for mitigation and compliance projects in Washington, a portion of which could be met through conservation markets.
- There is also a considerable supply of restoration and conservation projects on private farm and forest land that could be purchased through conservation markets.
- The best match between high demand and large supply is in the areas of GHG emissions offsets and water quality improvements (particularly for temperature, nutrients, and sediment).
- There is not a particularly strong match for wetlands, where the demand probably outstrips the supply by a large margin.

Demand from Environmental Mitigation

A host of local, state, and federal environmental laws require that environmental impacts of new development actions are avoided, minimized, and, if necessary, compensated through mitigating actions. When impacts are to environmental features such as wetlands, compensatory mitigation typically takes the form of enhancement or creation of similar features off the development site. In some cases, it will be suitable to mitigate these features on farms and forests via conservation markets.

Demand from environmental mitigation is associated with both public and private sector development projects. Major public sector demands arise from:

- Transportation projects, particularly the \$11 billion in state road construction projects funded in the 2003 and 2005 legislative sessions;
- Utility projects, particularly transmission lines and pipelines with linear alignments; and
- New public buildings, parking lots, and other structures.

Recent studies of mitigation from state highway construction projects⁴ indicate that the major resources addressed in environmental mitigation are wetlands and stormwater, with lesser spending on stream impacts. This distribution probably applies to other public projects.

Evidence also suggests that spending on mitigation for stream and wetland impacts averages three to nine percent of total capital spending when all capital and non-capital costs are included⁵. With overall capital spending in the state in the billions of dollars per year, this suggests that spending on mitigation for public sector projects is likely to be in the tens to hundreds of millions annually.

Private sector spending on mitigation has yet to be fully evaluated, but private spending on new residential, commercial, and industrial development has greatly exceeded public sector spending in all but the worst economic cycles in Washington. With private sector development subject to the same environmental requirements as apply to public projects, private spending on mitigation is likely to be substantially higher than public spending.

Demand from Water Quality Compliance

State and federal laws require permitting of point-source discharges into streams, rivers, bays, and estuaries to ensure that the quality of these receiving waters is not diminished. These permits are collectively known as the National Pollution Discharge Elimination System or NPDES permits. There are more than 5,000 NPDES permittees in the Puget Sound basin alone, including all major industries, wastewater utilities, and larger cities.

Most permittees are required to renew NPDES permits every five years. Often, there are changes in regulatory requirements that compel permittees to implement higher levels of treatment. These are frequently the result of loading studies known as Total Maximum Daily Load or TMDL assessments. These assessments are required by federal law for all water bodies that fail to meet water quality standards under the Clean Water Act. TMDLs are typically focused on one or more water quality parameters, such as temperature, metals, or nutrients, which are the pollutants of concern in the impaired water body.

Farm- and forest-based source control measures such as planting of riparian areas and construction of biofiltration swales can be an effective way to reduce nutrients, temperature loading, and sediment. In addition, experience with water

⁴ Washington State Department of Transportation, project mitigation case studies can be found at http://www.wsdot.wa.gov/NR/rdonlyres/81ADC6F8-D9EE-4164-9F93-2F285E02D3AC/0/2006_ExecutiveSummary.pdf and <http://www.wsdot.wa.gov/NR/rdonlyres/E4C452AE-2D0E-4B0F-825F-D5AE3D93742C/0/ExecutiveSummary.pdf>.

⁵ In the DOT studies cited above, spending on mitigation for effects to wetlands and streams ranged from 0.1% to 28%; additional mitigation costs were due to noise and stormwater impacts.

quality trading programs indicates that these measures may be considerably less costly than end-of-pipe treatment solutions.⁶

Therefore, the most promising circumstances for use of conservation markets to meet water quality compliance requirements are watersheds with the following characteristics:

- Recent TMDLs for temperature, nutrients, or sediment;
- Permittees who may face expensive end-of-pipe treatment options for control of these pollutants;
- Farmers and foresters who have the capability to implement additional practices (above their legal baseline requirements) to reduce runoff of these pollutants; and
- A framework or platform, such as a conservation market, for negotiating and consummating a trade of credits.

Further analysis will be needed to determine where these circumstances exist and identify the likely demand for water quality products.

Demand from Greenhouse Gas Initiatives

There is growing recognition internationally for the role that farms and forests can play in greenhouse gas mitigation. The Washington Department of Ecology is proposing a cap-and-trade program to regulate greenhouse gas emissions in Washington State, which would involve farm and forest offsets to compensate for emissions in other sectors of the economy statewide, regionally, and nationally. President Obama and the incoming Congress seem likely to implement a mandatory cap-and-trade program on greenhouse gas emissions in coming years, which is expected to increase the size and scope of the offset market considerably. The current voluntary U.S. offset market is estimated at \$3 billion in annual activity.

