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WATER QUALITY SECTION

(Revised 2018)

PREFACE

The Middle Snake River Study Group (1989-1991) was a joint effort among the counties of Gooding, Jerome, Lincoln and Twin Falls to address water quality problems with all surface water in the Middle Snake River Region. The planning document now known as the Coordinated Water Resource Management Plan has been adopted by Gooding, Jerome, Lincoln, Twin Falls and Cassia counties. The plan also authorized the establishment of the Middle Snake Regional Water Resource Commission, the first such commission in Idaho. The Commission's duties and responsibilities are set forth in the authorization section of this document. The plan was expanded to include a section on the history of the region and a section on water quantity in 1995. The economic portion of the plan was added in 1996. Ground water quality was incorporated into the plan in 2002. All sections of the plan are reviewed and updated on a regular basis.

Ground water issues were addressed by the Middle Snake Regional Water Resource Commission in 1995 when groundwater problems first became apparent in Gooding and Lincoln counties and continue throughout the region to this day. Between 1995 and 2001 additional ground water quality data was collected by the USGS to facilitate the incorporation of ground water quality into the Coordinated Water Resource Management Plan.

The Idaho Department of Environmental Quality (IDEQ currently recognizes ~~three~~ four areas in our 5 county region as Nitrate priority areas within the state. Ranking of priority areas are updated every five years by IDEQ and were last updated in ~~2014~~ 2020. A map of each priority area can be found under the IDEQ web site by searching on nitrate priority area delineations. The Marsh Creek area in Cassia County is currently ranked as the 5th highest priority in the state. Others are a large area in Twin Falls County (ranked ~~21~~ 9th), a small area south west of Jerome (ranked 10th) and another near Bliss in Gooding County (ranked 32). Ground water in these areas typically are slow moving, have high water tables and/or are located under fractured basalt. This makes them highly susceptible to contamination through leaching of nitrates as well as other biological~~, chemical~~ and physical contaminates. Extreme caution must be taken when considering new or expanding land uses within these areas of concern.

Planning Area:

The plan encompasses all surface and ground water resources in and running through the counties of Cassia, Gooding, Jerome, Lincoln, and Twin Falls. All five counties are located in South Central Idaho and four of the five counties border the Middle Snake River. Lincoln County, while not bordering the river, is an integral participant because of agricultural return flows, the interaction of the aquifer and the Little and Big Wood Rivers which are major tributaries to the Middle Snake. The five county region contains about 5,100 square miles and has a population of just over 144,000. The increasing population of the region brings its own challenges in maintaining and improving water quality.

Situation:

The planning area is part of the Snake River Basin located in south central Idaho. The Middle Snake River region, in our definition, includes all surface water and the underlying aquifers. The region's water is impacted by:

- Agricultural uses (Irrigated, non-irrigated and concentrated animal feeding operations)
- Private, municipal, industrial uses

- Recharge
- Hydro power
- Aquatic invasive species
- Recreation, tourism, fish and wildlife
- The Idaho Nuclear Laboratory (INL)
- Federal mandates and court decisions
- Cloud seeding
- Climate change

Irrigated Agriculture:

As with the rest of the nation, there has been a slow, but steady decline of irrigated agriculture land caused by urbanization. Approximately 857,000 acres are irrigated with water from the Snake River, its tributaries and deep wells in the planning area. Improper farming practices can impact both our underground and above ground water resources through leaching and runoff of nitrogen and phosphorus, however, agricultural land ~~owner~~ practices including those who utilize manure received from CAFO operators are not required to have nutrient management plans in Idaho.

Non-irrigated agriculture:

Non-irrigated agriculture land includes livestock grazing and dry land farming. These uses may also contribute to the degradation of the regions underground and above ground water resources. Poor dry land farming practices can increase the risk of erosion causing nutrient and chemical bearing sediment to enter rivers and streams while livestock can damage stream bank causing erosion and runoff problems.

Confined animal feeding operation (CAFO)

Many large dairies, feedlots and aquaculture facilities are located in the five-county area. These operation typically include feed yards and waste water lagoons which, if constructed or maintained improperly, can increase nutrient and phosphorus loads to both surface and groundwater resources within the region. A second and possibly more important risk for increased nutrient and phosphorus loading is the improper application of manure to agricultural land. All CAFO operations are required to have nutrient management plans for the application of livestock waste.

Private, industrial and municipal waste treatment:

Point source dischargers requiring NPDES permits include cities such as Jerome, Buhl, Filer, Twin Falls, Hagerman, Hansen, Gooding, Burley, Richfield and Shoshone. In addition to the above cities

who have NPDES permits the following cities have either lagoons with land application or total containment: Albion, Hazelton, Eden, Castleford, Wendell, Declo, Murtaugh and Dietrich. In addition to the municipalities there are several private and industrial waste water treatment facilities within the region.

Recharge:

The Idaho Department of Water Resources is utilizing excess surface water, when available, to help replenish the Snake Plain Aquifer. Water used for recharge must be closely monitored before entering the aquifer.

Hydro power:

Relatively inexpensive hydro power has been a major player in building the regional economy. It has helped to make the desert bloom and bring manufacturing and other jobs to the area. With only five remaining rapids in the Middle Snake River, hydro power on this section of the river is considered to be fully developed under current technology. Opportunities ~~do~~ may exist, however, for off-site systems using tributary streams, spring and canals.

Aquatic invasive species:

Aquatic invasive species (AIS) are plants and animals that are dependent on aquatic and riparian ecosystems. Introduction and uncontrolled spread of AIS play havoc with native fish and ecological communities as well as recreation , irrigation and power generation. With more water users come more opportunities for the introduction and spread of AIS in our region's waterways.

Idaho Nuclear Laboratory (INL)

The INL sits above the Snake Plain Aquifer which is a primary source of water within our region. The aquifer also feeds the Snake River through springs and seeps. It is also one of the largest and most productive aquifers in the nation. This region is down gradient from the INL which is a particular concern. Because of this, we closely monitor all actions taken at the INL by the Department of Energy.

Cloud seeding:

The use of common chemicals such as silver oxide, potassium iodide, dry Ice, liquid propane and even table salt to form cloud condensation. Idaho Power has been performing cloud seeding operations for several years in various parts of central and eastern Idaho.

Climate change:

Global climate change will undoubtedly impact our region. What that impact will be, however, is still debatable since sufficient impact data has not been generated.

The Problem:

The Middle Snake River was considered by many as a working river since development began to occur in the early 1900's. Residents and public officials discovered, however, in the late 1980's and early 90's that we were overworking the river. Studies, at the time, indicated the river no longer had the ability to clean itself through flushing flows (can only occur during high water years) unless accompanied by large reductions in nutrient, chemical and sediment loading. For this reason Total Maximum Daily Loads (TMDL's) were established on this portion of the river by the watershed advisory groups and the Idaho Department of Environmental Quality as directed by the Clean Water Act.

Monitoring continues to show increasing nutrient loads in some parts of the region's ground and surface water supply. Nitrates, phosphorus, pharmaceuticals, feed additives and pesticides are potential problems which can affect both ground and surface water in the region.

The problems with the water quality of the Middle Snake area extend beyond the individual county borders, requiring a multi-county approach. By combining their efforts, counties can ensure that the needs of each county can be met without creating unequal hardships. A locally developed plan has the

advantage of local input and control of solutions, which recognize the economic, social and environmental needs of the local community. If a community understands the need to protect the resource they are more willing to cooperate and even compete to be part of the solution. One answer to pollution is dilution and three events since 2010 may, with proper safeguards, increase the water supply to the Eastern Snake Plain Aquifer (ESPA). In 2010 the Comprehensive Aquifer Management Plan for the ESPA was adopted by the state legislature. The plan calls for aquifer recharge, ground and surface water conversions and other demand reduction strategies. In 2015 a landmark settlement agreement between irrigation pumpers on the ESPA and canal companies called for reduction of pumping with the intent of restoring the ESPA ground water levels to the 1991-2001 average by 2025. The latest event in 2016 was the Director of the Idaho Department of Water Resources designating the ESPA and its tributary basins as a "ground water management area" broadening the power of the Director to more effectively address the declines in the ESPA.

POLICY STATEMENTS

The following policies are intended to clarify the intent of Cassia, Gooding, Jerome, Lincoln and Twin Falls counties as the means of dealing with current and future events influencing water quality in the Middle Snake region.

IT SHALL BE THE POLICY OF CASSIA, GOODING, JEROME, LINCOLN AND TWIN FALLS COUNTIES TO:

1. Recognize that safe drinking water is essential to economic growth and the well being of each citizen in the region. Each county will take all steps necessary to protect its drinking water supply from threats within or outside its borders and the borders of this region.

2. When necessary, ~~adopt ordinances and~~ encourage ~~regulation to implement~~ the implementation of technologies which will preserve or improve water quality.

3. Work actively to ensure a coordinated effort among federal, state and local government agencies in the implementation and evaluation of the Coordinated Water Resource Management plan.
4. Nuclear fuels and radioactive wastes shall not be utilized or stored within the counties of the Middle Snake Regional Water Resource Commission.
5. Oppose shipments of radioactive waste to the Idaho Nuclear Laboratory (INL) for study or long term storage until the requirements outlined in the 1995 settlement agreement between the state of Idaho and the U.S. Department of Energy have been satisfied.
6. Promote sharing the burden of preserving and improving water quality and provide education on the importance of water quality as well as direction for community efforts to improve the general condition of the waters in the region. Clubs, schools, civic organizations, industries, elected officials and individual citizens can play an important role in improving the region's water resources for all to use and enjoy.

7. Encourage the preservation of existing ~~filtration~~ settling ponds and develop additional ~~filtration~~ settling ponds in the Middle Snake Region. ~~filtration~~ settling ponds are

effective in removing chemical, physical and biological contaminants from return flows and provide valuable wildlife habitat.

8. Discourage development in the region which will negatively impact the quality or quantity of the region's water resources.

9. Support research and development of possible economic uses for contaminants or potential contaminants.

10. Initiate efforts on a state and local level which will create financial and other incentives for water users to both conserve and improve the quality of the region's water resources.

11. Maintain existing free-flowing stretches of the Middle Snake River to enhance water quality and support recreation and fish and wildlife values.

12. Discontinue use of unlicensed injection wells.

13. Encourage and support the development of new technology including Best Management Practices (BMPs) which will reduce contamination of the waters in the region.

14. Facilitate planning efforts with agencies and upstream and downstream water users with regard to water quality and quantity issues.

15. Encourage federal, state and local agencies to insure the accuracy and uniformity of compliance data and, after analyzing all available water quality data, to issue written summary reports to the public.

RECREATION, TOURISM, FISH AND WILDLIFE

SITUATION STATEMENT

The Middle Snake River and its tributary streams and springs are important to the public as a recreational and aesthetic resource. Currently, the condition of the river, because of maximum daily load limits for various contaminants, has improved, but there is still much to be done to maximize its recreational potential. Tourism can be an important source of income to the region and the number of visitors spending time in the region can be somewhat dependent on water quality.

Use of the region's water resources for recreation and tourism may also contribute to water quality degradation if the area is not developed utilizing a plan which addresses this concern. Sediment levels in the tributaries and direct runoff into rivers and streams can increase due to increased use of unimproved river accesses. Water quality enhancement improvements to existing recreational facilities and the development of water quality neutral new and expanded facilities are encouraged.

GOAL A: Improve the water quality of the region's water resources to enhance fish and wildlife habitat, increase recreation opportunities and increase the potential for tourism.

OBJECTIVE A01: Create additional recreational access to spread the use. Maintain current and future accesses to reduce the potential for erosion.

STRATEGIES:

A0l.a Seek both public and private means of developing new multiple use accesses to the region's water resources which minimize the potential for erosion and contaminants from entering water ways.

