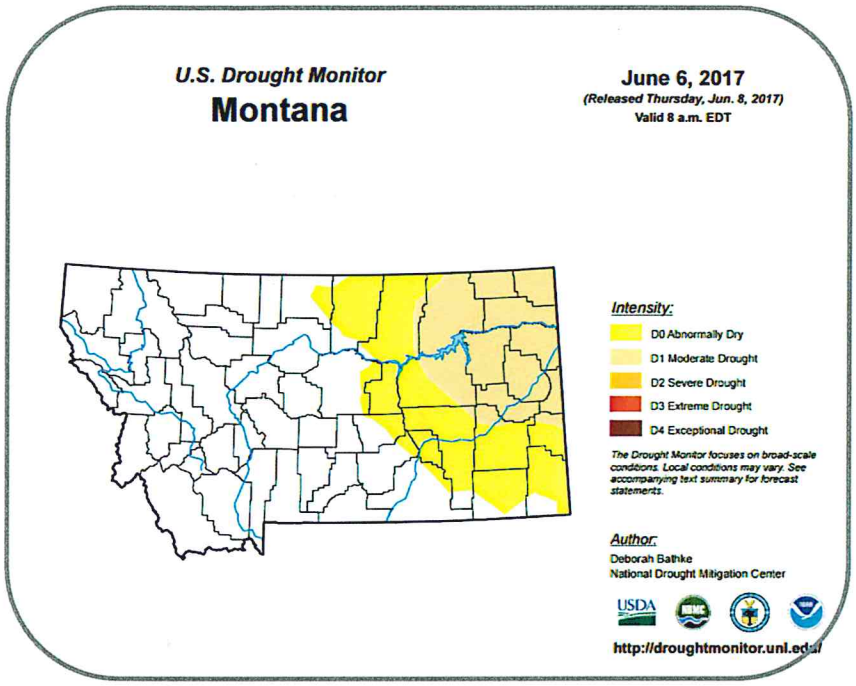
Work Meeting Agenda
Governor's Drought and Water Supply Advisory Committee
Tuesday, June 20, 2017, 9:00 a.m.
DNRC Headquarters, Montana Room, 1539 11th Avenue, Helena

9:00	**Welcome – Chair Lt. Governor Mike Cooney**
9:10	Report from the National Weather Service **Megan Syner**, Meteorologist, Great Falls, National Weather Service
9:25	Report from the NRCS Montana Snow Survey **Lucas Zukiewicz**, NRCS Montana Snow Survey, Water Supply Specialist
9:40	Report on River Conditions **Kathy Chase**, USGS, Hydrologist
9:55	Report on Reservoir Conditions **Stephanie Micek**, Bureau of Reclamation, River and Reservoir Operator
10:00	Report on Agricultural Statistics **Eric Sommer**, National Agricultural Statistics Service, State Statistician
10:15	Discussion on Aid for Producers Dealing with Drought Conditions in NE Montana **Brad Griffin**, Montana Equipment Dealers Association
10:25	Montana Drought Management Plan (MDMP) Update Process - Funding Strategies Research **Ada Montague,** DNRC Staff
10:30	Funding Drought Resilience, Research and Examples from other States **Eleanor Morris**, Senior Advisor, Global Conservation Campaigns Team, The Nature Conservancy
10:45	Recap of Israeli Visit & Announcements **Chair Lt. Governor Mike Cooney** and Committee
11:00	**Adjourn**

Next Meeting: Tuesday, July 18, 2017 9:00 – 11:00 a.m., DNRC Headquarters, Montana Room, 1539 11th Avenue, Helena

Montana — *May 2017 Drought Conditions*



The U.S. Drought Monitor, is a weekly map of drought conditions produced jointly by the National Oceanic and Atmospheric Administration, the U.S. Department of Agriculture, and the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln. The U.S. Drought Monitor website is hosted and maintained by the NDMC. http://droughtmonitor.unl.edu

Highlights for the State

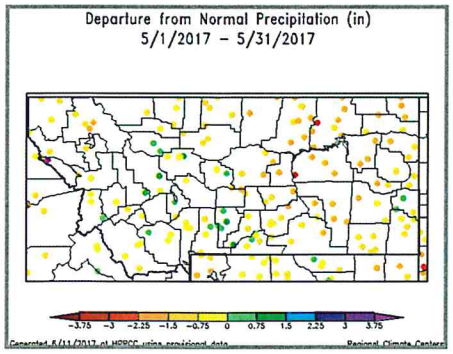
May brought a sharp change in conditions in the eastern part of Montana. As early as April 30th reports of exceptionally dry conditions started coming in from Daniels, Sheridan, Roosevelt, McCone, Richland, Dawson, and Prairie counties. Drought concern was elevated in Wibaux and Fallon Counties and spread to encompass the eastern third of the state. The main cause for the dramatic shift was a combination of low precipitation, high temperatures and wind. Producers reported culling herds, 20% of average crop starts, and nonexistent native pastureland. While the last few years have seen good precipitation in this part of the state, surface moisture depletion during the spring planting season has had dramatic impacts on the local economy and many are comparing it to the last drought period of 1988. Judith Basin and Fergus, as well as Silver Bow and Jefferson counties also continue to be monitored closely for drought conditions.

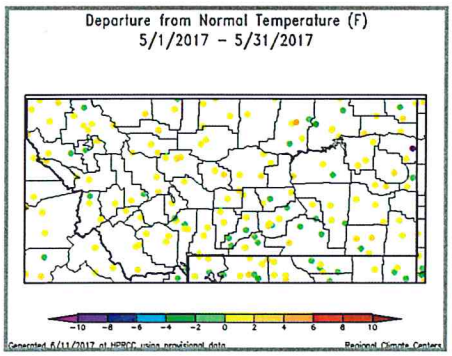
According to the June 1st NRCS Montana Water Supply Outlook Report, "Snowpack totals for June 1st are ... above [to] well above for this date in most of the Montana river basins, only a few low elevation ranges in the central part of the state continue to have below normal snowpack." Of particular concern are the Headwaters of the Missouri (77% of normal) and the Smith-Judith-Musselshell (64% of normal).

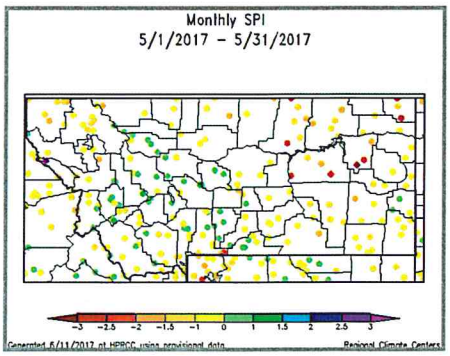
Reservoirs remain normal for this time of year.

Montana — *Climate Overview for Last 30 Days*

Temperature and Precipitation Anomalies







PERIOD	PRECIP	20TH CENTURY AVERAGE	DEPARTURE	RANK	WETTEST/DRIEST SINCE	RECORD
May 2017 1-month period	1.54" (39.12 mm)	2.42" (61.47 mm)	-0.88" (-22.35 mm)	21st Driest	Driest since: 2009	1937
				103rd Wettest	Wettest since: 2016	1927
	Ties: 1969					

May 2017 saw below average precipitation for most of the eastern half of the state for the period of record (1895-2017). May was the 21st driest in 122 years of record and the driest since 2009.

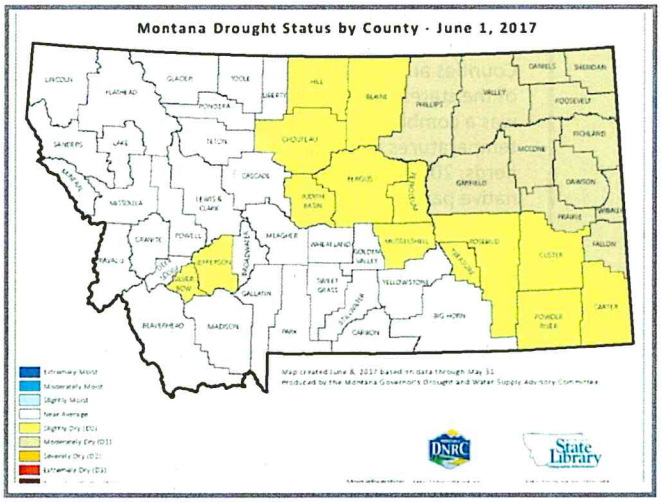
Temperatures over the 30-day period were slightly above normal across the state.