Potential Supply from Farms and Forests

Working farms, ranches, and forest lands have already proven capable of supplying marketable environmental services, as discussed in Chapter 1. The following is a summary of conservation management practices which benefit the environment and are above baseline compliance with state law, and thus could be considered tradeable commodities.

Water Quality

Agricultural management practices which can have positive impacts to water quality include management of amounts and rates of nutrient and chemical

⁶ In the Tualatin basin in Oregon, the local sewage treatment utility spent \$10 million on buffer restoration on upstream farms in lieu of a \$55 million investment for a refrigeration unit on its sewage treatment plant. The transaction was approved in the utility's NPDES permit.

application, soil monitoring, use of planted filtration areas and riparian buffers, reduced tillage, strip cropping, managed application of irrigation water, and integrated pest management. These actions can reduce chemical runoff, reduce sedimentation, improve filtration and plant uptake for nitrogen, phosphorous, and other excess nutrients, and decrease water temperature.

Possible tradeable forestry management practices include riparian buffers, selective and rotational harvest, proper road building, and replanting, to reduce erosion and sediment inputs to surface water and cool stream temperatures.

Some of these practices involve significant additional management expense, but many are relatively inexpensive to implement. Many provide ancillary business benefits such as lower pesticide or fertilizer costs, improved soil quality, or lower labor or fuel costs. Some of these practices, such as riparian buffers, may take land out of production at substantial cost to farm and forest businesses.

Water quality protection is a benefit of many of the standard conservation practices in the U.S. Department of Agriculture's Natural Resources Conservation Service Field Office Technical Guide (FOTG), and the existing institutional infrastructure of NRCS and conservation district personnel can assist with implementation.⁷ Many of the practices in forestry affecting water quality are, however, already required under the Forest Practices Act, creating a higher baseline for forest practices compared to agriculture and limiting the range of cost-effective, marketable actions forest landowners can take.⁸ Both the Washington Department of Natural Resources and the conservation districts provide technical assistance and implementation services to the forest industry.

Habitat Conservation

Farms and forests can provide protected (or enhanced) habitat for fish and wildlife by providing feed and forage, water, open natural and semi-natural areas, migration corridors, cover, roosting and nesting locations, ponds, riparian protections, aquifer recharge, storm water detention, and other important habitat conditions.

Typical mitigation requirements involve conservation easements to preserve the land for agriculture or forestry combined with management practices consistent with wildlife needs. Examples include: in forestry, the use of selective or rotational harvest; for livestock, managed and rotational grazing; and in farming, the use of appropriate wildlife-friendly cover crops or of native vegetation along field borders or in unproductive areas, facilitating migration, "walking wetlands," etc. There are standardized and generally accepted habitat conservation practices in the FOTG, the Forest Practices Act, and industry publications.

⁷ See the NRCS Electronic Field Office Technical Guide on line at: <http://www.nrcs.usda.gov/technical/eFOTG/>.

⁸ RCW Ch. 76.09.

U.S. Fish & Wildlife Service rules⁹ do not require that mitigation habitat be replaced. Therefore, except for buffers, the removal of lands from agriculture/forestry is not necessarily involved. As with water quality, many of the actions called for can be accomplished in ways that are consistent with agriculture and forestry. However, for both timber and for agriculture, buffer requirements may result in land being removed from production. The salient Pacific Northwest example is riparian buffers for salmon habitat along waterways. Conservation easements supplied to mitigation markets will probably need to be perpetual.

Wetlands

Farms are frequently located in low flat areas that may originally have been drained and that sometimes still contain some wetlands or areas of wet unproductive land. This makes them easy to convert to wetlands. Existing farmland is generally surrounded by other farmland that is zoned and protected for agriculture. This reduces the threat that the surrounding land will be developed and enhances the probable long-term effectiveness of the new wetland – also making farms attractive to buyers. Farms may be low in a watershed and conveniently near the site of development that requires wetland mitigation. Because the land is zoned for agriculture, it can frequently be acquired at a lower cost than can land in a more urban setting. Therefore, farms are definitely capable of providing a supply of wetlands. Forest lands are often a bit higher in the watershed and may be on steeper ground, but many of the same possibilities apply.

The demand for wetland mitigation mostly requires that new, fully functional wetlands be created to replace those lost. There is increasing preference for large, contiguous wetlands rather than small patches sprinkled across the landscape. In some cases wetland mitigation can be provided by improving or enhancing existing wetlands or by converting areas of currently wet unproductive soils. Where demand is driven by wetland mitigation, perpetual easements, long term management to preserve the services, and a clearly identified party that is responsible for the long-term success of the site(s) will generally be required. However, in some areas, existing mitigation banks and in-lieu-fee programs may limit demand for mitigation from agriculture and forestry lands.