A0l.b Ensure proper maintenance of accesses to prevent erosion.

A0l.c If a current river access is deemed to be undesirable, the access should be closed or restrictions imposed on its use. Corrective action should be taken to improve recreational opportunities.

A0l.d Discourage the development of recreation and tourism opportunities along the waters of the region which increase the potential for water quality degradation.

OBJECTIVE A02: Increase public awareness of the water quality situation in the region.

STRATEGIES:

A02.a Utilize current information centers including parks and recreational areas to focus public attention on all aspects of water usage and water quality in the region.

A02.b Continue to develop educational materials which will emphasize all aspects of water uses in the region as related to water quality. Videos,

newsletters, and pamphlets could be used to disseminate the information. Dissemination of the information will become a responsibility of local, state, and federal agencies utilizing such things as local organizations and social media.

AQUATIC INVASIVE SPECIES (AIS)

Overall values associated with aquatic resources demand actions to protect this resource for the public good. The region must be particularly vigilant concerning the introduction of aquatic invasive species (AIS) because of the costly impact to our agriculture and aquaculture industries as both are dependent on a quality supply of water. Boating and fishing opportunities within the region attract enthusiasts from all parts of the nation and coupled with our growing population, who are also mobile in their aquatic recreational pursuits, pose a real threat of introducing AIS to the region. Home and business owners with aquariums and fish ponds, most times unknowingly, may also be responsible for the introduction of AIS.

GOAL A: Member counties to work with each other, the Idaho Department of Agriculture and others to prevent the introduction and spread of (AIS) into the waters of the region.

OBJECTIVE A01: Educate the public, local governments and other elected officials on the threat posed by AIS and measures to prevent the introduction and spread of AIS throughout the region.

STRATEGIES:

A01.a Aid in the development of a comprehensive education program to raise awareness of AIS introduction and spread for counties and law enforcement.

A01.b Help provide information on AIS to managers of fishing tournaments and various sportsmen and recreational groups.

A01.c Work with ~~other~~ applicable agencies to develop and maintain advertisements, public service announcements, designing programs and other methods of communication with the public to raise awareness of AIS threats and the need for personal actions such as cleaning fishing and boating equipment

A01.d Promote the development of boat cleaning stations at the regions recreation areas.

HYDRO POWER SITUATION STATEMENT

The Middle Snake River has been highly developed as a source of hydro power. This resource has been instrumental in the development of this region. In addition to clean, economical power, hydro power has increased recreation opportunities including boating, fishing, and camping.

While hydro power development has been highly beneficial to the region, it has also reduced the amount of wetlands; adversely altered fish and wildlife habitat; lowered oxygen levels in the water; reduced the natural cleansing ability of the river; and raised the temperature of water in many portions of the river. Recent technology in hydro power, such as low head systems and co-generation plants, has compounded water quality problems associated with hydro power production. Dams and diversions have eliminated long, free-flowing stretches of the river, affecting fish migration patterns which are essential for the reproduction of several species.

GOAL A: Limit the development of hydro power facilities on the Middle Snake River.

OBJECTIVE A0l: Allow no development of hydro power facilities on the Middle Snake River which will eliminate the remaining free-flowing reaches of the river or which will contribute to water quality degradation.

STRATEGIES:

A01.a Ensure that modifications to existing hydro power facilities have no negative impact to water quality.

A0l.b Maintain current wetland habitat or mitigate to compensate for loss of habitat.

GOAL B: Encourage the development and implementation of new technology which will reduce or eliminate the negative impacts of current facilities on the Middle Snake and its tributaries.

OBJECTIVE B0l: Encourage adoption of new technologies (related to water quality) to be incorporated into existing facilities at the time of re-licensing.

STRATEGIES:

B01.a Maintain current storage capabilities by reducing sediment loading in impounds. Reduce erosion and solids entering the river which are responsible for reducing the capacity of impounds.

B01.b Investigate the feasibility of dredging sediment from impounds to increase storage capacity in the existing system.

PRIVATE, MUNICIPAL, COMMERCIAL AND INDUSTRIAL WASTE TREATMENT SITUATION STATEMENT

Many municipalities within the region discharge from their waste treatment plants into the Snake River or one of its tributaries, while other cities use land application methods of handling waste. There is an increasing number of septic systems being used and some older systems may still discharge into injection wells or open ditches. Storm water runoff and seepage from public, private, commercial and industrial properties can also result in harmful discharges to the waters of the region. When proper procedures for handling waste material is not followed there is a potential for contamination of water from organic toxins, bacteria, nutrients, suspended solids, pharmaceuticals, chemicals, ~~petroleum~~ and heavy metal. Municipal, commercial and industrial waste treatment requires an NPDES permit.

GOAL A: Improve the water quality of the region as related to private, municipal, commercial and industrial uses.

OBJECTIVE A0l: Assure the quality of the water being discharged into the waters of the region from municipal, commercial and industrial sources.

STRATEGIES:

A01.a Monitor current and future discharges into surface water by municipalities, commercial and industrial uses.

A01.b Local government to coordinate efforts to inventory current data on water condition within the region to identify current water quality problems and take steps to correct those problems until sustainable standards are met for the designated use.

A0l.c Local government to pass and enforce land use planning ordinances regarding public, private, commercial and industrial waste treatment systems that will provide protection for the waters of the region. This includes the requirement for an ~~N~~IPDES permit. Such regulation to include surface water runoff.

A01.d Municipalities, private entities, commercial and industry uses are encouraged to update equipment and implement new technology to reduce biological, chemical and physical contaminants from being

discharged into the waters of the region.

A01.e Require residential subdivisions to use municipal waste treatment systems unless it has insufficient capacity and the municipality is unable to expand the system within a reasonable period of time. If a municipal system is not available, the developer must ensure the use of septic systems which incorporate engineering based on soil type,

geology, depth to ground water, and nutrient and biological information. The resulting system should be based on the best available science to minimize any negative impact to the aquifer. Residential wells in the development are to be tested, as deemed necessary by the South Central Public Health District, with the results being reported to that agency.

A01.f Require commercial and light industrial land uses to use municipal waste treatment systems unless it has insufficient capacity and the municipality is unable to expand the system within a reasonable period of time. If a municipal system is not available, the developer must develop a waste treatment system which incorporates engineering required by the ~~M~~ IPDES permit.

A01.g Increase monitoring and enforcement of regulations for commercial and small industry uses for chemical storage and handling, chemical mixing and loading, chemical waste disposal and chemical spills, fuel storage, solid waste disposal and well construction and abandonment.

A01.h Recommend that all rural residents in the region test their well and septic systems at regular intervals and as deemed necessary.

A01.i French drains, shallow injection wells and filtration ponds are to be constructed to a standard to remove contaminants from the water being discharged to the aquifers of the region. Municipalities, industry and private entities, however, are discouraged from using french drains, injection wells and ~~filtration~~ settling ponds as an alternative to treatment of runoff by waste treatment systems.

A01.j Request continued monitoring for pharmaceuticals in ground water and develop educational and regulatory methods to deal with areas of concern within the region.

A01.k Ensure the enforcement of current regulations.

A01.l Ensure the use of the best information available when developing or changing land use plans including hydrology, geology, soil types, and nutrient and biological information.

GOAL B: Protect surface and ground water quality within the region as related to heavy industry.

OBJECTIVE B01: Assure that pollutants from heavy industry do not degrade the surface and ground water within the region.

STRATEGIES:

B1.a The developer shall have engineered a private waste treatment system with contingency plan reflecting no negative impact from escape or discharge of pollutants to surface and ground water resources. The developer must develop a waste treatment system which incorporates engineering required by an ~~M~~ IPDES permit.

B01.b The developer shall provide for the construction and use of adequate monitoring wells with samples analyzed at regular intervals and test results being forwarded to the appropriate local, state and federal agencies.

B01.c The developer shall have engineered structures for fuel and commodity storage reflecting no negative impact from the escape of

pollutants to the surface and ground water resources of the region.

B01.d When applicable, the developer shall have engineered a solid waste landfill that shall reflect no negative impact to surface and ground water resources.

B01.e When applicable, the developer will submit a dust remediation plan during construction and after construction if utilizing solid fuels, reflecting no negative impact from these operations to surface and ground water resources.

B01.f When applicable, the developer will submit a smoke stack remediation plan indicating that heavy metals, chemicals, or biological contaminants being released from the stack have no negative impact to surface water and settling particulate matter will not leach into ground water.

* Measurement procedures: *Methods and procedures for the determination of the existence of any dangerous and objectionable elements shall conform to applicable standard measurement procedures by the American Society of Testing Materials (ASTM) or other appropriate authority*

FIELD

AGRICULTURAL

SITUATION STATEMENT

Agriculture is the primary user of water in the region and is also the mainstay of the economy in South Central Idaho. The region has over 3,400 farms encompassing over 857,000 acres which accounts for about 45% of Idaho's total agricultural product. Most of the irrigated lands receive 8 to 11 inches of precipitation annually so crop production in most of the region is impossible without irrigation from surface and ground water sources. Much of the irrigated land has been converted over the years to sprinkler irrigation. This conversion along with improved management practices by canal companies, has led to a reduction of return flows to rivers and incidental recharge to ground water within the region.

Irrigation water management practices can still result in returns which are typically higher in biological, chemical and physical contaminants than when it was taken from the rivers and aquifers of the region. Some injection wells are still being used to provide drainage for tail water, which may also contribute contaminants to the aquifer. Surface irrigation plays an important role in recharging the aquifers, but care must be taken to limit pollutants from this source. The following goals, objective and strategies have been developed to meet the overall objective of this plan.

GOAL A: Encourage conservation of water to allow for future uses within the region.

OBJECTIVE A0l: Use only the amount of water necessary on crop lands to meet the needs of the specific crop being produced.

STRATEGIES:

A01.a Promote educational programs on proper water management in regard to crop requirement, irrigation scheduling, soil water holding capacity and consumptive use.

GOAL B: Improve the quality of return flows.

OBJECTIVE B0I: Reduce the amount of biological, chemical and physical contaminants discharged in return flows.

STRATEGIES:

B01.a Encourage continued research and adoption of new BMP's to reduce sedimentation, loss of nutrients and leaching of nutrients.

B01.b Support educational programs of Soil Conservation Districts, the

University of Idaho ~~Cooperative~~ Extension Service and agribusiness to demonstrate and improve BMP's.

B01.c Encourage canal companies and farmers to develop filtration systems and settling ponds to remove sediment, nutrients and chemicals from

irrigation return flows. Also, encourage the continued improvement of existing filtration systems and settling ponds as needed.

B01.d Encourage increases in local, state and federal funding for agricultural water quality projects in the region.

B01.e Encourage education and enforcement of the Idaho Stream Channel Protection Act which pertains to stream alteration projects.

B01.f Encourage Soil Conservation Districts in the region to coordinate planning, implementation and funding for water shed treatment using BMP's.

OBJECTIVE B02: Implement improved irrigation and soil fertility management to reduce movement of biological, chemical and physical contaminants through the soil profile to surface and subsurface water.

STRATEGIES:

B02.a Match animal waste, agricultural solid waste and chemical fertilizer application with crop usage.

B02.b Match irrigation applications more closely to evapotranspiration (ET) based on specific crops and soil types.

B02.c Encourage additional research by the University of Idaho and the United States Department of Agriculture on nutrient movement in soils and on crop nutrient requirements.

B02.d Encourage additional private, state and federal funding for research into nutrient movement in soils and crop use to supply additional data to update the University of Idaho's fertilizer guides.

B02.e Encourage educational programs through partnerships among soil conservation districts, canal companies, school systems and others, concerning proper usage of nutrients in the region.