Montana — *Drought Indicators*

Montana Drought Status by County

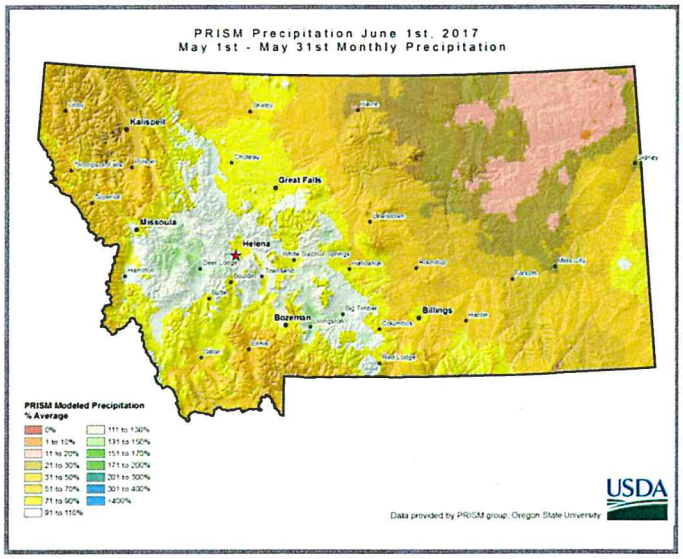
The Montana Drought Status by County is a monthly assessment tool used to monitor the moisture at a county level for the state. Temperature, precipitation, snowpack, reservoirs status, surface water gages, groundwater, crop reports, and field reports are compiled to create this map. To see a historical record go here: https://mslservices.mt.gov/Geographic_Information/Maps/drought/

Do you have impacts to report? We need your on-the-ground reports and you can send them to amontague@mt.gov



Water Resources

The big news for May was low precipitation across the state. Areas saw as little as 11-20% of average precipitation during a month that typically is very wet. A few places in Richland, Roosevelt, and Daniels counties saw as little as 1-10% of average precipitation. The lack of rainfall impacted the ability of producers to plant and grow crops, especially in the northeast.



Montana — *Short– and Long-term Outlooks*

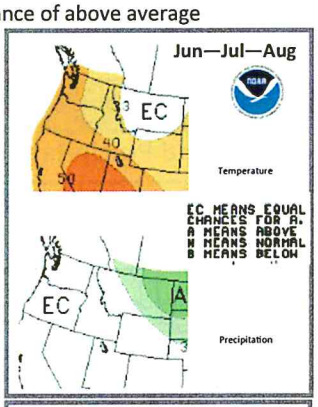
Weather and Drought Outlooks

For the next month there are equal chances of above, normal, or below average temperatures for the majority of the state. There is a 33% chance of above average temperatures for the south and southeast. Precipitation for the majority of the state holds a 33-40% probability of being above average.

Looking further out, the Jul-Aug-Sep period shows a 33% chance of above average temperatures for the most western and southeastern edges of the state, while the rest of the state has equal chances of above, below or normal temperatures. There is a 33-40% chance of above average precipitation for the eastern two thirds of the state.

Although there is less certainty when looking at predictions beyond the next three months, both temperatures and precipitation rates are expected to be above average.

Drought conditions are expected to increase in the northern plains and should remain closely monitored in 2017. Read the National Drought Mitigation Center's Drought and Climate for May 2017 Report to learn more.



Need a Forecast?

Visit your local National Weather Service Weather Forecast Office for the most up-to-date forecast at: http://www.weather.gov

Stay Tuned and In Touch

The next Montana Drought Impacts and Outlook Summary will be released around July 15th. If you need information in the meantime, please reach out to any of the partners listed to the right or contact Ada Montague directly at amontague@mt.gov.

Read the NOAA National Drought Overview at: https://www.ncdc.noaa.gov/sotc/drought/201611#detailed-discussion

Heard Around the State

The Northeast is exceptionally dry with many producers calling for emergency assistance. The Roosevelt County Commissioners submitted a request to Governor Bullock for a USDA Drought Designation. The Governor's Drought and Water Supply Advisory Committee will consider drought declarations for several counties in the Northeast at its next meeting on June 20, 2017 from 9-11am. Watch it live here: http://stream.vision.net/MT-gov/

Partners

Montana State Climate Office
www.climate.umt.edu
National Weather Service
- **Great Falls Weather Forecast Office**
  www.wrh.noaa.gov/tfx/
- **Missoula Weather Forecast Office**
  www.wrh.noaa.gov/mso/
- **Billings Weather Forecast Office**
  www.wrh.noaa.gov/byz/

Natural Resource Conservation Service, Snow Survey and Water Supply Forecasting
www.nrcs.usda.gov/wps/portal/nrcs/main/mt/snow/
Montana Bureau of Mines and Geology
data.mbmg.mtech.edu/mapper/
Montana State Library
mslservices.mt.gov
United States Geologic Survey
http://wy-mt.water.usgs.gov/
Bureau of Reclamation, AGRImet
www.usbr.gov/pn/agrimet/h2ouse.html
National Agricultural Statistics Service
www.nass.usda.gov/Statistics_by_State/Montana/

Contact: Ada Montague
(amontague@mt.gov)

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USDA

AGRICULTURE COUNTS

MONTANA CROP PROGRESS

United States Department of Agriculture
NATIONAL AGRICULTURAL STATISTICS SERVICE
MONTANA FIELD OFFICE
10 West 15th Street, Suite 3100, Helena, MT 59626
Cooperating with the Montana Department of Agriculture

FOR IMMEDIATE RELEASE
June 19, 2017

Contact: Eric Sommer
(800) 835-2612

CROP PROGRESS AND CONDITION
WEEK ENDING JUNE 18, 2017

AGRICULTURAL SUMMARY: Despite the state receiving precipitation in all regions there was no relief for some eastern parts of the state, and windy conditions negated much of the moisture gained according to the Mountain Regional Field Office of the National Agricultural Statistics Service, USDA. Storms continued to slow fieldwork in western areas of the state, while in eastern Montana some operators began selling off livestock due to poor range conditions. Dry conditions continue to be a challenge in eastern Montana with Jordan at only 22% of normal precipitation since April 1, 2017; and the highest temperature of the week reported in Nashua at 86 degrees. North Central areas of the state had the highest precipitation with some areas receiving as much as 2.11 inches of moisture.

CROP AND LIVESTOCK PROGRESS

Commodity	Current week	Previous week	Previous year	5-year average
	(percent)	(percent)	(percent)	(percent)
Barley				
Emerged	95	86	98	98
Boot stage	30	5	60	46
Camelina				
Planted	85	80	98	96
Emerged	50	44	81	80
Canola				
Planted	88	85	98	99
Emerged	69	40	94	96
Corn				
Emerged	86	80	94	95
Dry edible beans				
Emerged	76	72	90	82
Blooming	12	1	NA	NA
Dry edible peas				
Emerged	91	87	100	100
Blooming	46	12	58	36
Durum wheat				
Emerged	81	66	94	87
Boot stage	4	1	20	15
Flaxseed				
Emerged	85	56	90	93
Blooming	2	NA	6	10
Lentils				
Emerged	88	77	98	96
Blooming	29	6	52	26
Mustard seed				
Planted	92	90	99	97
Emerged	61	42	92	92
Oats				
Planted	84	78	100	98
Emerged	76	64	99	96
Boot stage	19	4	61	43
Potatoes				
Planted	89	87	NA	NA
Emerged	79	57	79	74
Safflower				
Planted	45	35	93	95
Emerged	31	16	70	81
Spring wheat				
Emerged	87	83	99	97
Boot stage	30	10	58	37
Winter wheat				
Boot stage	97	82	NA	NA
Headed	79	39	87	58
Cattle and calves				
Moved to summer ranges	97	93	NA	NA
Receiving supplemental feed	15	15	NA	NA
Sheep and lambs				
Moved to summer ranges	98	91	NA	NA
Receiving supplemental feed	17	17	NA	NA

NA – not available
(--) – zero

NASS provides accurate, timely, and useful statistics in service to U.S. agriculture. We invite you to provide occasional feedback on our products and services. Sign up at http:/usda.mannlib.cornell.edu/subscriptions and look for "NASS Data User Community." USDA is an equal opportunity provider, employer and lender. To file a complaint of discrimination, write: USDA, Director, Office of Civil Rights, 1400 Independence Ave., S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice), or (202) 720-6382 (TDD).