Land to be covered by a fully functional wetland will be lost to traditional agriculture. Some will argue that creating wetlands is simply “farming” an alternative crop; however, the potential for loss of supporting supply, service, and processing infrastructure makes this highly controversial. (See Chapter 3) Wetlands can also cause drainage, weed, and other issues for surrounding land. Farm and forest landowners do, however, often own areas of marginally usable ground that are impractical to drain and that might be preserved or improved for wetland credits without impairing the use of the balance of their land. There may

⁹ See: “Guidance for the Establishment, Use, and Operation of Conservation Banks” at: <http://www.fws.gov/Endangered/pdfs/MemosLetters/conservation-banking.pdf>.

be estuaries, riparian areas, or other aquatic resources on the property that can be improved without disrupting operations. However, the trend toward mitigation in large contiguous wetland areas will limit demand for these smaller patches of wetland or aquatic land.

Greenhouse Gases

Living soils, trees, grasses, and other plants sequester carbon. Therefore, planting them, keeping them alive longer, or preventing their decay, through farming and forestry practices, can be marketable. An additional significant GHG emission reduction achievable on farms is reducing methane emissions from livestock manure.

Current examples of practices and products that can be sold in GHG markets include afforestation/reforestation, forest management, preservation or conservation, forest products that sequester carbon, soil sequestration (conservation tillage, establishment and maintenance of grass, and/or rangeland management) and manure management.

Washington State University's Climate Friendly Farming project is researching other practices that can be used while producing other agricultural commodities.¹⁰ Some practices in the organic industry also hold promise.¹¹

The above actions are generally consistent with current farm or forest operations. All have some impact on operating costs. Manure digesters in particular can involve a large initial investment.

There is a fair amount of uncertainty associated with long-term contracts, as natural processes such as floods or fires may release any carbon sequestered. Definition of baseline practices may preclude the participation of many small forest landowners who already employ those practices. The number of marketable agricultural practices is limited, and only a few segments of the industry can yet participate.

¹⁰ WSU's Center for Sustaining Agriculture and Natural Resources (CSANR) is studying, for example, projects in irrigated agriculture. See: <http://cff.wsu.edu/Project/irrigated.html>.

¹¹ The Rodale Institute has completed a study suggesting positive results for some practices used in organic farming. See: Regenerative Organic Farming: A Solution to Global Warming at: http://www.rodaleinstitute.org/files/Rodale_Research_Paper-07_30_08.pdf.

Chapter 3: Stakeholder Opinion and Issues

The viability of conservation markets in Washington will depend in large part on support from several key groups: potential farm and forest suppliers, potential buyers of conservation market credits, and regulatory agencies that review transactions to fulfill regulatory requirements. This chapter identifies the opinions of and issues for each of these key stakeholder groups.

Key Findings on Stakeholder Issues

Based on initial discussions with key stakeholders, there are seven issues that are sufficiently important that they will make or break the potential for conservation markets in Washington:

- Support from the Washington Department of Ecology, US Army Corps of Engineers, EPA and local governments: As the key state regulator for water quality discharges and aquatic habitat mitigation, these agencies are in a key position to determine if conservation markets succeed.
- Clear standards for acceptable transactions: Particularly in the early stages of conservation markets, buyers and sellers need clarity and specificity in the regulatory requirements as they pertain to market transactions. This includes having a scientifically defensible and universally acceptable method for determining credits.
- Enthusiastic buyers: The pace of markets elsewhere in the U.S. depends on the motivations of buyers, with the most active markets backed by well-funded, active agencies and institutions.
- Impacts on agricultural practices and the agricultural land base: It will be vital that markets are fully compatible with continuing agricultural practices on participating farms and on maintaining the critical mass of farmland.
- Defining baseline and additionality: Defining baseline standards and determining which practices are additional in GHG markets presents a challenging balance between ensuring credits are for actual sequestration and encouraging early adopters to continue to participate.
- Limited regulatory risk for landowners: Farmers, ranchers, and foresters are especially concerned that after they begin providing and being compensated for conservation, it may become a regulatory requirement or expose them to future lawsuits.
- Simple, consistent procedures and trusted players: Acceptance of conservation markets in rural communities will depend on keeping the administration of the market familiar, consistent, and simple for participating landowners.