B02.f Encourage continued research for new voluntary and mandatory BMP's by the Idaho Department of Agriculture and others to reduce nutrient loads in the areas of the region where ~~nitrogen~~ inputs exceed plant uptake.

B02.g Support research and use of USDA approved genetically engineered crops to reduce the use of pesticides.

GOAL C: Encourage monitoring of discharge by non-point source dischargers to the waterways and aquifers of the region.

OBJECTIVE C01: Increase monitoring of discharge associated with crop production and storm runoff.

STRATEGIES:

C01.a Systematically monitor return flows of concern as identified by the Department of Environmental Quality.

C01.b Encourage the assessment of problem areas for water quality including point of use and points of contamination.

C01.c Encourage the identification of site variability so that ground water quality data is updated and interpreted accurately.

C01.d Encourage the evaluation and dissemination of ground water quality data including trend information and site variability.

C02.e Identify any areas where current and future use of ground water for drinking water supplies may pose a public health threat.

GOAL D: Protect ground and surface water from potential site specific contamination from field agriculture and agricultural related industries.

OBJECTIVE D0l: Encourage increased monitoring of potential site specific water quality programs and standards for rivers and aquifers of the region.

STRATEGIES:

D01.a Encourage increased monitoring and enforcement of regulations for agricultural chemical storage and handling, chemical mixing and loading, chemical application practices, chemical waste disposal and chemical spills, solid waste disposal, deep and shallow injection wells and other underground disposal methods and well construction, abandonment, and underground fuel storage tanks.

OBJECTIVE D02: Work with federal, state and local agencies to increase the effectiveness of water quality programs dealing with field agriculture.

STRATEGIES:

D02.a Work with and encourage legislators and agencies to fund water quality programs for field agriculture.

D02.b Encourage all agencies who participate in water quality monitoring and adopting or enhancing BMP's to do an annual report to the public covering their accomplishments dealing with water quality concerns in the region.

D02.c Utilize education as the first step to any regulatory process.

DO2.d Encourage the development of products such as geographic information systems and probability mapping which will facilitate management decisions regarding the resource.

ANIMAL AGRICULTURE SITUATION STATEMENT

Animal Feeding Operations (AFO's) and particularly the dairy industry has a major impact on the regional economy and many businesses throughout the region are supported in whole or in part by the industry. Currently the dairy industry in Idaho ranks 4th in the nation for dairy cows and 3rd in milk production. Our region accounts for about 75% of the states total milk production. Livestock, raised for beef, other than dairy livestock sold for beef, also has an impact on the region's economy. Idaho is ranked 13th in the nation for beef cattle, but when dairy is removed this region only has a small percentage of the state's total.

AFO's have grown in numbers and size. An increasing number of livestock create an increased potential for contamination in surface and ground water through runoff and leaching. In some cases producers are improperly applying both solid and liquid livestock waste to farm land increasing the risk of contamination to surface water and, over time, ground water. Areas of the region that feature high water tables, fractured basalt or coarse underlying material are of particular concern for ground water. Research into new technologies is ongoing for waste handling and feed requirements. Current research suggests that reduced nitrogen and phosphorus in feed rations will reduce these elements from animal excretion without affecting productivity.

Aquaculture is an important industry within the Magic Valley. The industry is responsible for about ~~40~~ 35 million pounds of trout annually which is about 70% of the total trout sold in the United States. The majority of the water used in fish production comes from underground springs along the walls of the Snake River Canyon, but a few fish facilities are located on tributary streams. Fish propagation facilities are non-consumptive water users, and waste management is an integral part of facility design and operation. Facilities currently operate under NPDES permits and a TMDL with strict limits on the amount of nutrients and suspended solids allowed in the water leaving a facility. Regular monitoring of facility discharge for total phosphorus has provided much needed data on the actual impact of aquaculture on the Middle Snake River. Future reductions in the discharge of phosphorus will largely depend upon the results of research to continually improve fish feeds. Current limits are enforced and future limits on solids and total phosphorus must be based on sound scientific evaluation of good data.

1. Animal Feeding Operation (AFO):

Animal Feeding Operation are agricultural operations where animals are kept and raised in confined situations. AFO's generally congregate animals, feed, manure, dead animals and production operations on a small land area. Feed is brought to the animals rather than the animals grazing or otherwise seeking feed in pastures. Animal waste and wastewater can enter water bodies from runoff, spills or breaks of waste storage structures (due to accidents or excessive rain), and agricultural application of manure to crop land.

2. Concentrated animal feeding operations (CAFO):

A CAFO is an animal feeding operation that is considered a point source discharger of waste through man-made conveyance or directly into the waters of the United States or is designated a CAFO by a permitting authority on a case-by-case basis. To be a CAFO, a facility must first be defined as an

animal feeding operation (AFO). CAFO discharges are regulated through the NPDES program of the United States Environmental Protection Agency.

3 Enforcement of AFO regulations have been improving, but agencies still lack adequate resources to meet the demands of increasing regulation and animal numbers. Current regulations require monitoring of containment facilities and the management of nutrients applied to crop land.

GOAL A: Improve management of the water resources to improve water quality in the region.

OBJECTIVE AOI: Better manage water used in animal feeding operations (AFO's).

STRATEGIES:

A01.a Encourage producers to reduce the amount of water used to manage manure and the facility.

A01.b Where applicable, encourage the recycling of water used, for facility operations.

A01.c Recommend replacing liquid flushing systems with dry systems such as scrapping, vacuuming, composting, etc.

OBJECTIVE A02: Use manure management systems that will allow the producers to transport nutrients to other areas which will provide for greater dispersion.

STRATEGIES:

A02.a Encourage the use of proper livestock manure composting technologies using NRCS guidelines.

A02.b Encourage the use of anaerobic digesters to stabilize the nutrients and for energy conversion, waste management and other uses, particularly in areas of the region found to be susceptible to ground water contamination.

A02.c Encourage the use of field injection systems for liquid manure application at agronomic rates.

A02.d Encourage the use of precision agricultural tools and update BMPs for the application of solid, slurry and liquid manure and waste.

GOAL B: Protect ground and surface water from potential site specific contamination from animal agriculture and other related industries.

OBJECTIVE B01: Reduce nutrients in runoff and leaching on crop land where livestock waste has been applied.

STRATEGIES:

B01.a Seek compliance with all federal, state and local regulations for livestock operations. All livestock waste applied to crop land to match the nutrient needs of the crop and proper irrigation practices followed to reduce the possibility of leaching contaminants to the aquifer. Continuing education for livestock owners and managers through the University of Idaho, NRCS and the Idaho Department of Ag is highly recommended for proper implementation, application, evaluation and modification of the required nutrient management plan.

B01.b Encourage the timely incorporation of livestock waste to reduce the potential of contaminated runoff.

B01.c Facility design and other management requirements of a proposed or modified AFO site to be based on soil type, geology, depth to ground water and flow, distance from rivers, springs or any water conveyances, and nutrient and biological information.

B01.d Encourage more research and development to improve water and waste management systems and to reduce nitrogen and phosphorus in feeds.

B01.e Encourage continued monitoring for pharmaceuticals in ground and surface water and develop educational and regulatory methods to address areas of concern within the region.

B01.f Encourage increased monitoring and enforcement of regulations of animal agriculture for chemical storage and handling, chemical mixing and loading, chemical application practices, chemical waste disposal and chemical spills, solid waste disposal, deep and shallow injection wells and other underground disposal methods, well construction and abandonment, and above ground and underground fuel storage.

OBJECTIVE B02: Encourage regulatory compliance for discharges associated with aquaculture production.

STRATEGIES:

B02.a Encourage the use of best waste handling technology at all fish propagation facilities.

B02.b Seek accurate reporting and encourage a comprehensive evaluation by the Idaho Department of Water Resources, Department of Environmental Quality and the Environmental Protection Agency on flows, solids, nutrients, phosphorus and plant growth in the Snake River.

B02.c Encourage research into fish feeds and waste management techniques that will reduce nutrients and solids from leaving a facility.

OBJECTIVE BO3: Encourage public and private entities to better coordinate the monitoring for discharge associated with animal agricultural production.

STRATEGIES:

B03.a Encourage state, federal and private entities, which are responsible for monitoring in the region, to develop and implement a regional coordinated monitoring plan.

B03.b Encourage all public and private entities involved in monitoring programs to allocate adequate resources to create a coordinated evaluation and reporting system.

B03.c Continue to evaluate standards and parameters that are currently being

used to determine acceptability of return flows to the waters of the region.

GROUND WATER RECHARGE SITUATION STATEMENT

Ground water levels have been dropping for many years. There are several reasons including the increase in ground water pumping since 1950, conversion to sprinkler irrigation systems and periods of intermittent drought. A significant amount of natural recharge occurs in the region from losses in the various canal systems. This, however, is no longer adequate to maintain ground water levels. It is for this reason that the Idaho Department of Water Resources is conjunctively managing the surface and ground water resources in the Snake River basin. The Idaho Water Resource Board approved a Comprehensive Aquifer Management Plan (CAMP) which was developed by water users and others residing on the Eastern Snake Plain Aquifer. ~~The CAMP plan outlines several ways to replenish the aquifer, but a significant element will be recharge.~~ The legislature has authorized some funding for recharge efforts in this region, but long term funding sources have not been identified. Until long term funding is secured, recharge in the region will be at the pleasure of the legislature. ~~After the CAMP plan was approved, ground and surface water users signed an agreement seeking to increase the level of the Eastern Snake Plain Aquifer to its 1991-2001 average level by 2025.~~ <u>For more information on CAMP see page 49 of the water quantity portion of this plan.</u> There are still some hurdles to overcome, however, such as the availability of recharge water, availability of canal systems to wheel the recharge water, identifying land to use as recharge sites and addressing public concerns for water quality.

GOAL A: Ensure that ground water quality is maintained when managed artificial recharge occurs.

OBJECTIVE A01: Water used specifically for recharge not to exceed acceptable concentrations of biological, chemical and physical contaminants as established by the Department of Water Resources using guidelines developed by the Idaho Department of Environmental Quality.

STRATEGIES:

A0l.a Monitor concentrations of biological, chemical and physical contaminants of water being used for recharge prior to, during and down gradient of recharge site.

A0l.b Use recharge basins that ensure proper filtration prior to reaching ground water.

A0l.c In areas where direct recharge occurs, ensure that water quality is tested and analyzed prior to injection.

Source Water Protection

The safety of all drinking water in this region is critical to the health and welfare of its residence. The Idaho Department of Environmental Quality (IDEQ) has developed a program that protects community water sources through the development of a source water protection plan. The plan is a cooperative effort between counties, cities, drinking water associations and the IDEQ to identify vulnerability of public water systems and assess all possible sources of contamination. Certain land use restrictions and prohibitions may be necessary to provide adequate protection for these valuable drinking water sources.

GOAL A: Source Water Protection

OBJECTIVE A01: Assure safe drinking water to public water systems which are defined by the IDEQ as a system for the provision of water to the public for the consumption through pipes or other constructed conveyances, if such system has at least 15 service connections or regularly serves an an average of at least 25 individuals at least 60 days out of the year.

STRATEGIES:

A01: While it is the duty of the Board of Commissioners to protect the drinking water supply to each resident of the county, source water protection planning by public water systems described under Objective A01bove is encouraged.

A02: All source water protection plans duly adopted by the public water system outlined in objective A01 above should be presented to the Board of County Commissioners in each county if a county ordinance is proposed. Submissions must include the following:

1. Location of wellheads protected by the plan.
2. Legal description of proposed vulnerability tiers based on time of travel within the county.
3. Water quality trend within proposed protected area.
4. Identification of prohibited uses within each vulnerability tier and evidence to support prohibition.