DAYS SUITABLE FOR FIELDWORK AND SOIL MOISTURE CONDITION

Commodity	Current week	Previous week	Previous year	5-year average
Days suitable for fieldwork	5.3	6.5	5.8	5.0
Topsoil moisture	(percent)	(percent)	(percent)	(percent)
Very short	21	26	8	6
Short	28	30	20	20
Adequate	49	42	64	64
Surplus	2	2	8	10
Subsoil moisture				
Very short	11	10	9	7
Short	26	26	25	22
Adequate	60	58	62	63
Surplus	3	6	4	8

NA – not available
(--) – zero

CROP, LIVESTOCK, PASTURE AND RANGE CONDITION

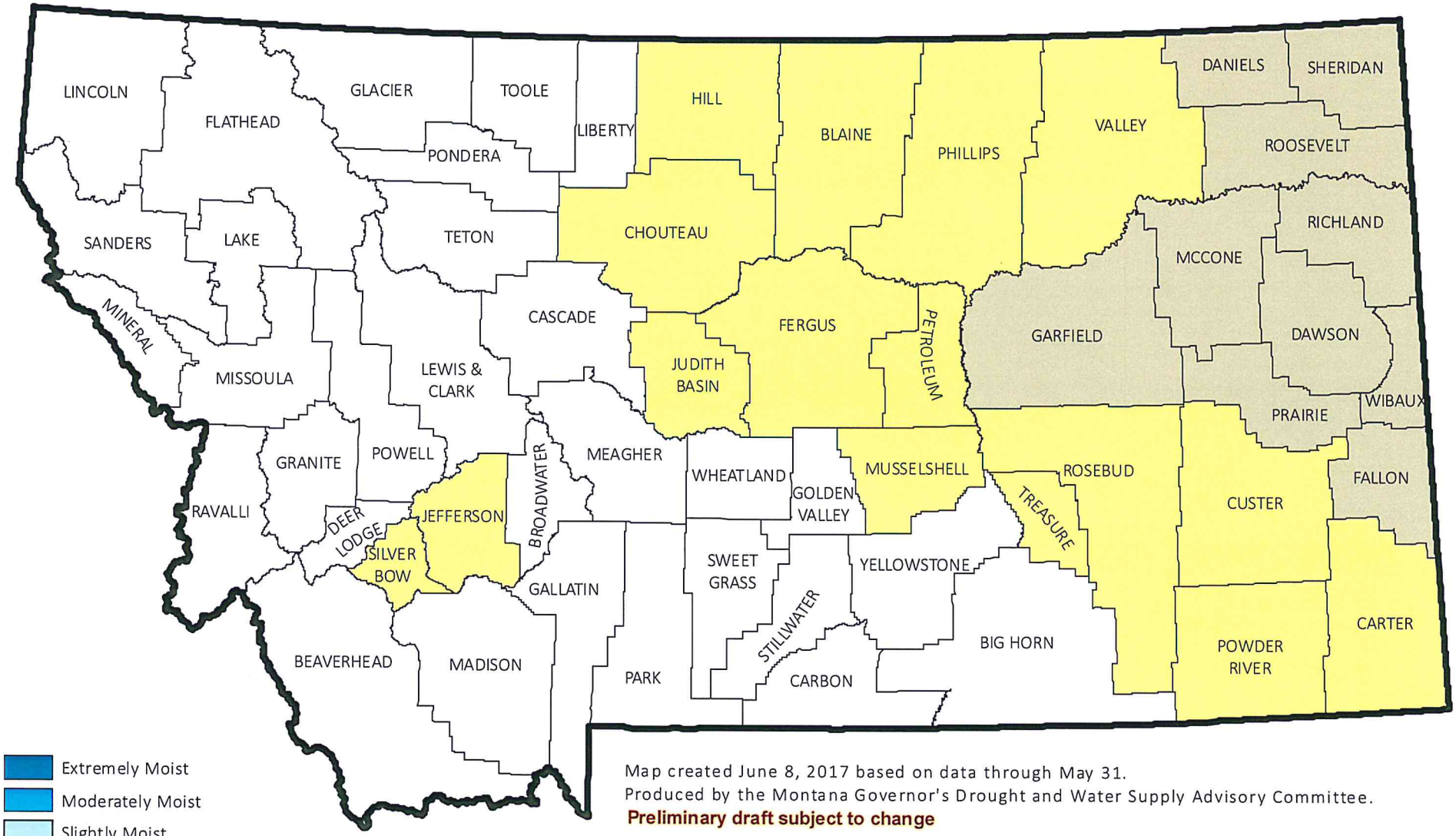
	Current week	Previous week	Previous year	5-year average
	(percent)	(percent)	(percent)	(percent)
Barley				
Very poor	3	3	--	1
Poor	6	4	1	5
Fair	30	22	29	34
Good	44	62	42	42
Excellent	17	9	28	18
Corn				
Very poor	--	--	--	1
Poor	8	6	--	2
Fair	40	40	33	38
Good	44	48	55	49
Excellent	8	6	12	10
Dry edible beans				
Very poor	2	1	--	1
Poor	9	7	4	2
Fair	81	77	45	41
Good	6	13	44	51
Excellent	2	2	7	5
Dry edible peas				
Very poor	12	10	1	2
Poor	20	16	3	4
Fair	48	51	34	29
Good	15	18	49	53
Excellent	5	5	13	12
Lentils				
Very poor	7	5	2	3
Poor	16	14	2	5
Fair	48	53	42	34
Good	26	24	46	54
Excellent	3	4	8	4
Oats				
Very poor	16	12	--	1
Poor	15	12	2	4
Fair	40	44	27	35
Good	19	23	65	51
Excellent	10	9	6	9
Pasture and range				
Very poor	14	9	4	4
Poor	12	13	14	15
Fair	25	28	36	34
Good	30	31	39	37
Excellent	19	19	7	10
Spring wheat				
Very poor	13	11	1	1
Poor	24	20	2	4
Fair	44	46	25	31
Good	13	16	52	53
Excellent	6	7	20	11
Sugarbeets				
Very poor	--	--	--	1
Poor	10	10	--	5
Fair	48	63	16	26
Good	42	25	69	54
Excellent	--	2	15	14
Winter wheat				
Very poor	4	4	2	2
Poor	9	9	6	8
Fair	44	42	28	27
Good	31	33	39	42
Excellent	12	12	25	21

NA – not available
(--) – zero

Montana's weather data can be accessed at the following:

http://www.nass.usda.gov/Statistics_by_State/Montana/Publications/Crop_Progress_&_Condition/2017/MT_Weather_06182017.pdf

Draft Montana Drought Status by County - June 1, 2017



- Extremely Moist
- Moderately Moist
- Slightly Moist
- Near Average
- Slightly Dry (D0)
- Moderately Dry (D1)
- Severely Dry (D2)
- Extremely Dry (D3)
- Exceptionally Dry (D4)

Map created June 8, 2017 based on data through May 31.
Produced by the Montana Governor's Drought and Water Supply Advisory Committee.
Preliminary draft subject to change

More information: http://drought.mt.gov

http://nris.mt.gov/drought

June 20, 2017

June 2017 Drought in Eastern Montana: Recommendations to the Governor's Drought and Water Supply Advisory Committee

A Drought Disaster Declaration is requested of the Governor for the following areas:

> *Hill, Blaine*, Phillips, Valley, Daniels, Sheridan, Roosevelt, Richland, McCone, Garfield, Dawson, Prairie, Wibaux, Fallon, Carter, Custer, Powder River, Rosebud, Treasure, Petroleum, and *Musselshell* Counties, as well as the Fort Peck Indian Reservation.[1]

The following information was taken into account to make this recommendation:

- The above listed areas have experienced 5-25% of normal precipitation since the end of April. May was ranked Montana's 21st driest year in 122 years of record. Many of the National Weather Service stations in Northeastern Montana recorded the lowest precipitation levels ever for the period of record at each station.

April 1 - June 12 2017	Precip	Normal	% of Normal	Dry Rank
Glendive	2.04	4.56	45%	1st
Glasgow	1.13	3.86	29%	2nd
Sidney	2.08	4.24	49%	9th
Jordan	0.80	4.63	17%	NA
Circle	1.31	5.43	24%	1st
Fort Peck	0.59	4.10	14%	1st
Westby	0.56	4.01	14%	1st
Brockway	0.88	4.10	21%	1st
Saco	0.88	3.97	22%	1st
Port of Morgan	0.64	3.73	17%	2nd
Bredette	1.11	4.04	27%	2nd
Culbertson	1.00	4.03	25%	3rd

- Temperatures for the last thirty days (5/17/17 – 6/15/17) have been elevated across the state, with Phillips, Valley, Roosevelt, Richland, McCone, Dawson, Prairie, Garfield, Custer, Rosebud, Treasure, Carter, and Powder River seeing temperatures 1-4°F above normal for this time of year. The March – May timeframe saw elevated temperatures for the entire state, ranking it the 109th warmest in 122 years of record.