Permitters

The opinions of permitting agencies were identified through comments on the draft report, follow-up conversations, and extensive outreach efforts associated with the Puget Sound in-lieu-fee mitigation program, an independent but related project. As with all of the following summaries, these should not be construed as the concerns and preferences of specific agencies.

Permitting agencies have strong interest in but also some wariness of conservation markets. Their interest arises because conservation markets provide another tool to improve the effectiveness of environmental mitigation and compliance. There is widespread awareness of the need for improvements in traditional mitigation practices and a strong commitment to improving performance, as is evidenced by the Department of Ecology's "Mitigation that Works" initiative. There is also longstanding concern about the ability of existing compliance measures to address dispersed nonpoint pollutants which are widely regarded as significant pollution sources.

Permitting agencies are interested in the potential of conservation markets to provide incentives for landowner action to reduce nonpoint pollution and improve habitat. There is also optimism that markets could be an alternative to regulation as a way to achieve a more cooperative relationship between permitting agencies and rural communities.

The wariness arises from concerns that markets could be oversold as an alternative to environmental regulation and that markets could be misused to reward landowners with poor environmental practices. Permitting agencies expressed a strong interest in establishing a baseline condition of reasonable stewardship practices and awarding credits only for actions above that baseline, taking care not to award credits for actions that are already required by regulation.

With regard to the type of markets to be pursued, the agencies are already committed to improvements in wetland mitigation and are interested in market approaches to encourage landowner participation in wetland mitigation. Carbon or greenhouse gas markets are also viewed as promising. Water quality trading is thought to be more problematic, partially because of the baseline issue.

Buyers

The compressed schedule of the study prevented contact with many prospective buyers and this section is based on a few contacts and on outreach for the Puget Sound in-lieu-fee mitigation program. It is expected that buyers could include public and private sector applicants for environmental permits – for the mitigation markets – and industrial and municipal dischargers for compliance-driven markets.

There is strong interest among prospective buyers in practically any approach that can accelerate permitting or reduce compliance costs. Conservation markets tend to be viewed favorably because of their potential to accelerate permitting and reduce compliance costs. However, there is also uncertainty and some

skepticism among prospective buyers that markets can achieve faster and/or cheaper permitting. Some cite prior state efforts to streamline regulations as reasons to doubt the potential of markets as an element of a viable compliance strategy. Others question the ability to integrate consideration of conservation markets into tight permitting schedules.

Some buyers have jumped into markets regardless of these uncertainties, particularly in the use of wetland mitigation banks to fulfill mitigation needs. It appears that buyers will be looking carefully at signals from the regulatory agencies that conservation market products are acceptable as mitigation and compliance conditions before widespread adoption is likely.

Research conducted for this study indicates that a single major buyer such as a municipal utility or state transportation agency can be a powerful motivator for a conservation market. While there are many prospective buyers in Washington, so far there does not seem to be a lead buyer likely to drive market creation in new arenas such as habitat conservation or water quality trading.

Sellers

In general, farmers, ranchers, foresters are interested in generating and selling credits in conservation markets. They see ecosystem products as a potential source of revenue to keep their working lands in operation but must be fully engaged in the design, development, and operation of future conservation markets if they are to work.

Stakeholder opinion and advice from farmers and foresters was solicited through a “Conservation Markets Workshop and Listening Session for Agriculture” in Vancouver, Washington, interviews with key leaders in the Washington agriculture and forest industries, discussion in the Conservation Markets Advisory Committee, presentations and discussions in agriculture and forestry venues, and informal conversations with agriculture and forest leaders over the course of fall 2008. Further details on the Vancouver workshop are in Appendix B.

Frequently-mentioned issues in conversations with farmers and foresters included regulatory risk, loss of working land, and compensating early adopters, as well as incorporating trusted points of contact and integrating the market into existing operations, as described below. If these issues can be solved, ample supplies of services are likely to be available from the agriculture and forest industries in Washington.

Loss of Working Land

Landowners are concerned both about losing their own working land through conversion to other uses, and about the resulting impacts to the remainder of the industry. A critical mass of active farming and ranching is needed to support local supply, processing, and service businesses that, in turn, support farms and ranches. Consequently, participants in the conservation marketplace should be able to maintain high-quality lands in production, as desired. This issue may be

of less concern to forest landowners, who appear to expect that a sound, well-paying conservation marketplace could replace timber production as a meaningful source of revenue.

Regulatory Risk

One common concern is that by participating in conservation markets, landowners will subject themselves to new regulations. For example, by creating habitat which is used by an endangered species, a farmer may later be subject to regulations under the Endangered Species Act. Landowners would like to have safeguards from lawsuits or regulatory action stemming from their participation in conservation markets, and limited disclosure of the information shared as part of a market transaction.