A03: After review of the source water protection plan and the water quality portion of this plan, the county commissioners may accept the premise of the source water protection plan. If accepted the commissioners may adopt an ordinance establishing wellhead vulnerability tiers and prohibitions within the county. An ordinance can be based on a template developed by the Idaho Association of Counties.

A04: if a source water ordinance is created prohibiting certain land uses within protection tiers, each prohibited use may include this or similar language: prohibited unless a licensed engineer develops a site

utilization plan and/or waste disposal plan with contingency plan showing acceptable levels of protection to ground or surface water.

Design shall consider soil type, geology, depth to ground water, water flow and soil tests indicating current nutrient, biological and chemical load information for the proposed site.

A05: Developer may be required to establish an ongoing water quality monitoring program and report the results to the appropriate state agency and county planning and zoning commission. If monitoring indicates a negative trend, show steps to be taken to correct degradation unless it's shown to come from a source upstream or up-gradient from the subject site.

DEFINITIONS

1. **Aesthetics:** Doctrine that the principles of beauty are basic to other moral principles. A devotion to emphasis of beauty, a branch of philosophy of the beautiful and judgments concerning beauty.

2. **Best Management Practices (BMP):** A measure determined to be the most effective, practical means of preventing or reducing pollution inputs from non-point sources in order to achieve water quality goals. A variety of definitions exist for best management practices. The definition used in the Idaho Department of Health and Welfare (1985) water quality standards is as follows: Best Management Practice is a practice or combination of practices determined by the department to be the most effective and practicable means of preventing or reducing the amount of pollution generated by non-point sources."

3. **Contaminants:** Any chemical, ion, radio nuclides, synthetic organic compound, microorganism waste or other substance which does not occur naturally or which naturally occurs at a lower concentration.

4. **Co-generation:** The practice of using water to generate electricity which is sold to a primary utility. In this case, a secondary use of the water which results in the generation of electricity.

5. **Commercial:** As defined by the member counties.

6. **Development:** Residential, industrial, commercial use which could include, but are not limited to hydro facilities, dairies, crop-land, subdivisions, fish hatcheries, road construction, industrial and commercial land uses, parks and recreational areas.

7. **Evapotranspiration (ET):** Water that is transpired from the leaves of plants and evaporated from the soil. ET data is used in water management decisions because it represents the amount of water consumed by irrigated agriculture and other land uses.

8. **Filtration ponds:** Also referred to as farm ponds. These are manmade structures capturing tail water and allowing sediment and contaminants to settle out. The pond can serve a dual benefit of recycling irrigation water while also recharging ground water.

9. **Industry:** As defined by the member counties.

10. **IPDES:** Idaho Pollutant Discharge Elimination System permit issued by the Idaho Department of Environmental Quality by an agreement with the EPA that controls water pollution by regulating point sources that discharge pollutants into the water of the United States

11. **Municipalities:** A city, town or other district having local, self-government or residential subdivisions and Planned Unit Development (PUD).

12. **NPDES:** The National Pollutant Discharge Elimination System (NPDES) permit program under the EPA and administered by the Idaho Department of Environmental Quality that controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

13. **NRCS:** Natural Resources Conservation Service is under the U.S. Department of Agriculture and works with landowners through conservation planning and assistance designed to benefit the soil, water, air, plants and animals that result in productive and healthy ecosystems.

14. **Nuclear fuel:** a fissionable substance which will sustain a chain reaction.

15. **Prohibited Uses:** Those land uses which are not allowed in specific zones under a county zoning ordinance.

16. **Point Source Discharger:** Industrial, municipal or other facilities that discharge pollutants directly into the waters of the United States or are defined as such. NPDES permits are required.

17. **Radioactive waste:** Substances which, according to the EPA standards, emit harmful amounts of radioactivity.

18. **Recreation Use:** Use of the waters of the region for those activities which are usually considered to have recreational value such as boating, hiking, picnicking, hunting and fishing.

19. **Settleable Solids:** Those solids which would settle out of solution based on criteria used by the Idaho Department of Environmental Quality as related to settling time and conditions which would not ordinarily be found if returns were from naturally occurring sources.

20. **Source Water:** Any aquifer, surface water body or water course from which water is taken either periodically or continuously by a public water system for drinking or food processing purposes.

21. **Suspended Solids:** Are those solids which remain suspended in water being discharged in returns to the waters of the region. These solids are those found in addition to those which would not ordinarily be found if the returns were from naturally occurring sources.

22. **Time of Travel Areas:** The land area plotted based upon the time for a particle of water to move from a specific point in the aquifer to a well or spring that serves as a drinking source. Time of Travel Areas are those calculated or approved by the Idaho Department of Environmental Quality (IDEQ) and maintained in the public record of IDEQ.

23. **TMDL:** (total maximum daily loading) A calculation of the total maximum amount of a pollutant that a body of water can receive each day and still meet water quality standards.

24. **Vulnerability Tiers:** An area of four (4) functional tiers that correlate with the vulnerability surrounding each public water system well or spring. Each tier is based on the time of travel for possible contaminants to the public water system.

25. **Wellhead:** The upper terminus of a well, including adapters, ports, seals, valves and other attachments.

26. **Wetlands:** A collective term for marshes, swamps, bogs and similar areas found in generally flat vegetated areas, in depressions in the landscape and between dry land and water along the edges of streams, rivers, lakes and coastlines.

WATER QUANTITY SECTION

(Revised 2022)

WATER QUANTITY PLAN SITUATION AND STATEMENT OF CUSTOMS AND CULTURE WITH REGARD TO WATER

During the late 1800's and early 1900's settlers began to develop relatively small parcels of farm land in the Middle Snake region. Farms were located near sources of water such as springs, streams or rivers where water could be easily diverted to irrigate the land. Wells were also dug in the area for domestic and livestock purposes. The early settlers most likely understood that the region's rivers and streams were dependent on the snow pack in the far away mountain ranges, but probably had no understanding as to the tremendous pools of water that lay just beneath their feet.

During the early 1900's a few people had a dream of capturing the flows in the Snake River and using that water to make the desert bloom. Their efforts resulted in the construction of the Milner Dam which was completed in 1907 and the Magic Dam in 1910. The dam and canal systems for both the north side and south side tracts took many years to develop and were an amazing undertaking for their time. Today, the system they developed irrigates several hundred thousand acres of highly productive agricultural land.

When canal systems were charged and crop lands began to receive water, an exciting phenomenon occurred. The springs flowing from the Snake River Canyon walls began to increase in volume. The more waters diverted for agriculture, the more water flowed from the springs. Land owners along the river made claim to spring flows and as spring flows increased more claims were made. Springs were captured for a power generating facility and two other hydro power plants were placed on the river partially due to the amount of water flowing to the river from the many springs. In 1950, our

above ground and underground water resources appeared to be pretty much in balance, except during periods of drought.

The construction of Milner and Magic Dams, while necessary for water delivery and some storage, was not a hedge against drought. Other dams were developed upstream from Milner to hold vast amount of water in storage to supplement agricultural demands during periods of low water. The Middle Snake area is by no means drought proof, but the effects of catastrophic drought have been greatly reduced. Efficient and relatively inexpensive deep well irrigation pumps were developed in the 1940's, and by 1950 pumping for agricultural use began in earnest in both South East and South Central Idaho. Today, there are roughly 458,000 acres of farm land in the Middle Snake area alone that is irrigated by pumping from the aquifer. Since pumping districts were not organized at that time to monitor and regulate the amount of water being pumped, no one actually knew how much water was being withdrawn from the aquifer. Most pumpers use various types of sprinkler irrigation systems. The most popular being the center pivot or circle system. Above ground water users also saw the benefit of the sprinkler system. Soil conservation districts promoted them as the best method to minimize soil erosion and improve water quality. It also enables the irrigator to become more efficient by reducing labor costs and eliminating waste water runoff.

The advent of ground water pumping and improved irrigation water application such as sprinkler systems, pipelines, concrete ditches and gated pipe have significantly reduce the ground water resources of our region. Studies by the University of Idaho and the USGS indicate clearly that aquifer levels ~~have~~ had been ~~dropped~~ dropping concurrent with the advent of irrigation pumping and improved methods of water application by surface water users. Periodic droughts compounded the

problem and while wet years with heavy runoff slows reduction, they still ~~don't~~ didn't add as much water to the aquifer as ~~is~~ was being withdrawn. Additional demands are being made on the ~~short~~ water supply by other users both up and downstream from the region. The Comprehensive Aquifer Management Plan (CAMP) for the Eastern Snake Plan Aquifer (ESPA) was approved by the state legislature in 2010. ~~Calls~~ The plan called for the development of ground water recharge sites in eastern and south central Idaho allowing for up to at least 250,000 acre feet of recharge per year. ~~If sites can be developed, water, during years with high runoff, could be captured instead of running to the ocean.~~ Many recharge sites have and are still being developed since 2010 and their use over the past few high water years has had a positive influence on the resource. A historic agreement was also been reached between groundwater pumpers and surface water users in 2016 and groundwater districts were established by the Idaho Department of Water Resources in the same year. The 2016 agreement calls for the level of the aquifer to equal or exceed the average ground water levels between 1991 and 2001. The agreement also calls for a reduction of groundwater pumping by 240,000 acre feet per year and shortening the pumpers irrigation season.

The people of the Middle Snake continue to recognize the importance of wildlife and wildlife habitat within the region, and recognize the recreational opportunities derived from the valuable water resource as part of what makes South Central Idaho such a unique and special place to live. The Middle Snake River and the tributary streams and springs flowing through or from the counties of Cassia, Gooding, Jerome, Lincoln, ~~Minidoka~~ and Twin Falls, support a myriad of fish and other

wildlife. As many as nine species of game fish, including the large white sturgeon, are found within the region. There is also a large non-game fish population. Many varieties of game and non-game birds are also found within the region. Many species of water fowl can be found in or near waterways, both natural and man made. Depending on available habitat, other birds such as pheasant, chucker, Hungarian partridge and sage grouse can be found in relative abundance. Birds of prey such as falcons, hawks, golden and bald eagles and a few species of owls also make their homes here. Other wildlife such as deer, elk, antelope, coyotes, bobcats, mink, weasel, badgers, skunks and various species of rabbit and small rodents can be found in the region. The continued viability of these wildlife populations is totally dependent on year round water flows from all sources throughout the region.

Regarding water, the county commissioners of the region (hereafter referred to as the counties) recognize the following as the custom and culture of the counties:

With the exception of drought, the uninterrupted use of state water by local water right holders is necessary for beneficial uses within the region. The beneficial uses include agriculture and livestock production, domestic, commercial, municipal, industrial, and the support of fish and wildlife.

The counties further recognize the availability of an adequate supply of quality water is the basis for all other customs that have evolved within the region. ~~Refer to History Section.~~ (refer to the History section)

The county commissioners fully understand the economic value of water and the dependency of the citizens and the local tax base on that resource. The counties contracted with the University of Idaho,Idaho's land grant college, to complete an economic analysis of the region for the purpose of defining community stability and is included in the economic portion of this plan.

Continued reduction to our surface and subsurface water resources will have an impact on the region's economy. The counties have long recognized their economic dependence on water and will continue to protect the resource and promote its highest and best use through local land use planning

and zoning ordinances. County commissioners recognize that land use planning is only one ingredient to a strong and healthy economy. The other and probably most important ingredient is the long term adequate supply and allocation of water. To this end the counties have adopted the regional water resources management plan.

The following policies are intended to clarify the intent of the counties when dealing with current and future events influencing the quantity of water available for use in this region.