- While river flows remain normal across the state, economically Northeast and Eastern Montana are driven by dry land farming. As such, precipitation is critical for the spring planting months. The little rainfall received has evaporated due to high winds and high temperatures. The Evaporative Stress Index (ESI) as of June 11, 2017 had very high numbers for Northeast

[1] The counties in *Italics* may not need to be included.

Montana. The Crop Moisture Index by Division for the week ending June 10, 2017 showed excessively dry conditions in Montana's three Northeastern climate divisions. The Crop Production Report for June 2017, released June 9, 2017, indicated that the forecast for winter wheat is down 26% from the 105.35 million bushels of crop produced last year. As a result, only 77.96 million bushels are anticipated this year.

- As for surface soil moisture and root zone soil moisture, 95-98% of all Mays since 1948 have been wetter than this year in the northern tier of Montana and the Northeast. The Northeast of Montana, and spreading into the entire east are in the 2nd to 10th percentile for wetness, while the rest of the state is fairly normal. The Total Column Soil Moisture Anomaly shows significant soil moisture depletion in eastern Montana.

- According to the Vegetation Drought Response Index (VEGDRI), much of eastern Montana is experiencing pre-drought stress. Moderate to severe drought is occurring in Dawson, McCone, Garfield, Valley, Daniels, Roosevelt, Richland, Wibaux, Prairie, Fallon, Carter, Powder River, Custer, and Rosebud counties. Cascade, Judith Basin, and Fergus counties are also experiencing pre-drought stress and some localized moderate drought. Areas south of Butte also show pre-drought to moderate drought.

- According to the National Drought Mitigation Center (NDMC), the onset of the drought in Eastern Montana came very quickly. The May 2017 Drought Impact Summary from the NDMC stated, "At month's end, drought areas were limited to the central Dakotas." However, by mid-June conditions had changed dramatically catching many by surprise. The NDMC's newly developed Quick Drought Response Index (QuickDri) showed that from May 28 to June 11, 2017, drought had developed quickly with soil temperatures reaching 70°F, topsoil moisture levels at 56% of normal, only 23% of emerged wheat being listed as good to excellent, cattle being sold, both yearlings and cow-calf pairs, indicating that producers are culling their herds, winter wheat being cut for hay instead of harvesting and the implementation of burn bans in North Dakota. Fort Peck Indian Tribe instituted a Disaster Declaration for the reservation. From May 14 to June 11, 2017 pasture range lands listed as in poor or very poor condition increased by 18% across the state. The US Drought Monitor indicated in its summary report for the week of June 13, 2017 that, "the central Plains and Midwest have abruptly become dry and warm during the past several weeks, raising concerns of rapid top soil moisture loss and declining crop conditions."

- SNOTEL sites in the Sun-Judith-Musselshell sub-basins continue to show below average snow accumulation with 29% of average Snow Water Equivalent (SWE). Above Fort Peck only 14% of SWE remains, while from Ft. Peck to Garrison 19% of SWE remains.

- The weather and climate outlook for the next few months indicates the potential for ¼" of rain in the next seven days. This amount of rain is unlikely to relieve any of the drought impacts being felt right now.

- Several field reports were sent from various producers and agency personnel from Northeast Montana:
    - On June 2, 2017 Department of Emergency Services received the following information from County Commissioners in Phillips, Sheridan, and Roosevelt Counties: "Because topsoil moisture was adequate when crops were planted, emergence is good. However,

the first few weeks of June are critical, especially for wheat. If the proverbial 'million dollar rain' does not come by mid-June, some declarations could be forthcoming. Especially in Sheridan and Daniels Counties, recent changes in cropping patterns from wheat to pulse crops and some '75 day' corn cultivars, means this is not a 'business as usual' drought like we've experienced in the past. Whereas total acreage for such crops in NE Montana was very limited during previous drought years, it's higher now. My personal knowledge of such things is limited but research shows that crops such as dry peas and lentils that are planted early in the growing season complete a lot of their growth before the hot temperatures of summer set in. So, perhaps even more than wheat, they are dependent on late spring early summer rains. Those rains haven't come yet and with each passing day there's a growing (no pun intended) concern."

- The Roosevelt County Commissioners have since sent a request to Governor Bullock requesting assistance with a USDA Drought Disaster Designation (see attached).

- On June 2, 2017 the state's NRCS Field Offices had the following to report:

  Dawson County
  - The crops are really getting hurt and in some areas spring wheat hasn't come up at all.
  - The winter wheat is not doing much, but I did hear that one producer's winter wheat had head out and wasn't very tall.
  - The range grasses are not growing and I have had producers selling livestock because they want to have some grasses to get though the season.
  - There will be No dryland hay this year.
  - One of our insurance agents was in just now and she said that she is getting a lot of calls about nothing coming up.

  Garfield County
  - I've spoken to people in several parts of the county, and we are in a D2, Severe Drought in Garfield County.

  Sheridan County
  - It is extremely dry here in Sheridan County, and won't be long before crops and hay are a total loss at this rate.
  - Plentywood, MT had 4th driest May on record (since 1947) with 0.4 inches.
  - Medicine Lake, MT had driest May on record (since 1911) with 0.1 inches.

  Roosevelt County
  - Looking at Tuesday's USDA NASS Montana Crop Progress Release, which you probably have, the Roosevelt Co. weather stations; Culbertson, Wolf Point and Bredette are at 40 to 50 percent of normal growing season ppt.
  - Spring seeded crops are at a critical point and need good moisture very soon, which is not predicted. Some damage has already occurred, but with good moisture, soon, most could still have a reasonable yield.
  - Dryland range, pasture, winter wheat and hayland are to the point where production has been greatly reduced, and the plants are now maturing and making seed, so even if we were to get good moisture they will not come back to normal production this year.
  - Today it's 95 degrees, windy, and more predicted.

  Prairie County
  - Prairie County is a pretty much a mirror of Dawson for drought.

- There has been little growth in the rangeland. There are green spots but most of it is short and gray/blue/brown.
- We have had NAP calls concerning spring planted dryland crops that are not expected to make it. On a personal note, I have a small field of barley hay and peas that was very nice to start with but has gone backward for the last 10 days to 2 weeks.
- We are expecting claims from all of our NAP forage producers as I believe there will be little or no dryland hay cut in Prairie County.
- At this point it will take a substantial amount of precipitation to make a difference. I have heard some producers are starting to sell off pairs also.

- The DNRC Regional Office in Glasgow reported that this is the 2nd driest spring on record, but the numbers don't say it all. Last year they had 10" of rain since January, this year they only got 2.6". In addition, there's been relentless wind with gusts over 30 mph. May was exceptionally dry with ½" of rain that evaporated quickly due to the wind. The Milk and Missouri irrigators are struggling too with the dry conditions.
- The Montana State Extension Service in Valley County sent a report indicating that drought had contributed to poor crop emergence and replanting issues in the county. Precipitations levels below ½ an inch in two months were cited as a major contributing factor to the poor growing conditions. In addition to the lack of soil moisture, winds averaging in excess of 20 mph have occurred every day since early March. The combination of high winds and low precipitation led to the top six inches of soil and deeper are moisture depleted. In addition, soil erosion is beginning to effect conventional tillage fields. Many of the crops planted May 20 – June 12 have failed to emerge or have had spotty emergence. Replanting is ill-advised at this time until more moisture comes, which could happen too late in the growing season. She does not recommend growers replant at this time. Currently seeded crops may emerge if given sufficient moisture, and could have enough growing season to mature if received prior to June 15. For pulse crops the temperatures after May 15 are too excessive during flowering to allow for good crop production so yields would be vastly reduced. For small grains the maturation period is 140 days from seeding (under optimal conditions) so if seeded today, the crop would not mature until October 30th. In Valley County, the first frost date is September 19. Crops that may be hayed instead of harvested would not be ready to swath until at least the first of October for optimal protein and forage quality. Additionally, nitrate concentrations under drought conditions in small grain crops cut for hay is a serious concern. From a livestock perspective, range and pasture grasses have gone dormant and forage availability is declining rapidly. Livestock producers have contacted her office looking for hay as early as May 22nd and some have begun to feed reserved hay to their cattle on pasture. Livestock ponds and watering holes are completely dry or have developed water quality issues due to the lack of precipitation. Cattlemen are contemplating the sale of their livestock in the face of insufficient summer forage and winter hay.
- A Farm Service Agent out of Custer County sent in a report that appraisal data from 2015-2017 show grazing, grass and small grain losses. The drought impacts are going to hit this area harder and it should be represented better on the US Drought Monitor.
- The Montana Department of Agriculture received a phone call from a rancher in Dawson County southeast of Glendive indicating that she was very concerned she and her fellow ranchers are having to reduce her sizes because of poor pasture conditions

and low expected hay production as well. She also said some of the dryland farms in the area are losing crops as well.