Early Adopters

Many influential leaders in the agriculture and forest industries have proactively and voluntarily implemented conservation practices in advance of a marketplace. Striking the balance between meeting additionality standards while compensating and encouraging early adopters is critical to ensure the current and future participation of farmers and foresters.

Trusted Points of Contact

Conservation markets are still an unfamiliar topic for many farmers, ranchers, and foresters. Creating a conservation marketplace in Washington will require close collaboration between working landowners, environmentalists, and regulators. Transactions will require frank disclosure of details about current agricultural and forest operations and at least some on-site monitoring of future activities. The market should involve trusted and familiar brokers or points of contact, and trusted technical service providers. Other successful conservation markets have involved trusted entities such as existing farm or forestry organizations, groups with strong representation from agriculture and forestry, or conservation districts.

Integration with Current Agriculture and Forest Operations

To ensure landowners participate in conservation markets, a few steps could be taken to simplify their involvement:

- Easy transactions with a single point of contact, simple paperwork, clear prices, transparent transactions, and technical assistance.
- Flexible contract lengths with the option for perpetual easements, depending on the resource type and needs of the buyer and regulator. Depending on what the services are used for, perpetual easements may be required.
- More flexibility than exists in Farm Bill programs to allow a conservation service or practice to be site-designed in a way that maximizes both the ecological service benefit and the landowner's production.

- Insurance and contracts that minimize risk and responsibility for unforeseen failures.
- Clear performance measures that can be monitored objectively and with minimally-intrusive site visits.
- A clear methodology for determining credits.

Chapter 4: Design of the Washington Conservation Marketplace

Given the many different conservation products that can be supplied by Washington farms and forests and the varied demands of potential credit buyers, it seems likely that there could be many different conservation markets operating in Washington, each focused on a different community and suite of products. At the same time, some level of consistency and coordination would be useful in ensuring the value of the conservation credits and simplicity in administration. This chapter discusses the models of market design that appear promising for Washington, the overall organization of the marketplace, and roles for key players. A final section addresses the ideal characteristics of a market credit.

Key Findings on Market Design

- Identifying local parties to serve as brokers between credit buyers and sellers appears to be essential to a successful conservation market in Washington. These entities would aggregate the credits generated by farmers and foresters, arrange sales, and provide technical assistance with meeting standards and protocols. Working with aggregators which are familiar to and trusted by rural landowners would help to build landowner participation.
- Conservation markets in Washington should probably be organized at the regional or statewide level for overall program administration. Transactions are expected to occur at the watershed scale in water quality markets, and statewide or regionally in GHG markets.
- The newly proposed Puget Sound in-lieu-fee mitigation program could serve as the program administrator for conservation markets in the Puget Sound region, although this would require further consideration of how the two programs would interact.¹²

Models of Market Design

The simplest form of a conservation market would have two parties: a buyer and a seller. The seller would presumably be a Washington farmer, forester, or rancher. The buyer would be a regulated business and industry, a state and local agency, an environmental non-profit, or simply a motivated individual. The buyer and seller would then directly arrange a transaction.

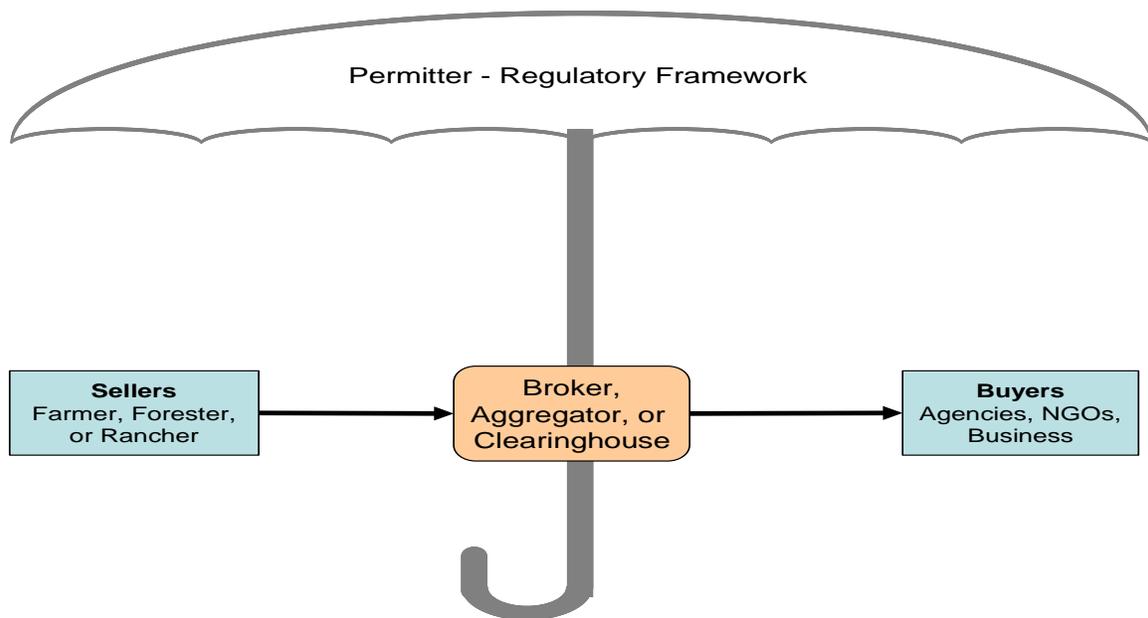
Conservation markets that fulfill mitigation and compliance requirements will have another crucial party, the regulator or regulators, who oversee the transaction and ensure that it meets regulatory requirements. For example, a local utility could pay a forester to enlarge a riparian buffer to meet NPDES