IT SHALL BE THE POLICY OF THE COUNTIES TO:

I. Recognize that the people's quality of life, economic stability and environmental health are interdependent.

2. Recognize the supremacy of Idaho state law regarding the controlled distribution, appropriation and beneficial use of water, from federal reservoirs and all other sources in

Idaho, and oppose any effort which allows Idaho water to leave the state prior to being put to its traditional beneficial use.

3. Oppose any plan involving the waters of Idaho and this region, by state and federal agencies

That incorporates regions of the state or nation, but fails to consider the following for individual counties within this planning region:

a. The customs and culture of residents in each county.

b. The social and psychological impact of the plan on the residents of each county.

c. The economic impact of the plan on the residents of each county.

d. Mitigation of any negative impact on the residents of each county.

4. ~~Encourage~~ Continue to encourage the Idaho Department of Water Resources to ~~become~~ remain pro-active regarding the conjunctive management of our above ground and underground water resources.

5. Support the refinement of rules for conjunctive management and recognize the

constitutional provision of **first in time is first in right** unless, in the short term, strong scientific evidence and or local economic data suggest that a call for water by a senior right is futile.

6. Encourage and promote the development of long range water conservation plans and the

use of water conservation techniques in cities and with private water users.

7. Encourage the Idaho Department of Water Resources, when issuing or transferring

permits for agriculture, commercial or industrial wells, to require the applicant to show substantial evidence that there will be no negative impact on existing wells or springs in the region.

8. Work with the Idaho Department of Water Resources and the State Legislature to ~~form~~ continue their support of aquifer recharge ~~districts~~ where feasible.

9. Recognize as beneficial to the region's customs and culture, the use of surface water for the

irrigation of residential lawns, gardens, trees and shrubs assuming a conservative use of the resource.

10. Recognize and agree with the premise that water conserved will remain in federal reservoirs to be carried over to the next irrigation season.

11. Oppose any plan or strategy by state or federal agencies that fails to recognize, or in any way infringes on, private property rights, both real and personal, tangible and intangible, as well as investment backed expectations, within the region. Such rights include the right to use them, not use them, sell them, lease them, give them away, encumber them and in all ways quietly enjoy them. The counties recognize that these rights are subject to certain taxes that may, from time to time, be levied upon them, and certain police powers, for the purpose of protecting the health and safety and/or to promote the general welfare of the public.

~~12. Oppose plans to protect endangered species that will negatively impact the existing plant, fish and wildlife in the region.~~

13. Demand local representation on all state and federal planning groups dealing with matters that impact the region's water resources.

14. Encourage future development which will not exceed the hydro-logic capabilities of the Snake River Plain or the physical carrying capacity of the regional ecosystem.

15. Recognize the leakage from canal systems within the region is beneficial as it contributes to aquifer recharge.

The counties are aware that the economic well-being of our region is directly tied to the adequate supply of water. They are also aware that water in our region is finite and must be used wisely if the region's economy is to remain strong and expand. The people of the Middle Snake must learn to use the water in a way that both maximizes the benefits and conserves the resource.

GOAL A: Conjunctively manage our regions ~~above ground~~ surface and ~~under~~ groundwater ~~supply~~ supplies in order to protect and enhance our economic and social viability.

OBJECTIVE AOI: Protect the customs and culture of the region with regard to the continued viability of our water resources.

STRATEGIES:

AOl.a Oppose any effort which allows the region's water to leave the area

without first being put to its traditional beneficial uses.

AOl.b Recognize and continue to protect the Idaho Constitution which states the premise that, with water, **first in time is first in right.**

AOl.c Educate the public concerning the importance of our water resources in forming the customs and culture of our region.

AO1.d Support state and local efforts to control and eradicate aquatic invasive species to ensure the uninterrupted delivery of our surface water resources.

AO1.e Oppose any effort by the Department of Energy or other entity seeking a water right or a change of use to any existing right for ~~the purpose of generating nuclear energy above the Snake Plain Aquifer.~~any purpose that carries undue potential for contamination of the Snake Plain Aquifer.

OBJECTIVE A02: Protect reasonable and viable uses of the region's water resources.

STRATEGIES:

A02.a Promote increased efficiency in the application of water to the land for the purpose of:

~~1. Increasing acres farmed by spreading the water.~~

2. Increasing stream flows to maintain wildlife and support water recreation as well as water quality standards in the region.

3. ~~Preservation~~ Enhancement of the aquifer.

OBJECTIVE A03: Promote the equitable management of the region's water resources.

STRATEGIES:

A03.a Promote the curtailment of a junior right holder that is found to

measurable impact a senior holder.

A03.b Support harsher penalties for those who draw more water than allowed by permit.

A03.c Support harsher penalties for out of season withdrawal by agricultural wells.

~~A03.d Support conjunctive management rules that apply to conflicts between senior and junior ground water users, as between senior and junior surface water right holders.~~

OBJECTIVE A04: Maintain and enhance flows in the regions streams, springs and underground water supply.

STRATEGIES:

A04.a Support and work ~~Work~~ with the Department of Water Resources ~~and the state legislature to form recharge districts where feasible.~~ in their recharge efforts when and where feasible.

A04.b Encourage and promote water conservation techniques by all water users.

OBJECTIVE A05: Protect the region's social, psychological and economic well-being, by promoting economically neutral solutions for the protection of endangered species.

STRATEGIES:

A05.a Explore alternate and economically neutral means of protection for endangered species.

A05.b Recognize that species, other than unique adaptations of a species, while endangered in the Snake River Basin, may be plentiful in other parts of the nation or world and should not be considered endangered.

A05.c Take legal action, if necessary, to oppose any plan to restore an endangered species, that does not consider the region's customs and culture as well as the social, psychological and economic impact on the people of the Middle Snake.

DEFINITIONS

CONJUNCTIVE MANAGEMENT: Legal and hydro-logic integration of administration of the diversion and use of water under water rights from surface and ground water sources.

ECOSYSTEM: All the interacting parts of the physical and biological world.

ENCUMBER: An interest or right in real property which diminished the value of the fee, but does not prevent conveyance of the fee by the owner thereof such as mortgages, taxes easements and reservations.

FUTILE CALL: A delivery call made by the holder of a senior-priority surface or ground water right that, for physical and hydro-logic reasons, cannot be satisfied within a reasonable time of the call by immediately curtailing diversions under junior-priority water rights or that would result in waste of the water resource.

JUNIOR RIGHT HOLDER: Determined by the priority date of the appropriation. Later right holders shall have water delivered after those right holders that are earlier have been satisfied during times of shortage.

MITIGATION: Actions and measures to prevent, or compensate for material injury caused by the diversion and use of water.

PERSONAL PROPERTY: Movable property which is not real property.

QUIET ENJOYMENT: The right of an owner to use the property without interference of possession.

REAL PROPERTY: Also real estate, land and hereditaments or right therein and whatever is made part of or is attached to it by nature or man.

SENIOR RIGHT HOLDER: Determined by the priority date of the appropriation. Early right holders shall have water delivered first from a source during times of shortage.

TRADITIONAL BENEFICIAL USE: Those uses of water which have been authorized and permits issued pursuant to Idaho law.

WATER RIGHT: The legal right to divert and use or to protect in place the public waters of the State of Idaho where such a right is evidenced by a decree, a permit or license issued by the Idaho Department of Water Resources, a beneficial or constitutional use right or a right based on federal law.

~~WATER SPREADING: Water made available through the use of conservation techniques that is applied on land located within an established district that was otherwise considered non irrigable.~~

ECONOMIC SECTION

(Revised 2021)

ACKNOWLEGEMENT

The following individuals were significant contributors to the development and updates for the economic portion of the coordinated Water Resource Management Plan. Without their help and expertise, this section of the plan would not have been possible. We want to recognize Bob Ohlensehlen and Bill Hazen, University of Idaho Extension Educators, retired, for their innovative work in developing the original economic model for this document.

~~**William Hazen, University of Idaho Extension Educator, retired**~~

~~**Robert Ohlensehlen, University of Idaho Extension Educator, retired**~~

Steve Hines, University of Idaho Extension Educator, Jerome office

Joel Packham, University of Idaho Extension Educator, Cassia County

Garth Taylor, PhD., University of Idaho, Agricultural Economist

MIDDLE SNAKE REGIONAL WATER RESOURCE COMMISSION ECONOMIC IMPACT OF WATER

LIMITING FACTORS

Before there can be any discussion of the economics of water within the region several important limiting factors must be considered. The first of these is the Swan Falls Agreement of 1984. This agreement is between Idaho Power Company and the State of Idaho. The agreement states that between April 1 and October 31 of each year 3,900 cubic feet per second (cfs) of water must be available at Murphy's gage below the Swan Falls Dam. If there is insufficient water to meet this demand, the Idaho Department of Water Resources will curtail upstream water users. Most of the water to meet the demand for Swan Falls comes from spring flows with lessor amounts coming from feeder streams and canal return flows below Milner Dam. Groundwater pumping has reduced spring flows and better management by canal companies has reduced canal return flows. If spring flows continue to decline, it will become more and more difficult to sustain the flows to Swan Falls.

Another factor is the Nez Perce Agreement of 2004. This agreement calls for the rental, by the Bureau of Reclamation, from the state's rental pool up to 427,000 acre feet of water from the upper Snake River Basin. The water is to be used for in-stream flow augmentation for the salmon recovery effort. There are also consequences under this agreement if water to Swan Falls is less than allowed by the Swan Falls agreement.

A limiting factor may be global climate change. This is truly an X factor for the future of the region's water supply. Some scientists believe the earth is warming and there is still disagreement as to the cause. The cause of climate change for the region is perhaps less important than the impact which is unknown at the present time. County leaders should consider that the result may be, over time, less moisture to regional water sheds. Water is, and will remain, a limiting factor to the region's primarily agricultural economy.

SITUATION STATEMENT - THE VALUE OF WATER

The economy of the counties making up this region evolved in much the same way as other regions of the state and similar to many other western states. First the fur trappers arrived and then the immigrants whose destination was the Oregon Territory. Then the miners came following the discovery of gold along the Middle Snake. Camps and settlements began to appear and permanent settlers began cultivating the land and raising livestock. A fledgling tourist industry also made its appearance in 1883.

Shortly after the beginning of the 20th Century it became evident that agriculture would become the backbone of the regional economy and it remains so to this day. Harnessing the waters in the region made it so. Some small non-agricultural related industries have developed and are developing in the region, but their economic impact remains small. Recreation and tourism is also developing. It is difficult, however, to place a dollar value on water related recreation and tourism within the region. ~~but is believed to be significant~~. Water related activities within the region are many and varied. They include viewing of Shoshone Falls and the grandeur of the Snake River Canyon along

with lessor canyons, watching or participating in speed boat racing at the annual Burley Regatta, viewing spring

water cascading from the canyon walls, viewing and learning about fish production facilities, B.A.S.E jumping into the Snake River Canyon and boating, fishing and hunting on the Snake River and area reservoirs. Recently, Kayaking and paddle-boarding have become major recreational activities as well. The region's water resources have created many recreational and tourism opportunities over the years. The Idaho Department of Labor, Research and Analysis estimates tourism creates about ~~3,220~~ 3,317 jobs within region IV representing 3.9% of the total workforce in ~~2013~~ 2018. ~~Many workers, however, are employed outside our member counties in the Sun Valley area of Blaine County~~. How many workers are directly tied to this region's water resources is impossible to gauge. ~~The Idaho Department of Fish and Game estimates anglers alone brought in about $12,451,000 to the regional economy.~~ If the value of recreation and tourism could be accurately estimated, the amount could be added over and above the value created by agriculture since most would be directly related to water resources.