- A producer in Dawson County sent in a statement indicating that drought conditions are severe. Their spring grasses didn't come up for the most part and they were in a drought before the rest of the area was even worrying about drought. Until Jun 9th they had only received about ½" of precipitation for the entire year. Due to a very dry fall, their pastures had been grazed down and the only new grasses to come up this spring were in creek bottoms. They sold a semi-load of cows on May 26th and have been fencing every little bit of grass area they can find to lease just to feed their livestock. Their crops went in the ground in a very timely manner but have not grown. They farm to raise grains for cattle and some cash wheat. They have nothing to hay and have used all hay reserves and have purchased more. They are concerned because no grazing + no hay + no grain + no feed = no income. There is a Conservation Reserve ground adjoining theirs owned by people who live out of the area. The neighboring property owners are willing to let them graze it, but this is the only feed available and it is a tinder box of dry fuel for a fire which they greatly fear. The worst part, according to the producer, is that this land lies just to the northwest of their two ranch houses, barns and corrals. That is the direction from which the prevailing winds blow. They request that the CRP lands be opened immediately so they can both feed their cattle and diminish the fire hazard.
- A banker and producer operating in Roosevelt, Dawson, Richland and McCone Counties wrote a statement indicating that the drought conditions in eastern Montana have not been seen since 1988. The crop yield potential and forage growth/availability will be reduced to a small percentage of normal. The region is past the time frame where precipitation would be beneficial to save or increase yield potential on developing crops, forage fields, and pastureland. The effects include reduced dryland hay production to 0-15% of normal tonnage; native pastureland growth is nonexistent and starting to brown; livestock reservoirs, streams, and creeks are either dry or nearly dried up; winter wheat is a complete loss; spring seeded crops (wheat, durum, peas, chickpeas, lentils, barley, etc) are starting to mature at 20% of normal plant size; potential yields will be limited to less than 20% of average at best. These conditions, the statement reads, are the direct result of receiving minimal precipitation since April 1, 2017. Multiple National Weather Service reporting stations in Eastern Montana are reporting the last 90 days as the driest on record. He calls for the programs created to aide in drought conditions to be made available. There is no need to delay for further impacts.
- A producer from Prairie County indicated that it is drier there than he has ever seen it in his 41 years of ranching in the area. He reported a total of 1.41" of precipitation fell since January 1, 2017. He reports no snow fell last winter, reservoirs are dry, springs are drying up and grass is short. There will be no hay this year, and he is selling down his cow herd. The grasshoppers are numerous. He doesn't quite know how they will get through this, but a cool, wet summer would certainly help.
- A producer from McCone County indicated that they have had 0.6" of rain in the last two and a half months. She has no crop, no hay and no grass. Everything is brown and it looks like October. She has had crops seeded since the 10th of May but nothing has sprouted or emerged. What has come up is stressed. She requests that CRP lands be opened up and that disaster benefits made available so they can keep their cows and ranch.
- According to the US Drought Monitor Discussion Group, cattle producers are selling off cattle in Dawson, Richland, McCone, Roosevelt, Prairie, Wibaux, and Fallon counties due

to concerns over available forage. Forage growth in northeastern Montana was limited and dryland crops were suffering from the lack of rain. Ranchers in the Eastern Hi-Line region of Montana have begun selling cattle, due to poor pasture growth from lack of rain, and wheat growers need rain to salvage their crop. Pastures, hay land and crops were all desperate for moisture, leaving farmers praying fervently for rain. The spring rain ended just after mid-April leaving young crops just emerging and without a developed root system to reach deeper to find moisture. Farmers were haying about two weeks early since plants were not growing, and a second cutting is very unlikely to happen.

DRAFT

FSA Disaster Programs and how the programs are triggered and requested

Triggers for the Emergency Conservation Program and CRP Emergency Haying and Grazing are based on the "D2" and "D3" status on the US Drought monitor. A Secretarial Designation does not trigger these two programs.

Emergency Haying and Grazing of Conservation Reserve Program Acres:

There are two ways counties can request CRP Emergency Haying and Grazing through the FSA offices:

1. Counties may request Emergency Haying and Grazing of CRP acres if the county is showing a 40% or greater loss in normal precipitation for the last 4 months plus the days in the month when the request is made. This request is made to the State FSA office and the State FSA office must receive approval from the National FSA office to provide authority to the county FSA office to implement CRP emergency haying or grazing. Producers may not hay or graze during the primary nesting season which is May 15-July 15.

2. If the County reaches "D2" on the US Drought monitor, the county may request Emergency haying and Grazing of CRP acres the week before the end of the primary nesting season to the FSA State Office. This request may be approved by the FSA State Executive Director. Producers may not hay or graze during the primary nesting season which is May 15-July 15.

If the county is approved for CRP Emergency Haying and/or Grazing, producers must sign-up and receive approval from FSA prior to beginning haying or grazing.

The 2014 waived the normal 25% payment reduction for CRP Emergency Haying and Grazing. There currently is no payment reduction of the CRP participants' annual rental payment for Emergency Haying and Grazing of CRP acreage.

Counties that have reached the D2 status on the US Drought Monitor as of June 13th are:

Daniels
Dawson
Garfield
McCone
Phillips
Richland
Roosevelt
Sheridan
Valley

These counties have been in contact with the FSA State Office regarding proper procedure to follow.

Emergency Conservation Program (ECP)

The Emergency Conservation Program is available when drought conditions are so severe water conservation and enhancements have failed. There are two ways FSA county offices may request approval to implement the Emergency Conservation Program:

1. Counties may request to implement the Emergency Conservation Program (ECP) if the county is showing a 40% or greater loss in normal precipitation for the last 4 months plus the days in the month when the request is made. This request is made to the State FSA office and the State FSA office must receive approval from the National FSA office to provide authority for the county FSA office to implement the Emergency Conservation Program (ECP).

2. If the county has reached "D3" on the US Drought monitor the precipitation data is not required. This approval is made at the State FSA office by the FSA State Executive Director.

Valley County has submitted a request to the FSA State Office to implement the Emergency Conservation Program based on a loss of precipitation. Their request is currently being reviewed.

Noninsured Crop Disaster Assistance Program (NAP)

NAP provides financial assistance to producers of non-insurable crops to protect against natural disasters that result in lower yields or crop losses, or prevented planting of a crop. Producers may file a Notice of Loss on their NAP covered crops when there is an eligible cause of loss. Eligible causes of loss include the following:

- Damaging weather, such as drought, freeze, hail, excessive moisture, excessive wind;
- Adverse natural occurrences, such as earthquake or flood; and
- Conditions related to damaging weather or adverse natural occurrences, such as excessive heat, plant disease, or insect infestation.

Form CCC-576, "NAP Notice of Loss" shall be filed the earlier of:

- 15 calendar days after the disaster occurrence or date of loss or damage to the crop is first apparent
- 15 calendar days after the normal harvest date

Producers may be eligible for a payment on grazing and yield based crop losses. Payments under NAP are dependent on the level of coverage elected, etc.

Emergency Assistance for Livestock, Honeybees, and Farm Raised Fish (ELAP)

ELAP provides assistance to livestock owners for additional costs associated with transporting water to eligible livestock when a county reaches D3 status and when the drought directly impacts water availability during the normal grazing period.

ELAP also provides assistance to Honeybee producers that have additional feed purchase costs when a county reaches D3 status at any time during the program year.

Livestock Forage Disaster Program (LFP)

LFP provides compensation to producers who suffer grazing losses due to a qualifying drought based on the US Drought Monitor Rating. Qualifying drought criteria, and the corresponding monthly payments, are as follows:

- D2 for 8 consecutive weeks in any area of the county – 1 monthly payment
- D3 for any period of time in any area of the county – 3 monthly payments
- D3 for four weeks (doesn't have to be consecutive) in any area of the county – 4 monthly payments
- D4 for any period of time in any area of the county– 4 monthly payments
- D4 for four weeks (doesn't have to be consecutive) in any area of the county – 5 monthly payments.

The qualifying drought condition must occur during the county's grazing period.

Eligible producers must be at risk in qualifying livestock and qualifying land. Land must be non-irrigated land intended for grazing and must be owned or leased by the applicant.