¹² Describe this program briefly.

permit requirements for sediment reduction, a transaction that would need to be approved by the Washington Department of Ecology.

An intermediary serving as a broker between buyers and sellers appears to increase market activity. These intermediaries generally take the form of aggregators who combine the credits generated by multiple landowners and sell them to buyers. Possible aggregators could include organizations such as the Northwest Natural Resources Group or the Pacific Northwest Direct Seed Association, which are piloting GHG markets with farmers and foresters, or conservation districts, which currently provide technical assistance and manage Farm Bill incentive programs statewide.

Regulated markets would require verification and certification to confirm the value and validity of credits bought and sold on the market. Verification and certification could be provided by the broker or regulator, by the permitter, or by third-party organizations. An illustration of the four-party regulated market is shown below.



Overall Organization of the Marketplace

There would likely be at least two distinct levels of organization in conservation markets in Washington. The first level of organization will depend on what functions and resources are involved as well as what the regulatory requirements are. For example, GHG credits are likely to be sold on a statewide or regional basis while water quality transactions must be at the watershed or sub-basin scale, depending on the TMDL. In both cases, however, existing local cooperatives or producer associations could be engaged as local partners to help develop participation. Those functions should be retained by the regional or state-level administering program, as well as relevant regulatory agencies. Local partners are assumed to work within watersheds, conservation districts, or

counties, which are generally a useful scale for the organization of farmer and forester social and economic communities.

The first level of market organization includes a network of local partners and local program officers to encourage seller participation. Each local community (watershed, conservation district, or county) has its own characteristics based on the capabilities and interest of local farmers and foresters as well as the conservation priorities of the area. Trust and trusted points of contact were key factors for success identified by both potential sellers consulted and programs reviewed. Existing, trusted, local partners could help inform potential sellers about the program, explain the benefits of participating, and address their particular concerns. Local program officers would provide technical assistance, process applications, conduct site visits, and provide other local function necessary for the program.

The second level of organization is at the regional or statewide scale. No matter which type of credits are traded or the size of the service area, Washington conservation markets will require certain support systems, such as a credit registry, that are most efficiently provided at the statewide level. The focus at this scale would be to provide the services needed to operate all of the conservation markets, including permitting of the overall market structure, fiscal management and accounting, facilitating permit negotiation with regulatory agencies, reporting, registering and tracking credits, and other program-wide requirements.

Key Roles

Based on the preceding information on structure and organization, the following key roles emerge, with respective definitions:

Credit suppliers: Farmers, foresters, or ranchers who act independently or through producer cooperatives to produce credits for sale in conservation markets.

Aggregators: Entities that facilitate transactions between buyers and sellers. Their roles may include maintenance of an inventory of prospects, matchmaking between prospective buyers and sellers, and holding of credits. This role could be provided by an independent cooperative, a private broker, or an agency such as the local conservation district.

Service providers: Public or private entities that provide project support services, such as watering, planting, and site maintenance.

Credit buyers: Agencies and private entities that wish to buy credits in conservation markets.

Regional or statewide program manager: One or more entities that oversee the conservation markets program, develop program-wide agreements and permits, and manage finances. This could be an agency such as the Washington State Conservation Commission or a non-profit organization.

Regional or statewide service providers: Entities that support the program manager with services most efficiently offered at a regional or statewide level, such as fiscal administration or monitoring.

Regulators: Agencies such as the Washington Department of Ecology that establish and enforce standards for transactions under conservation markets.

Appendices

Appendix A: Program Details

Below is a sample of two programs, showing the type of information gathered on each program reviewed. Full details on all programs are available in a separate document provided with the report.