The counties desire that the public and all levels of government understand the region's economy and the impact of water on the continued health of that economy. There is a fear the expanding economy coupled with increasing job opportunities in the retail and service sectors have made people complacent. Many have forgotten how much this region's economy relies on an adequate supply of good quality water for agricultural production and processing. Every populated center is dependent upon one or more base industries and it is readily apparent that ~~ours has only one at this time-agriculture~~ agriculture is the major base industry in this region. For this reason the County Commissioners asked the University of Idaho-Extension, the College of Agricultural and Life Science and rural economists to prepare a model which examines the regional agricultural economy. This model is now used to produce a water resource impact statement based on the model for the economy of the counties covered in the Coordinated Water Resource Management Plan.

ECONOMIC IMPACT OF AGRICULTURE IN THE MAGIC VALLEY

The Magic Valley economy has evolved from a substantially rural community to one that has experienced consistent growth in the goods and services sectors. The economy has enjoyed a constant and steady growth over the past decade. There have been some changes in the sectors which provide the major impact within the economy. As strong and varied as the economy is, the major strength is the direct result of the jobs and new money generated by agricultural production and processing. A regionalized economic input/output model was developed to look more closely at the relationship of individual agricultural commodities and the overall economy of the six lower counties in the Magic Valley. Economic data for the model was updated in ~~2016 using 2012~~ 2020 using ~~2013~~ 2017 and 2018 data.

~~In order~~ To give a clear picture of the value of water to the agriculture economy, it is important to compare the value of agriculture to the economy of the Magic Valley, and the State of Idaho. In ~~2012~~ 2017 the lower six counties of the Magic Valley produced ~~$3.5~~ $3.6 billion dollars of agricultural products sold and ~~$682~~ $632 million dollars of net income. In this same time period, the State of Idaho produced ~~$7.8~~ $7.6 billion dollars (~~2012~~ 2017 USDA Census of Agriculture) of agricultural products. Forty-~~four~~ seven percent of agricultural products sold in Idaho in ~~2012~~ 2017

were generated by these counties (Table 1). Ninety-two percent of the agricultural land in this 6 county region is irrigated, a little over one million acres. One-third of Idaho's irrigated acres are located in this region. Water is a major factor in the farm economy of the Magic Valley and Magic Valley agriculture is a major player in the farm economy of the State of Idaho.

TABLE 1. Per County Farm Product Value

Geographic Area	Value of Crops Sold	Value of Livestock and Livestock Products	Total Value of Ag products sold
Cassia	$255,319,000	$671,401,000	$926,720,000
Gooding	$72,000,000	$710,528,000	$783,388,000
Jerome	$121,144,000	$518,439,000	$639,583,000
Lincoln	$ 42,662,000	$160,426,000	$203,088,000
Minidoka	$260,145,000	94,304,000	$354,449,000
Twin Falls	$168,671,000	$511,567,000	$680,238,000
Magic Valley Total	**$920,801,000**	**$2,666,665,000**	**$3,587,466,000**
State of Idaho Total	**$3,210,834,000**	**$4,356,606,000**	**$7,567,440,000**

~~2007~~ 2017 USDA-NASS Census of Agriculture

One concern frequently raised in the region is the impact of the potential loss of irrigation water. Before examining the result of a loss of water, it is beneficial to look at the industry as it currently exists. The agricultural industry in the Magic Valley is highly integrated throughout the entire economy. Along with farms, dairies, ranches and aquaculture, there are important support businesses. Feed, seed, irrigation equipment, fertilizer and chemical suppliers, farm equipment and management services are the most obvious. Many jobs found in the public and private sectors of the economy are the direct result of the total agricultural economy. Producers of raw agricultural products, along with food processors, provide a large portion of the region's direct jobs and contribute to the region's property tax base. Agriculture utilizes natural resources. The Magic Valley has used the production from, and exportation of, natural resource based products to generate wealth for the community. The productive value of water is used to look at job creation. For every ~~28~~ 25 acres irrigated there is one job created in the region, and for every ~~80~~ 127 acres irrigated there is one direct production job created. To put it another way, ~~3.6~~ 3.2 direct and indirect jobs are created for every ~~80~~ 127 acres of irrigated farm ground. The number of jobs attributed to agriculture has

decreased from previous analysis. This is a positive change as it indicates other economic sectors in the region are growing as a result from growth and increased exports of the agricultural sectors.

Production and Exportation

Table 2 provides a view of the Magic Valley crop and livestock production industries for ~~2013~~ 2018. It provides a picture of the value of the production and the relative size of each of the commodities within the agricultural economy.

Table 2. Value of Crop and Livestock Production and the Relative Importance of Each to Magic Valley

	Value of Production		% of Livestock Production	% of Crop Production	% of Food Processing	Services	% of Total
Dairy Production	$	1,729,264,000	64%				20%
Beef	$	840,949,000	31%				10%
Miscellaneous Animal	$	72,151,000	3%				1%
Fish	$	61,818,000	2%				1%
Hay and Silage	$	346,520,000		31%			4%
Vegetables*	$	253,367,000		30%			4%
Grains	$	303,000,000		23%			3%
Sugar Beets	$	175,119,000		16%			2%
Miscellaneous Crops	$	10,142,000		1%			0%
Dairy Manufacturing	$	2,035,381,000			44%		23%

Potato Manufacturing	$	718,015,000			15%		9%
Beet Manufacturing	$	627,822,000			13%		8%
Livestock feed Manufacturing	$	574,783,000			12%		7%
Beef Processing	$	326,378,000			7%		4%
Fish Processing	$	125,099,000			3%		1%
Other Food Processing	$	119,134,000			3%		1%
Grains Manufacturing	$	114,000,000			3%		1%
Ethanol	$	12,000,000			0%		0%
Ag Services	$	193,576,000				100%	2%
Total	$	8,668,475,000					100%

***Potato, beans and sweet corn production, **Zeros indicate less than 1% of the total, not an actual zero value**

One major reason agriculture production has remained an important part of the region's economy is the physical location of ~~commodity~~ raw input production relative to agricultural processing facilities. The ability to "add value" to raw agricultural products, through processing is of primary importance to the region's economy, and adding value[3] increases the export potential of the raw products. Milk sugar beets, potatoes and feed lead the list of ag processing in the Magic Valley. Adding value to raw products boosts the local economy through increased exports, job creation and the profitability of investments. Since ~~the majority~~ most of the processed products are exported, the money they bring into the region helps to fuel the local economy which then benefits the entire region. Farm ~~and ranch~~ ~~inputs~~ products ~~are purchased locally and the products produced~~ are sold to local processing facilities. The result; agricultural production is fully integrated into the regional economy.

Economic success can be measured by the ability to capture and hold outside resources. ~~The export of processed agriculture products enhances that ability. Table 3 shows the percent of export~~

~~contributed by raw agriculture products, ag processing, manufacturing and service sector of the economy.~~ Exports from a region increase that ability by bring new money into the region. Table 3 shows the percent of export contributed by raw agriculture product, processed ag products, ag services, and all non-ag industry sectors. The percentage of non-ag contribution has increased and the percentage of processed ag products contribution has decreased since the last update. This

indicates the region is growing and adding a diversity of other industries which strengthens the regional economy much like a diversified portfolio spreads an individual's investment risk.

Table 3. - The Percent of Exported Products for Sector Sources

Products	Percent of Total Exports
Raw Ag. Products (wheat)	13%
Processed Food Products	43%
Manufacturing. & Services	44%

Using the Magic Valley Economic Model, the impact of changes in agriculture can be evaluated. Table 4 shows the amount of employment directly and indirectly ~~(2013)~~ (2018) contributed by agricultural production and food processing in the ~~sub-~~ regional economy. Direct employment jobs are those that are directly related to a specific segment of the economy. These are the workers on the farm or in the factory. The indirect jobs are those necessary to support the workers directly employed. For example the individual who works on a farm in the production of an agricultural commodity is a direct ~~employee~~ job while the grocery clerk and waitress at the restaurant who serve the needs of the direct employee are considered indirect ~~employees~~ jobs. Each sector of the economy has direct and indirect jobs associated with it.

Table 4. Number of Jobs in the Magic Valley Economy

Segments of the Economy	Direct Jobs	Indirect Jobs Created
Agriculture Production and Processing	8,400	34,200
Remaining. Segments of the Economy	29,500	29,700
Total Jobs (Direct + Indirect)	101,800	

Agriculture production and processing employees represent about ~~8,600~~ 8,400 people who are directly employed in those sectors. The result of all the economic activity associated with the agricultural production and processing creates another ~~36,800~~ 34,200 jobs. The end result is that ~~45,400~~ 42,600 of the jobs in the Magic Valley are directly or indirectly related to agriculture. Identifying which sector is responsible for specific jobs in the region is a bit confusing, but of the total of ~~95,000~~ 101,800 jobs in the region, ~~45,400~~ 42,600 or ~~48%~~ 42% are a result of agriculture. The total percentage of ag sector jobs contribution declined by 6% from the previous regional update, again indicating an increase in non-ag sector jobs.

Regions reliance on water

The sustainability of a strong agricultural economy in the Magic Valley depends on a reliable supply of water. Unlike what cities experience when a business closes, when an agricultural

production unit is vacated by one producer it is operated by a new producer, usually in the next production cycle, rather than remaining idle. Regardless of the water source - surface or ground - the key is reliability of the source. Drought and water calls decrease reliability. Agricultural processors have been willing to invest in our area due to the reliability of water. The location of agricultural processing in the Magic Valley is directly dependent upon our ability to provide a dependable supply of agricultural commodities. The sustainability of the relationship between processors, producers and the entire agricultural economy is dependent on the reliability and availability of quality water.

Farmers and ranchers, as well as investors, view land in two ways: 1) for the productive value of the land, and, 2) for the investment potential of the land. The land value is based on both its ability to produce and its value as an investment. The value of the land is greatly dependent on the reliability of the water resources that accompany the land. In the Magic Valley, the reliability of the irrigation water supply is the largest single factor affecting farmland value.

An example is the land served by the Gooding-Milner Canal, which provides water from the Snake River and is bordered by land that is served solely by the Big Wood Canal, which provides water out of Magic Reservoir on the Big Wood River. These neighboring sites have the same production potential, yet the difference in land value is substantial. The difference in land value is reliability of the water source.

The importance of the agricultural production to the economy of the Magic Valley has been documented. The sustainability of that production is key to the continued viability of the entire economy. A change in agricultural production and processing would be expected to have an effect on every sector of the economy. Using the regional economic model to evaluate the effect of a lowered quantity of available water would suggest that economically it would be beneficial to increase application efficiency. The technology to increase application efficiency does exist, but at a cost. The cost to increase efficiency must be purchased with profits and government incentive programs. Thus, producers will have to redirect profits from traditional uses to investment in more efficient irrigation. The other option is to not increase efficiency but to reduce production. The exact effect of reducing production would depend on which crops were no longer produced. Those with ties to local processors in the Magic Valley would have greater local impact. When water is in short supply, farmers have made huge investments in more efficient sprinklers and many change crop rotations to those requiring less water. Farmers have also improved efficiency by changing application rates, pressure adjustments, scheduling and idling marginal ground. Evaluating production during the last drought, it is hard to find that the value of farm production has suffered, but it came at a huge expense. Farmers and canal companies have done much to insulate the community from the economics of drought by investing in technology. Only history will tell whether it is sustainable ecologically and economically.