Emergency Loan assistance (EM)

The EM loan program is triggered when a natural disaster is designated by the Secretary of Agriculture of a natural disaster is declared by the President. These loans help producers who suffer qualifying farm related losses directly caused by the natural disaster in a county declared or designated as a primary disaster area. Also, famers located in counties that are contiguous to the declared, designated area may qualify for EM loans.

For production losses a 30% reduction in a primary crop in a designated or contiguous county is required. Losses to quality, such as receiving a 30% reduced price for crops may be eligible for assistance too.

Loan Purpose

- Restore or replace essential property
- Pay all or part of production costs associated with the disaster year
- Pay essential family living expenses
- Refinance certain non-real-estate operating debts

Loan Limitations

The maximum loan amount for an EM loan is $500,000 yet the amount a loan applicant may receive is limited to the actual amount of production or physical loss caused by the disaster. Physical loss loans are based on the amount needed to replace the lost property, such as stored grain, equipment and livestock.

Repayment Terms

The repayment terms are based on the useful life of the security, loan applicant's repayment ability, and the type of loss involved. The repayment schedule will require at least 1 payment every year. EM loans for annual operating expenses must be repaid within 12 months, and not to exceed 18 months if an extended term is necessary for the production cycle of the agricultural commodity. Interest rates are calculated and posted the first of each month and current rate in effect as of June, 1, 2017 is 3.75% for production loss loans.

Summary of Actions Taken and Investments Made by Montana to Support Water Management and Drought Planning 2010-2017

1. The Governor's Drought and Water Supply Advisory Committee complies and disseminates peer-reviewed scientific water supply and hydrologic information from various state and federal partners. Committee members set response levels and coordinate with local officials regarding drought declarations.

2. Development and Implementation of Local Drought Management Plans
    a. DNRC and FWP provide technical and financial support for development and implementation of local drought plans in the Blackfoot, Big Hole and Jefferson River basins. Drought plans are based on the concept of shared shortages.
    b. DNRC and FWP provide technical and financial support for implementation of the Musselshell River Distribution Project.
    c. The Beaverhead, Red Rock, Ruby, Boulder, Madison, and Gallatin Rivers in the Upper Missouri Headwaters basin are each developing local drought management plans though cooperation with the National Drought Resilience Partnership (NDRP), administered in Montana through the DNRC.
    d. FWP works with water users on the Bitterroot River, to maintain minimum flows at Belle Crossing. Minimum flow targets may adjust between 400 cfs to 200 cfs depending on the water year.

3. Policy and Legislative Changes
    a. DNRC proposed and the legislature adopted a temporary water right lease process that enables water rights to be leased more quickly and easily for a short-term.

4. Over the last five years, all 18 state-owned dams have undergone detailed Operating Permit inspections. The State and water users have made significant investments in state owned dams, reservoirs, and canals to improve their safety and efficiency. State owned projects provide over 300,000 acre-feet of water per year.

5. In the last five years, Montana provided in excess of $21.4 million in direct funding to local watershed groups, irrigation districts, conservation districts, water-user associations, and private individuals to improve water management and drought preparedness. State funds have led to improvements in water use efficiency, instream flows, and local drought planning.

6. The FWP Future Fisheries program provides financial and technical support to drought management and mitigation efforts in the form of instream flow leases, water efficiency projects, and projects that improve stream temperatures.

7. Real-time Water Supply and Distribution Instrumentation
    a. Today, a total of twenty-four (24) state-based real-time gaging sites are operating in Beaverhead, Broadwater, Cascade, Flathead, Gallatin, Granite, Madison, Meagher, Missoula, Phillips, Powell, Sheridan, Sweet Grass, Wheatland, and Yellowstone counties.

b. DNRC provides financial support to operate and maintain forty-four (44) real-time stream gages in Montana through the U.S. Geological Survey's (USGS) Cooperative Water Program.

8. Examples where Montana supports local water management and drought response actions:
   a. Lolo Watershed
      - RRGL Grant for a strategic plan and development of a drought management plan.
      - Bureau of Mines and Geology and DNRC study on surface/groundwater interaction.

   b. Big Hole Watershed
      - DNRC and FWP negotiated Candidate Conservation Agreements (CCA) with 32 landowners in the Big Hole Basin. Under the CCA, landowners scale back diversions when stream flows hit designated target levels.
      - DNRC and FWP provide financial and technical assistance to upgrade diversion dams, headgates and water measurement devices.
      - DNRC supports the operation and maintenance of 5 stream flow gages in the Big Hole used to monitor streamflow and alert users when low flow targets are reached.

   c. Blackfoot Watershed
      - Financial support to the Blackfoot Challenge for implementing the Blackfoot Drought Management Plan through the DNRC's Water Management Program. The Plan initiates a shared sacrifice approach among water users when flows drop below 700 cfs at the Bonner stream gage.
      - Funding for one Big Sky Watershed Corps Member per year in 2015 and 2016, who assist the Challenge with implementing their Drought Management Plan through streamflow monitoring, data management and volunteer coordination.
      - Funding for two real-time stream flow data loggers to help the Challenge implement their Drought Management Plan. DNRC hydrologist installed the equipment.
      - The Challenge is using the DNRC's Watershed Management Grant program to facilitate neighbor-to-neighbor communication about site specific solutions for retaining soil moisture in times of drought.
      - In 2015 FWP, the Blackfoot Challenge and Blackfoot Trout Unlimited installed three new diversions, headgates, and fish screens. This investment supports the efforts of water users to manage the water resource for the benefit of irrigation and the aquatic ecosystem.

   d. Musselshell Watershed

- DNRC's Lewistown office assists water users in implementing the Musselshell Distribution Project to enforce water rights on more than 200 miles of the Musselshell River. After more than 100 years as a chronically dewatered stream, the distribution project has delivered water to the mouth of the river every year since 2008.
- Installation of an automated reservoir level instrumentation system at the Martinsdale Dam. This investment supports the continued safe, accurate and efficient delivery of over 23,000 acre-feet of water for the Musselshell Water Users Association.
- Reconstruction of Deadman's Diversion Dam. The new structure allows fish passage, provides accurate and reliable discharges into the canal, and most importantly, stops the uncontrolled leakage of water from the river into the canal, which adversely affected senior water users throughout the summer. Deadman's provides 40,500 acre-feet of irrigation and municipal water (Melstone, Ryegate and Roundup).
- Installation of instruments to monitor flows and reservoir levels throughout the Deadman's Basin Irrigation project to improve overall project efficiency and control of contract water deliveries.
- DNRC provided financial assistance to analyze floodplain sites for their natural potential to temporarily store high spring flows.

e. Tongue River Basin

- Water rights enforcement against Wyoming through a US Supreme Court case.
- Rehabilitation of the Tongue River Dam in the late 1990s allows DNRC to manage reservoir operations for maximum storage effeciently. The project delivers 40,000 acre-feet through 180 contracts and provides a portion of the Northern Cheyenne Tribe's federally reserved water right.

f. Bitterroot Watershed

- Financial and technical support for ongoing repairs and maintenance on Painted Rocks Dam Reservoir to improve efficient and safe delivery of water. FWP purchases 15,000 acre-feet of water for downstream fisheries and the Painted Rocks Water Users Association have 41 contracts for 10,000 acre-feet of water.
- FWP pays the full cost of a water commissioner, though the position is jointly petitioned by the water users in the basin.

g. Ruby Watershed

- Funding to support a Big Sky Watershed Corps member working with local water users on drought management plans with guidance and technical assistance through the NDRP.

- Installation, operation, and maintenance of a real-time stream gage to monitor river flows at Harrington Bridge.
- Rehabilitation of the Ruby Dam, which began in August 2010, to improve safe and efficient management. The project provides 38,845 acre-feet of water for irrigation and the regulation of stream flows.

h. Milk River Basin

- DNRC hydrologist assists the Milk River Joint Board of Control with expanding and upgrading the basins Hydrometric gaging station system.

i. Carbon County

- Replacement of weir and installation of instrumentation at Cooney Dam. The new structure allows the Rock Creek Water Users Association to accurately measure water deliveries.

j. Gallatin Watershed

- DNRC contributed funding to install an automated instrumentation system at Middle Creek Dam in Hyalite canyon. This new system improves seepage, drain flow, and reservoir monitoring.
- Funding for the reconstruction of the Middle Creek Cottonwood Flume.
- Installation, operation and maintenance of a real-time stream gage on Sourdough Creek to support the City of Bozeman's integrated water management system.

k. Clark Fork Basin

- Financial assistance for the East Fork of Rock Creek Diversion and Fish Screen project. These improvements were made to prevent the entrainment of Bull Trout into the delivery system and improve the efficient and consistent delivery of over 27,000 acre-feet of water to 53 agricultural users.