	Great Miami River Watershed	Alpine Cheese Company
Relevance to WA	High - active, brokered market with multiple buyers and sellers.	Medium - brokered market with only one buyer, but monitoring arrangements may be relevant.
Location	Ohio	Sugar Creek, Ohio
Sponsor	Miami Conservation District, supported by stakeholders.	Holmes Soil and Water Conservation District
Partners	Ohio Farm Bureau, USDA-FSA, Soil and Water Conservation Districts, USDA-NRCS.	Holmes Soil and Water Conservation District and Ohio State University
Age/ Maturity	Between 2006 and 2007 the program reduce 335,636 credits (pounds of nitrogen and phosphorus). In the first year, the program traded 78,000 credits from 13 projects.	Transactions completed
What traded	Phosphorus and nitrogen. Credits generated through implementing BMPs.	Phosphorus. Credits generated through implementing BMPs.
Sellers	Local farmers and ranchers	Local farmers and ranchers
Buyers	Wastewater treatment utilities (at least 5)	Initially one buyer (Alpine Cheese Company), but later expanded to other point sources.
Transaction Methods	MCD serves as a third-party broker to purchase credits from farmers through an RFP process and sell them to local utilities.	Brokerage. Details unclear.
Service Area Size	3,800 square miles and 314 regulated point sources	N/A
Other	Received \$1 million grant from USDA-NRCS. Agricultural participation described as "somewhat limited" because of low credit price.	Trading required to achieve final reductions in phosphorus. Monitoring designed to be minimally intrusive and conducted through OSU extension.
Sources	Don Stewart, "Conservation Markets for Agriculture (Discussion Paper)" American Farmland Trust (November 2008).	Don Stewart, "Conservation Markets for Agriculture (Discussion Paper)" American Farmland Trust (November 2008).

Appendix B: Summary of the Vancouver Listening Session

A “Conservation Markets Workshop/Listening Session for Agriculture” was held November 5, 2008, at the Water Resources Education Center in Vancouver, WA. Thirty-eight farmers, ranchers, and agriculture leaders from Washington and Oregon gathered to discuss concerns and barriers and to suggest ideas and solutions that would make it possible for conservation markets to work successfully for agricultural producers.

Participants in this event were active leaders in agriculture from both states. They included representation from most of the major commodities and geographic areas in the two states, from most of the major agriculture organizations, and from among conventional and organic, wholesale and direct market, and large and small producers. There were a few invited observers that sat in on this event, but active participation was limited to farmers and ranchers or their organizational representatives in agriculture groups. This was done to assure mutual clarity that the foundational purpose for the meeting was to provide farmers and ranchers with an open opportunity to discuss their concerns and needs for conservation markets as well as to engage the interest of the agriculture community.

In a morning session, the group heard informational presentations on:

- The fundamentals of ecosystem markets (David Primozich, Willamette Partnership, Salem, OR),
- Trading opportunities in carbon sequestration (Chad Krueger, Washington State University’s Climate-Friendly Farming Project, Wenatchee, WA),
- Water quality trading (Jeremy Sokulsky, Environmental Incentives, Tahoe, CA),
- The agriculture role in environmental mitigation (Dennis Canty, Evergreen Funding Consultants, Seattle, WA), and
- Why farmers have an interest (Ron Shultz, Washington State Conservation Commission, Olympia, WA).

After lunch, participants broke up into four facilitated discussion groups. Each group was asked to project their thinking five years into a hypothetical future at a point in time when robust conservation markets with broad and successful agriculture participation had come into existence. They were requested to ask themselves two broad questions about how we got to that point:

1. What issues or concerns did we need to address - what opportunities existed that we needed to recognize and take advantage of?
2. What structures, arrangements, institutions, ideas, and solutions were needed to make it happen – what were the “must have” components needed to make it work?

Following this discussion, the full group reconvened with each of the breakout groups reporting on its priority issues and concerns and on the “must have”

components that they felt would be needed to make conservation markets work for agriculture.