The ~~cost~~ value of water in the Magic Valley is usually determined by what a typical buyer would pay for an irrigated acre of land compared to what a buyer would pay for a dry acre. The cost of irrigated land is dependent on location, soil and dependability of the water supply. As an example, if a typical buyer of dry land is willing to pay ~~$500.00~~ $800.00 per acre and another buyer will pay ~~$4,000.00~~ $7,000.00 for an irrigated acre the cost of water is ~~$3,500.00~~ $6,200.00 per acre. Another

way to find the value of water is based on the value of production and finding what an individual will pay for a certain annual stream of production. The production value of water is, therefore, the annual crop production from a flow of water. The annual productive value is determined by the amount of water it takes to produce a certain crop with a known value. Productive value of water shown in table 5 is estimated based on known water diversions and the approximate value of all crops grown. The

productive value of water averages ~~$170.00~~ $151.00 per acre foot. On average it takes the application of about 2 ½ acre feet of water to properly irrigate one acre, so the value of 2 ½ acre feet of water based on the value of one acre foot averages ~~$425.00~~ $377.50. The value of an acre foot of water dropped from the previous update reflecting the lower prices received for farm products during the review period (2013 to 2017). This value, however, does not consider diverted water lost by the canal system to the aquifer or evaporation which together can be 30% or more. Arguably this loss, if known, would inflate the productive value of water actually received at the farm. Ground water pumpers have an advantage in this regard since little is lost. It is important to note that groundwater pumping accounts for roughly one half of the irrigation water used in the magic Valley and the data in Table 5 shown on the next page, only represents the surface diversions.

Table 5. Typical Productive Value of Surface-diverted Water

County	Water District	Acres Served	Normal Diversions Acre Feet (see side bar)	Average Crop Value -$ Per/Acre	Total Value of Crops for Served Acres	Productive Value per Acre Foot of Water(1)
Gooding-Jerome	North Side	160,000	1,000,000	$843*	$134,880,000	$135
Lincoln	Gooding-Milner	62,420	454,000	$626**	$39,074,920	$86
	Big Wood	36,542	250,000	$540	$19,732,680	$79
Twin Falls	Twin Falls	202,690	1,060,000	$844	$171,070,000	$161
	Salmon Falls	20,500	65,500	$626	$12,833,000	$196 (b)
Cassia	BID	47,812	240,600	$1,082	$51,732,584	$215
Minidoka	MID	77,254	315,000	$1,307	$100,970,000	$320

(a) It takes an average of 2.5 acre feet to properly irrigate one acre. Productive value per acre = Value per acre foot X 2.5

(b) Salmon Tract is irrigated with some supplemental groundwater thus this value possibly over represents the value of surface diversions. Potatoes and sugarbeets are not grown on the Salmon tract. The crop value for Lincoln County was used to better represent the cop mix on the Salmon Tract.

*Average of Jerome and Gooding County

** Average of Lincoln and Gooding County

Normal diversions (Table 5) in acre feet is based from conversations with canal company managers on what they typically have diverted in previous years. Historically some canals have diverted more than this amount when they were running water in the winter for stock water. Because of improvements in canal delivery efficiency and user efficiency most canal companies are diverting less per acre than they did when the systems were first fully operational. Some of the improvements in efficiency are due to canal management and sealing of major leaks. In ~~the past 10~~ recent years, advancements in flow monitoring have allowed managers to improve efficiency in all parts of the delivery system. Individual year diversion is as much a function of weather, which affects the length of growing season, as is water availability and diversion rights. Water diverted for irrigation is determined by more than what is simply in storage or in natural flow. In addition to total amount available, managers

have to determine dates to start and stop irrigation along with average flow per day during differing parts of the irrigation season. Even if supplies were adequate, diversion could be below average during a wet spring or fall.

For every acre foot of water not available, it is estimated that an average of ~~$170.00~~ $151.00 in production sales value is lost. That number doesn't really tell the story though, as it is an average of all crops in counties. It is likely that, if curtailed, producers would cut less valuable crop acres to protect the higher value crops, especially those that require heavy investment in equipment such as potatoes and sugar beets. Similarly the forage acres of alfalfa and corn would be protected as much as possible to supply feed to the regions massive livestock industry. It is interesting to note however, the last period of drought and restricted diversions did not result in a corresponding loss of production. This occurred because of investments in irrigation efficiency, changes to crop rotations and the continued stability of ground water pumping and high crop and livestock prices. It is critical to understand that without groundwater the valley's economy would be affected more significantly during drought.

One of the strengths of Idaho's Water Management System has been the availability of water bank resources. The water bank is a storage reserve of committed, but generally not completely used, water that has been available to agricultural production in short water years. In previous low water years this reserve was completely allocated. The water demand for salmon recovery and periods of drought has made the water bank very important and caused the value of the leased water to increase.

The average value of crops produced per acre and the number of acres it would take to raise $ 1 million dollars of that crop is shown in Table 6. The number of head of various livestock enterprises that would produce $1 million of product is also included although a curtailment would have less direct consequences. The aquaculture industry is a bit of an anomaly in that it is a non-consumptive use of the water diverted. ~~An acre foot of water generates $26.00 worth of value in aquaculture.~~ As the water is returned back to the river, it can be used again for recreation, hydropower, and crop and livestock production further downstream. The non- consumptive nature of the industry makes

developing a per-acre-foot value difficult because the water has value not only for aquaculture, but all other downstream uses.

Table 6. Production Units Required to Generate $1,000,000

Crop	Total Acres	Average marketing year yield (2017)	Average Marketing Year price (2017)	Total Value of Regional Production (2017)	Value of Production/Acre	Acres required to generate $1 million in production
Wheat-all (bu)	116,000	108.5	$4.65	$58,524,900	$505.00	1,982
Barley-all (bu)	116,500	120	$4.75	$66,405,000	$570.00	1,754
Alfalfa (tons)	238,600	5.75	$138.00	$36,897,750	$794.00	1,260
Corn-Grain (bu)	44,000	202	$4.25	$37,774,000	$859.00	1,165
Corn Silage (ton)	163,000	30	$32.00	$156,480,000	$960.00	1,042
Dry Beans (cwt)	46,500	24.9	$28.90	$33,461,865	$720.00	1,390
Potatoes (cwt)	75,000	472	$7.23	$255,942,000	$3,413.00	293
Sugarbeet (tons)	102,500	39	$40.20	$160,699,500	$1,568.00	638
Livestock			**Value of Production Per head (2017)**			**Head required to generate $1 million in sales**
Beef steer			$760.00			1,316
Feed lot			$1,512.00			661
Dairy (annual milk production /cow)			$4.193.00			238
Fish (food size-1lb			$1.80			555,536

~~*Fish category added 2006 based on 2005 Idaho Agriculture Statistics~~

~~Historically, water calls have caused a flurry of activity in eastern and south-central Idaho. A report to the Middle Snake Regional Water Resource Commission by University of Idaho Extension Educators showed the huge loss to the region's economy should a cutoff to groundwater pumping occur. The impact of water curtailment in east and south central Idaho to junior pumpers and others led to the creation of the Comprehensive Aquifer Management Planning Group (CAMP). This group worked for several years to create an aquifer management plan for the entire Eastern Snake Plain Aquifer (ESPA) that was adopted by the legislature in 2008. A permanent funding source, however, has not been identified so funding to carry out the plan is currently at the annual discretion of the legislature.~~

~~Water calls continued for several years after the ESPA Management Plan was approved until an agreement was reached between ground water pumpers and a surface water coalition in 2015. The agreement includes language to meet the requirements of the Swan Falls Agreement and over the long term, calls for a reduction in pumping on the ESPA by 240,000 acre feet, delivery by pumpers of 50,000 acre-feet of storage water and the installation of measuring devices at well heads. The agreement also seeks state sponsored recharge efforts of 250,000 acre-feet annually.~~

Even though the Surface Water Coalition-Idaho Ground Water Appropriators, inc settlement agreement has been reached, pumpers could be further curtailed by the Director of the Idaho Department of Water Resources (IDWR) if the terms of the Surface Water Coalition Agreement are not met or if it is not sufficient under its new ground water management program. In 2016 IDWR adopted an Eastern Snake Plain Aquifer Ground Water Management Area which gives the Director the ability to do what is necessary to stabilize the aquifer. If the management area survives challenges, it would also include the aquifer's tributary basins. IDWR will also monitor the impact of these events and their impact on stabilizing the ESPA.

DEFINITIONS

Cost of Water – The price paid to acquire the right to use and the delivery of water

Diverted Water – Water received through a diversion structure from its natural source. Typical Water structures include pumps, head gates, ditches, pipeline and dams or any combinations.

Groundwater – Groundwater is water that is located beneath the ground surface in soil pore spaces and the fractures of lithological formations.

Surface Water – Water collecting on the ground or in a stream, river, lake, wetland, or ocean. Surface water is naturally replenished by precipitation and naturally lost through discharge to evaporation and subsurface seepage into groundwater.

Water Bank – The water bank, also known as the Idaho Water Supply Bank, is essentially a water exchange market operated by the Idaho Water Resource Board to assist in marketing the water right of natural flow and water stored in Idaho reservoirs. It is a mechanism by which water rights that are not being used can be made available for use by others through the lease and rental process.

Input/output model – An economic model that studies the interdependency of various sectors of the national or regional economy.

Direct Employment Job – When studying a regional economy based on exports or sales outside of the region, these jobs that are directly attributed to a specific exporting sector in the economy. For example, the employees in a potato processing facility would represent the direct employment of processing sector.

Indirect Employment Job – When studying a regional economy based on exports or sales outside the region, these are the jobs that are not directly attributable to a specific exporting sector in the economy. For example, when the employees of the potato processing facility spend their money in a restaurant in the region the restaurant jobs are indirectly linked to the potato processing facility.

Value Added - The sum of (1) wages and salaries, (2) proprietor's income, (3) indirect business taxes, and (4) dividends, interest, and rents. Value added is more than simply buying raw commodity, making some product, and selling it for more money.

Value of Water – Equivalent worth or return from the initial cost of water.

Water Call – A water delivery call made by the holder of a senior right to the use of water. A water call is made by a senior right holder when the holder is not receiving its total allocation.

Region – Defined by the economic portion of the Coordinated Water Resource Management Plan to include the counties of Cassia, Gooding, Jerome, Lincoln, Minidoka and Twin Falls.

AUTHORIZATION SECTION

IMPLEMENTATION

The regional Coordinated Water Resource Management Plan update reflects a 5-10 year time horizon, although the plan should be reviewed continually to respond to emerging technologies, changes in water supply and quality, changes in use, and growth trends. This planning period allows adequate time to implement new development ordinances, water use patterns and public development plans. Implementation of the Coordinated Water Resource Management Plan will be accomplished through the following measures:

- Application of policies in this plan, and such other policies, resolutions, or ordinances as may be adopted by the county commissions of the member counties.

- Continued coordination with the Planning and Zoning Commissions of the member counties, state and federal government agencies, community groups and citizens.

- Education, adoption and practice of water quality protection and conservation measures both in county facilities and new development.

Implementation is the most important phase of the planning process. It is the process that is intended to transform the goals and policies of the Coordinated Water Resource Management Plan into actions.

If this plan is to be useful and effective, it should be continually reviewed and updated, as needed. The recommendations within the plan should be interpreted as unalterable commitments, but rather as a reflection of the best foreseeable direction at a given time.

The policies of the member counties Comprehensive Plans and the Coordination Water Resource Management Plan establish the underlying direction for future amendments to the member counties zoning ordinances and zoning maps. The text of the zoning ordinance identifies permissible land uses and establishes the conditions under which land may be used. The zoning map identifies the location of specific districts where various types of land uses may be located to form a compatible development pattern. Idaho State law requires that all zoning districts be consistent with the policies of a county's adopted Comprehensive Plan.