MDMP Update 2017-2018
Report to Stakeholder Working Group
3/31/2017

Working Paper on Funding Resources for Drought

Below is a working paper summarizing a variety of funding approaches other states in the US have employed to offset the impacts of drought.

Existing State Assistance:

1. **COLORADO**: Grants and loans are available for a wide variety of water efficiency, emergency agricultural drought impacts, weather modification, water transfers, fish and wildlife, project investments, Phreatophyte control, and reservoir dredging are available. Read more HERE (http://cwcb.state.co.us/LoansGrants/Pages/LoansGrantsHome.aspx).

Grant	Description	Sub-Program
Water Project Loan Program	$50 million available annually for low-interest loans to agricultural, municipal and commercial borrowers for the design and construction of raw water projects in Colorado.	Loan Feasibility Study Examples Loan Calculator
Water Efficiency Grants	Eligible entities as well as state and local governments and agencies can receive funding to develop water conservation and drought plans, implement water conservation goals outlined in a water conservation plan and educate the public about water conservation.	Water Conservation Planning Grants Water Conservation Implementation Grants Drought Mitigation Planning Grants Water Resource Conservation Public Education and Outreach Grants
Water Supply Reserve Account	Provides grants and loans to assist Colorado water users in addressing their critical water supply issues and interests.	Basin Water Supply Reserve Account Grants
Colorado Healthy Rivers Fund Grants	Helps support local watershed organizations in their efforts to provide clean water, protect habitat, and improve recreation and accessibility.	
Severance Tax Trust Fund Operational Account Grants	Provides grants for regional water resource planning studies and associated demonstration projects.	
Colorado Watershed Restoration Grants	Provides grants for watershed/stream restoration	

	and flood mitigation projects throughout the state.	
Agricultural Emergency Drought Response Program	Provides loans or grants for emergency drought-related water augmentation purposes to Colorado's agricultural water users.	
Alternative Agricultural Water Transfer Methods	Assists in developing and implementing creative alternatives to the traditional purchase and transfer of agricultural water.	
Fish and Wildlife Resources Fund Grants	Provides grant money to existing water supply facilities to help preserve a balance between development of the state's resources and the protection of the state's fish and wildlife resources.	
Weather Modification Grants	Provides state grants to water providers and local governments to assist in funding ground-based wintertime operational cloud seeding programs.	
Non-Reimburseable Project Investment Grants	Funds water-related projects or studies of statewide impact or importance and Feasibility Studies and projects designed to address statewide, region-wide or basin-wide water issues.	
Phreatophyte Control Grants	Provides cost share assistance to eligible entities to control and/or eradicate riparian invasive phreatophytes.	
Reservoir Dredging Program Grants	The Program provides grants for recovery of reservoir storage volume by conducting a dredging construction project.	

2. **TEXAS:** Texas passed a Constitutional Amendment to provide funding for water projects. Proposition 6 passed in 2013 by an overwhelming majority (73%). The Constitutional Amendment takes $2 million from the state's Rainy Day Fund to start a low-interest loan program for water projects. The creation of the water fund, overseen by the **Texas Water**

Development Board (https://stateimpact.npr.org/texas/tag/texas-water-development-board/), represents the first time in decades that the state has put significant money towards water infrastructure. The $2 billion approved acts like a down-payment on a mortgage that will allow the state to borrow billions more for hundreds of water projects outlined in its official **Water Plan** (https://stateimpact.npr.org/texas/tag/texas-water-plan/). Those projects aim to provide enough water to meet the state's needs over the next fifty years. Some Libertarians and smaller environmental groups opposed the bill, worried that the bill would create more opportunities for cronyism and misuse of funds for personal gain, as the members of the Texas Water Development Board are all Governor Appointees. (read more HERE - https://stateimpact.npr.org/texas/2013/10/31/meet-the-unlikely-allies-behind-the-push-for-prop-6-texas-water-fund/).

3. **NEW HAMPSHIRE:** In March of 2017, New Hampshire approved $2 million in relief for drought-stricken dairy farmers. The bill passed 257-96. This was a one-time offset to the impacts of two years of drought impacts to dairy farmers that had a $225 million impact to the New Hampshire economy. In addition to this onetime measure, New Hampshire also has loans for low-income households needing to update their water supply systems. The loans carry a 1% interest rate and can be repaid over 20 years.

4. **MASSACHUSETTS:** The Baker-Polito Administration launched the Massachusetts Drought Emergency Loan Fund in September of 2016, which has the capacity to provide up to $1 million in micro-loans to family farms and other small businesses affected by widespread drought conditions in Massachusetts. The Drought Emergency Loan Fund is part of the Baker-Polito Administration's coordinated response to five consecutive months of abnormally dry weather across the Commonwealth. Governor Charlie Baker said, "Like the emergency loan fund we launched following record snowstorms, this Drought Emergency Loan Fund will provide affordable working capital to small businesses grappling with the aftermath of extreme weather." More information here: www.massgcc.com

5. **ALABAMA:** The state made $100,000 available through a needs-based grant program to volunteer fire departments fighting drought-related wildfires in March of 2017. From October to December of 2016, the Alabama Forestry Commission said firefighters across the state battled 2,219 fires.

6. **CALIFORNIA:** California appropriated $3 billion to 13 different state departments between 2013-14 and 2015-16. State general obligation bonds provided about ¾ of these funds, with state General Fund contributing around 1/5. Some of the funded activities (such as building new wastewater treatment plants), will be implemented over the course of several years, and therefore will be more helpful in mitigating the effects of future droughts. Other activities (such as lawn removal or water efficiency upgrades), often are intended to have noticeable effects in

both the current and future droughts. The Governor also proposed continued funding for drought response in 2016-17, even though the California drought is likely coming to an end during this time. The budget proposal provides $323 million for drought response efforts. The funding would primarily support the continuation of initiatives funded in recent years that address emergency drought response needs. For example, the proposal includes funding for increased wildland firefighting, to provide various forms of human assistance in drought–affected communities (such as drinking water, food, financial assistance, and housing and employment services), and to monitor and assist at–risk fish and wildlife. The proposal also dedicates cap–and–trade revenues for four conservation programs intended to improve water and energy efficiency. The California Legislative Analyst's Office recommended tabling the cap-and-trade proposal as its impact was less directly measurable in terms of either health and human services or environmental benefit.

a. Other resources from California:

Type of Funding	Department or Organization	Description	URL
Utilities	Energy Savings Assistance Program (ESAP)	The ESAP provides no cost weatherization services to eligible low-income households. Services provided include low-flow showerheads, water heater blankets, and weatherstripping.	www.cpuc.ca.gov/PUC/energy/Low+Income/liee.htm
Utilities	California LifeLine Program	The California LifeLine Program provides discounted home phone and cell phone services to qualified households with incomes at or below 150 percent of the poverty level. The California LifeLine discounts help consumers lower the cost of their phone bills. Only one discount per household is allowed.	www.californialifeline.com
Utilities	California Alternate Rates for Energy (CARE) Program	Lowincome customers can enroll in the CARE program to receive a 30-35 percent discount on electric and natural gas bills. Enroll through your utility company. Families whose household income slightly exceeds the CARE income requirements may qualify to receive Family Electric Rate Assistance Program (FERA) discounts.	www.cpuc.ca.gov/PUC/energy/Low+income/care.htm www.cpuc.ca.gov/PUC/energy/Low+income/fera.htm
Utilities	Drought Water Assistance Program	CSD created the DWAP to assist drought impacted, low-income	http://www.csd.ca.gov/Newsroom/News

Type of Funding	Department or Organization	Description	URL
	(DWAP)	households with their residential water utility bill to prevent disruption in vital water services and to promote water conservation through education. The one-time program, funded by the federal CSBG, is directed to low-income households in 10 drought-impacted counties: Fresno, Kern, Kings, Madera, Merced, Monterey, San Benito, Santa Cruz, Stanislaus and Tulare.	Releases/June4,2014.aspx
Utilities	Low-Income Heating and Energy Assistance Program (LIHEAP)	The California Department of Community Services and Development LIHEAP provides financial assistance to low income households to manage and meet immediate home heating and/or cooling needs and provides services to improve a household's energy efficiency helping to reduce energy usage and costs.	http://www.csd.ca.gov/Services/FindServicesinYourArea.aspx
Public Health	Crisis Counseling	Short-term counseling may be available for emotional or mental health problems caused by the economic impacts of the drought. For more information, contact your county mental health department.	http://www.dhcs.ca.gov/services/mh/Documents/CMHDA.pdf
Public Health	Medi-Cal Health Coverage	Medi-Cal is a public health insurance program that provides Californians with access to affordable, highquality health care, including medical, dental, mental health, substance use treatment services and long-term care. Medi-Cal covers low-income individuals, including families with children, seniors, persons with disabilities, foster care, pregnant women, and low-income people with specific diseases, such as tuberculosis, breast cancer, or HIV/AIDS.	http://www.dhcs.ca.gov/services/medi-cal/Pages/CountyOffices.aspx