“Must Haves” to Make It Work

The following is a preliminary list of “must have” components of conservation markets that resulted from the large group session. This list is not shown in any priority order:

- **Fair payment:** Agricultural producers must receive a fair and realistic price for the services rendered and payment amounts must be substantial enough to justify participation.
- **Reliable marketplace:** The market must be consistent and reliable over time so farmers can plan on participation and rely on payment being made. The marketplace must be economically sustainable over time.
- **Strong, credible and defensible markets:** This must be a real marketplace that produces real credits with a genuine value. Outcomes must be measurable and trades credible to all.
- **Trust:** There needs to be trust among the players in the market – needs to be buy-in from the environmental community on the markets.
- **Safe harbor:** There needs to be provision for “safe harbor” so that information revealed through participation does not expose the landowner to potential enforcement or increased regulatory action. Private property rights need to be protected.
- **Insulation from regulation:** There need to be protection against/assurance that creation of these markets does not create increased pressure for or new opportunities to increase regulation to take their place. Need to be sure regulations are not simply increased to make products of the market ineligible for market additionality.
- **Contract avoidance & consequences:** Where circumstances change, farmer-rancher participants need to be able to terminate contract obligations without undue consequences;
- **Insurance:** There needs to be insurance that protects participants against unmanageable liabilities involved in these transactions.
- **Clearinghouse:** There needs to be a trusted, clearinghouse that can provide farmers & ranchers with credible information about credit values and practices. This needs to be run by non-farmers.
- **Database:** There will need to be a database of buyers, sellers, and transactions.
- **Flexibility:** The system must be sufficiently flexible or allow for participation by farmers and ranchers to change over time with new crops, new market conditions, or other altered circumstances in agriculture.

- **Demand driven by regulation:** To be strong that there is sufficient demand for services from agriculture, the market will need to be driven by regulation rather than simply by voluntary action and “green” demand.
- **Ag engagement:** The agriculture industry will need to be engaged fully in the creation and operation of these markets.
- **Transparency:** The market operation will need to be open, public, and transparent so that the process, values, and system is clear to all.
- **Education:** Farmers, environmentalists, and the public will need to be educated as to the benefits and operations of these markets.
- **Trusted science:** The market, its measures, practices, and policies need to be based on trusted science from credible trusted sources

Priority Issues, Concerns, and Opportunities

What issues or concerns need to be addressed - what opportunities exist that need to be taken advantage of?

- **Image:** A strong conservation market may have an image problem – it must be seen as a solution to conservation needs rather than as a way to avoid dealing with them.
- **Conflict with environmentalists:** Designing the program so that it can be used by farmers is likely to create conflict with environmentalists. Both farmers and environmentalists will need to see this as advantageous.
- **Fair payment:** The program must generate an actual market value for the services delivered and participation must produce sufficient revenue overall to make it worthwhile to be involved.
- **Complexity:** The program seems likely to be complex. Farmers may not have sufficient time or inclination to study and fully understand the system sufficiently that they are willing to become involved in it. The rewards must be sufficient to pay for the time-cost of involvement. Will need a fully-informed buyer and seller both of whom understand the value of participation.
- **Engaging the interest of agriculture:** It will be difficult to get the information about the program out broadly throughout the agriculture community so there is broad understanding, support, and participation throughout the industry.
- **Technical assistance and monitoring:** We will need trusted sources for technical assistance, implementation, and monitoring of the program (e.g. conservation districts and NRCS) if it is to be seen in the agriculture community as credible and if it is to be possible for farmers and ranchers to participate. These functions must be completed by agencies that are trusted by agriculture.

- **Contract length:** There is a limit to the length of the commitment that a producer can agree to – must remain flexible to be able to adapt to changes in the commodity market.
- **Oversight:** Who will provide oversight? Will it be someone agriculture can trust?
- **Measurement:** There will need to be clear and agreed measures of performance that will require modeling and fully understanding who conservation practices work.
- **Baseline & early adopters:** The baseline issues are difficult – if too high, nobody will be able to earn anything from such a market. And we need to deal with early adopters in a way that honors their continued efforts. They should not be eliminated from participation just because they were good citizens before the program got started.
- **Unintended consequences:** It seems possible that, once such markets get underway, regulators could see the processes they create as an opportunity to simply require such performance rather than supporting markets to pay for it. The baseline could be set by regulation, and then slowly elevated, closing out the marketplace.
- **Eminent domain:** Government could also undermine these markets through the use of condemnation, by simply buying farmland and converting it to environmental uses.
- **Transparency and standardization:** For these complex markets to be fully effective as markets and to be credible with the public they will need to be fully transparent to all and will need to operate in accordance to orderly standardized rules that all can accept. Establishing these rules will be a challenge.
- **Funding possibilities:** The possible available funding seems ample with large sums being spent on environmental mitigation and carbon and water quality offsets. This suggests the possibility that, if things work as they should, agriculture ought to be able to sell at a price that truly does cover costs and provide a possible profit.
- **Green market enhancements:** Certification and participation in these markets ought to also provide opportunities to take advantage of eco-markets and to earn additional money through green “value added” products.
- **Use of agriculture groups:** It seems possible that existing organizations that represent the agriculture industry and that are trusted by it ought to be able to take on some of the roles called for by these markets.