ADOPTION AND AMENDMENT OF PLAN

The Middle Snake Regional Water Resource Commission prior to recommending the plan, amendment or repeal of the plan to the Executive Committee, shall conduct at least one (1) public hearing in which interested persons shall have an opportunity to express their views. At least fifteen (15) days prior to the hearing, notice of time and place shall be published in the newspaper of general circulation within the region. The Commission shall also make available a notice to other newspapers, radio and television stations serving the region for use as a public service announcement. Following the Commission hearing, if the Commission makes material change in the plan, further notice and public hearings shall be held. Upon completion of hearing process, the commission then recommends adoption of the plan to the Executive Committee for distribution to the Commissioners of the counties making up the region as defined in this plan. A record of the hearings, findings made, and actions taken shall be maintained indefinitely.

The individual Boards of County Commissioners making up the region, prior to adoption, amendment or repeal of the plan shall conduct at least one (1) public hearing using the same notice and hearing procedures as the Commission. The Boards of County Commissioners shall not hold a public hearing, give notice of a proposed hearing, not take actions upon the plan, amendments or repeal until recommendations have been received from the Commission. Following the hearings of the Boards of County Commission, if the Boards make a material change in the plan, further notice and hearing shall be provided before the Boards of County Commissioners adopts the plan. A record of the hearings, findings made, and actions taken shall be maintained indefinitely.

This ordinance or resolution enacting the Regional Coordinated Water Resource Management Plan or part thereof may be adopted, amended, or repealed by reference as provided for in sections 31-715 and 50-901 IDAHO CODE.

This Coordinated Water Resource Management Plan cannot be amended more frequently than every six (6) months.

Be it further ordained that the terms and provisions herein enacted shall be deemed separable, and the invalidity of any sections of this ordinance or resolution shall have no effect on the validity of any other section.

AGREEMENT FOR ESTABLISHMENT OF THE MIDDLE SNAKE

REGIONAL WATER RESOURCE COMMISSION

(As revised on April 10, 2006)

AGREEMENT made this 12th day of April, 1993, among the counties of Gooding, Jerome, and Lincoln and now also including Twin Falls, Cassia and Minidoka, now referred to as "Member Counties", acting by and through their duly elected and acting Boards of County Commissioners, for the joint establishment and operation of a regional commission to study, protect and enhance water resources within the boundaries of the Member Counties. This agreement is executed pursuant to the powers granted under the provisions of the statutes pertaining hereto, the provisions of Idaho Code 67-2328, and the powers granted to counties under the laws of the State of Idaho.

NOW, THEREFORE, in consideration of the mutual promises and consideration expressed herein, the Member Counties hereby agrees as follows:

1. **Commission-Creation-Membership:** There is hereby created a regional commission to be known as the Middle Snake Regional Water Resource Commission "Commission", to be comprised of twelve members consisting of two members from each of the Member Counties. Said commission shall act in an advisory capacity to the Boards of County Commissioners of the Member Counties. The Boards of County Commissioners of each Member County shall submit the names of no less then two nominees to represent the county with at least one nominee associated with the Member County's planning and zoning commission and appointment shall be subject to majority vote of the Boards of each Member County. To be eligible for appointment to a Member County's seat on the Commission, a person must be a current resident of said county and may hold office only so long as such county residence is maintained. No person deemed by the Commissioners to lack the ability of making an unbiased decision with regard to water quality and quantity issues shall be eligible for membership. Input from representatives of specific industry or environment groups and organization is best obtained through advisory committees and through the hearing process. Appointees must have a basic knowledge of water quality and quantity issues within the region, as well as an interest in serving the public.

2. **Terms of Members-Compensation:** The terms of office of each Commission member shall be four (4) years; provided, however, that one of each Member County's initial appointments to the Commission shall serve a term of two (2) years and the other initial appointment from each Member County shall serve a term of four (4) years. All vacancies shall be filled for the balance of the unexpired term in the same manner as original appointments. The Commission may establish subcommittees and advisory committees to advise and assist in carrying out its responsibilities within the constraints of the approved annual budget. Commission members shall serve without compensation, but may be reimbursed for their actual expenses incurred in attending Commission meetings or conducting Commission business under such rules as may be adopted by the Executive Committee and within the constraints of the approved annual budget.

3. **Executive Committee-Creation-Membership:** There is hereby established an Executive Committee, consisting of one (I) County Commissioner from each of the Member Counties, to be appointed by the Board of each participation county, which committee shall be responsible for any legislative and regulator, or financial functions of or for the Commission. The Executive Committee shall elect a chairman four (4) members shall constitute a quorum for the conduct of business but all votes shall require a three (3) member majority. The Executive Committee shall meet on an "as needed" basis.

4. **Water Resource Plan-adoption:** The Member Counties hereby ratify, affirm and adopt the Coordinated Water Resource Management Plan "Plan" in the form attached hereto as exhibit "A", which exhibit is fully incorporated herein by this reference.

5. **Purpose of Commission:** It shall be the purpose of the Commission to:

a. Take actions as authorized and necessary to implement the goals and objectives of the Plan, as the same are set forth therein.

b. Gather information on an on-going basis regarding the quality of water resources in the Member Counties and establish baseline data for monitoring water quality.

c. Act as a focal point for issues, concerns, uses and education regarding all water resources, surface and underground, in the Member Counties and, in connection therewith, provide a forum for the public to have input on such issues and to obtain information and educational services with regard to the same.

d. Work with governmental entities at all levels, water user groups, private parties, and the general public to coordinate and facilitate the development of water study, management, protection or enhancement plans in and for the region

e. Provide a forum for local, state and federal agencies to coordinate activities related to the study, management, protections and enhancements of water resources.

f. Provide information and recommendations to local Planning and Zoning Commissions and other local governmental entities with respect to ordinances that may be necessary and proper to facilitate the study, management, protection and enhancement of water resources within the Member Counties.

g. Gather, coordinate and disseminate information regarding water resource issues in the Member Counties to and for the benefit of governmental, business and private parties.

h. Take additional actions, as necessary, to facilitate the Plan and the accomplishment of its objectives.

i. The Commission is to act within the constraint of the annual budget as approved by the County Commissioners of the Member Counties.

j The Commission shall not become members of or associated with any group or organization with specific interest in the water resources of this region without written authorization of the executive committee.

6. **Powers of Commission:** The Commission shall have and may exercise the following powers and duties within the constraints of the annual budget approved by the commissioner of member counties.

a. To hold hearings on issues pertaining to the study, management, protection and enhancement of water resources in the region, particularly as the same may impact the Member Counties.

b. To make and submit testimony and comments, both oral and written, to public and private entities and agencies, regarding the study, management, protection and enhancement of water resources located in the Member Counties and surrounding area.

c. To complete and disseminate information regarding the Plan and any and all issues pertaining to the water resources located within the Member Counties.

d. To take any actions necessary to coordinate the Plan with the plan, rules or regulations of other governmental agencies, local, state and federal, which

shall specifically include the state's Rules and Regulations for Nutrient Management (IDAPA 16.0\.16000) and as the same may be amended, with the primary purpose of bringing such other plans, rules or regulations in line with the plan and secondary purpose of fostering coordination and cooperation with respect to same.

e. To invoke the provisions and/or protections set out in Executive Order 12630 as the same may impact or affect in any way the property and resources located in the Member Counties.

f. To provide assistance to local governmental entities in the enforcement of laws pertaining to the study, management, protection and enhancement of water resources located in the Member Counties.

g. To review the Plan on an on-going basis and, when necessary, to recommend revisions of the same to the Executive Committee and boards of the County Commissioners of Member Counties.

h. To study and report with respect to the economic impacts of actions taken by local, state and federal agencies which may in any way impact, restrict or impair water uses in the Member Counties.

i. To develop data on the customs and culture of the region for the purpose of determining the impact of various actions taken by local, state and federal governmental agencies with respect to water resources located therein

j. To do all things necessary or incidental to the proper operation of the Commission and furtherance of the objectives of this Agreement, subject only to authority properly delegated to the Commission.

7. Duties of Executive Committee: The Executive Committee shall have and may exercise the following powers and duties:

a. Recommend budgets to the commissioners of the Member Counties and provide all necessary budgetary functions for the Commission.

b. To review the work of the Commission and to provide policy direction.

c. To hold hearings in each county and make recommendations to the commissioners of the Member Counties with regard to amendments to the plan.

d. To provide liaison services between the Commission and the Boards of County Commissioners of the Member Counties.

e. To hire an executive director for the Commission, who shall serve at the pleasure of the Committee. Such executive director shall serve as a non-voting member of the Executive Committee, carryon its business as directed on an on-going basis, and act as its secretary-treasurer. The executive direct may, subject to the approval of the Executive Committee, employ and remove any consultants, experts or other employees as may be needed with the constrains of the budget approved by the Member Counties.

f. To receive monies and property from Member Counties and to receive gifts, grants and donations from any person or entity, and to expend the same for the purpose of this Agreement.

g. To retain or employ regular legal counsel, and to retain such special counsel as may be deemed necessary, all within the constraints of the annual budget.

h. With the recommendations of the Commission, to adopt rules and regulations for the conduct of all business done and to be done pursuant to this Agreement.

i. To do all things necessary or incidental to carry out the purposes of this Agreement within the constraints of the budget as approved by the Member Counties.

j. Provide information and recommendations to state and federal agencies, including the state legislature and U.S. Congress, regarding actions or programs necessary for study, management, protection and enhancement of water resources in the region as defined in the Plan but including additional counties which may become party to this Agreement.

k. Authority to subpoena witnesses and documents for Commission hearings.

8. **Annual Budget:** The fiscal year of the Commission shall commence on October 1st of each year and shall end on September 30th of the following year. The Commission shall prepare, by the first Monday in June of each year, a preliminary budget for the Executive Committee including the activities of the Executive Committee, and an estimate of costs to be apportioned to each Member County for the ensuring year. The Executive Committee shall approve and certify the budget to each Member County on or before July 15th of each year. Such determination shall be binding upon all Member Counties.

9. **Duration and Dissolution:** It is intended that this Agreement and the Commission established hereby shall have permanent status. However, member Counties shall have the ability to withdraw from this Agreement, beginning one (1) year from the date hereof. Any Member County wishing to withdraw after completion of the first year, must give one (1) year's written notice to the Executive Committee of such intention to withdraw. A Member County withdrawing from the Agreement shall not be entitled to reimbursement of any funds or to any proportionate share of any property accumulated by the Commission or Executive Committee and shall be responsible for payment of its share of the budget for said fiscal year. This Agreement may be terminated by majority vote of the Member Counties after completion of its fifth year, in which event all assets remaining after payment of all costs and expenses shall be distributed to the Member Counties in proportion to their share of the last annual budget of the Commission.

10. Amendment of Agreement. This Agreement may be amended by an executed Addendum, approved by resolution duly adopted by the Board of commissioners of each Member County.

11. Addition of Counties. Any county which is not a party to this Agreement may, with the consent of a majority of the Board of Commissioners of each Member County, become a Member County to this Agreement by executing an Addendum to that effect to this Agreement and by the adoption of an ordinance approving this Agreement.

12 Effective Date. This Agreement shall be effective from and after execution by the Chairmen of the Boards of Commissioners of the three (3) Member Counties. Each county shall forthwith adopt an ordinance approving the Agreement, which ordinance shall be in the form attached hereto as Exhibit "B" which exhibit is incorporated herein by this reference. The number of each such ordinance and the date of adoption shall be noted in the place indicated below.

IN WITNESS WHEREOF, the Member Counties, acting through their respective Board Chairman, have executed this Agreement.

AMENDMENT #1:

This Agreement is amended to include Twin Falls County as a Member County. The Twin Falls County Commissioners adopted an ordinance approving the Agreement and adopting the Coordinated Water Resource Management Plan on January 29. 1996.

AMENDMENT #2:

This Agreement is amended to include Cassia County as a Member County. The Cassia County Commissioners by resolution approved the Agreement and adopting the Coordinated Water Resource Management Plan on June of 2003.