Type of Funding	Department or Organization	Description	URL
Public Health	The Senior Farmers' Market Nutrition Program (SFMNP)	The SFMNP provides low-income seniors with coupon books used to purchase fresh fruits, vegetables, herbs and honey at Certified Farmers' Markets (CFM). The California Department of Food and Agriculture (CDFA) partners with California's AAA to distribute the coupon books.	www.cdfa.ca.gov/go/SFMNP
Public Health	Services for Seniors	The California Department of Aging contracts with and provides leadership and direction to Area Agencies on Aging (AAA) that coordinate a wide array of services to seniors and adults with disabilities.	http://www.aging.ca.gov/ProgramsProviders/AAA/AAA_Listing.asp
Public Health	CalFresh	Those affected by drought and in need of food assistance due to a loss of income, can apply for benefits through the CalFresh Program.	www.calfresh.ca.gov
Public Health	California's Drought Food Assistance Program (DFAP)	The DFAP is a temporary food assistance program developed in response to the Governor's Drought Emergency Declaration in January 2014. The DFAP provides food boxes to food banks in specified counties that suffer high levels of unemployment from the drought.	http://www.cdss.ca.gov/cdssweb/entres/pdf/PressRelease/DFAP_FactSheet.pdf
Public Health	California's Emergency Food Assistance Program (EFAP)	The EFAP provides eligible low-income individuals and families in California with a supplemental 3-5 day supply of U.S. Department of Agriculture (USDA) food each month.	www.cdss.ca.gov/cdssweb/PG55.htm
Agriculture & Food	California Department of Food and Agriculture, SWEEP Program	The State Water Efficiency and Enhancement Program provides grant funding for California agricultural operations to invest in water irrigation and distribution systems that save water and reduce greenhouse gas emissions.	http://www.cdfa.ca.gov/EnvironmentalStewardship/WEEP.html U.S
Agriculture	California	Information on drought resources	www.cdfa.ca.gov/dr

Type of Funding	Department or Organization	Description	URL
& Food	Department of Food and Agriculture (CDFA)	for farmers, ranchers, and farmworkers.	ought/
Economic	The Governor's Office of Business and Economic Development (GO-Biz)	GO-Biz is California's lead office for economic development, job creation and offers a range of services to business owners. Those services include attraction, retention and expansion services, site selection, permit streamlining, clearing of regulatory hurdles, small business assistance, international trade development, assistance with state government, informational briefings, and much more. Businesses interested in water technology or in drought related business assistance	www.business.ca.gov
Economic	CalWORKs	CalWORKs provides cash aid to eligible needy California families to help pay for housing, food, and other necessary expenses.	http://www.cwda.org/links/chsa.php http://www.dss.cahwnet.gov/cdssweb/PG54.htm
Economic	Unemployment Insurance	Workers who have lost their jobs due to water shortages and drought conditions in California may be eligible for Unemployment Insurance (UI) benefits. UI benefits are provided to workers who are fully or partially unemployed due to no fault of their own, have a legal right to work in the U.S., and are ready, willing, and able to accept work for which they are qualified.	www.edd.ca.gov www.edd.ca.gov/unemployment
Economic	The California Department of Community Services & Development (CSD)	CSD provides funding to local community organizations for community services and energy assistance programs to help low-income Californians including assistance with clothing, motel vouchers, blankets, shelters, home	www.csd.ca.gov

Type of Funding	Department or Organization	Description	URL
		energy bill assistance and emergency food.	
Economic	Community Services Programs	As part of a federal Community Services Block Grant (CSBG) award, CSD provides funding to local community organizations, which provide assistance to low-income Californians and farmworkers. Services may include employment services, better use of available income, housing and rental assistance, and food/nutritional services.	http://www.csd.ca.gov/Services/FindServicesinYourArea.aspx
Economic	Migrant Child Care and Development	Migrant child care and development programs serve the children of agricultural workers while their parents are at work. The centers are open for varying lengths of time during the year, depending largely on the harvest activities in the area. In addition to these center-based programs, the Migrant Alternative Payment Network Program allows eligibility and funding for services that follow migrant families as they move from place to place to find work in the Central Valley.	http://www.cde.ca.gov/sp/cd/re?rragencylist.asp
Economic	Migrant Education Program (MEP)	MEP provides supplementary education and support services to eligible migrant children and youth, ages 3-21, to help mitigate the educational disruption that results from repeated moves in order to meet the state's academic content standards and graduate from high school.	www.cde.ca.gov/sp/me/mt/
Drinking Water	California State Water Resources Control Board (SWRCB)	SWRCB has grants available for drought-related drinking water emergencies and threatened emergencies.	http://www.waterboards.ca.gov/water_issues/programs/grants_loans/caa/dw_droughtfund/ or call 916-319-9066

Type of Funding	Department or Organization	Description	URL
Public Water Supplies	Department of Water Resources (DWR)	DWR has Drought Emergency response funding available for local assistance for emergency drinking water support for small communities, including addressing private well shortages.	http://www.water.ca.gov/funding

Existing Federal Assistance

1. **U.S. Department of Agriculture (USDA) Rural Development**: The following USDA RD Programs are available to help homeowners impacted by drought including drilling a well, purchasing well pump equipment, and covering costs to connect to a community water system. Homes must be located in rural areas and towns of up to 25,000 in population.
    a. **Rural Repair & Rehabilitation Loan and Grant** (Section 504) Program: USDA provides loans and grants to very low-income homeowners living in an eligible rural area make repairs to their homes. Grants up to $7,500 are limited to individuals age 62 or older. Loans up to $20,000 include: 1 percent interest rate, up to 20 years for repayment, and have no age restrictions.
    b. **Rural Housing Direct Loan** (Section 502) Program: USDA provides repair loans to eligible low-income individuals to make repairs to their homes. Applications are accepted year-round and applicants must meet repayment requirements.
    c. For additional information on RD programs and contact information, visit the website at: http://www.rd.usda.gov/SupportDocuments/CADroughtAssistance.pdf
2. **Department of Agriculture (USDA), Farm Service Agency (FSA)**: Emergency Loan (EM) are made available in areas designated a disaster by the Secretary of Agriculture to help producers recover from production and physical losses. Contact the FSA office listed in your local telephone directory, or visit FSA's website at: www.fsa.usda.gov/ca
    a. **Disaster Programs** available to assist farmers and ranchers include: the Livestock Forage Program (LFP), the Livestock Indemnity Program (LIP), the Emergency Assistance for Livestock, Honeybees, and Farm-Raised Fish Program (ELAP), and the Tree Assistance Program (TAP). Interested famers may contact their local USDA Service Center for further information on eligibility requirements and application procedures for these and other programs. Additional information is also available online at: http://disaster.fsa.usda.gov
    b. **USDA, Rural Development (RD), Rural Energy for America Program (REAP)**: USDA provides grants and loan guarantees to help rural businesses, farmers, ranchers, and other agricultural producers purchase and install renewable energy systems or make energy efficiency improvements such as, replacing inefficient water pumps and replacing generators with solar systems used for agriculture irrigation pumps. For

additional information on RD programs and contact information, visit the website at: http://www.rd.usda.gov/SupportDocuments/CADroughtAssistance.pdf

c. **USDA, National Resources Conservation Services (NRCS), Environmental Quality Incentives Program (EQIP)**: EQIP is a voluntary program that provides financial and technical assistance to agricultural producers through contracts up to a maximum of ten years in length. These contracts provide financial assistance in planning and implementing conservation practices that address natural resource concerns and for opportunities to improve soil, water, plant, animal, air, etc. Additional program information can be found on the NRCS website at: http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/progra ms/financial/eqip/. Applicants can contact their local Service Center or NRCS Office by visiting the website at: http://offices.sc.egov.usda.gov/locator/app?state=ca&agency=fsa

3. **U.S. Small Business Administration (SBA), Economic Injury Disaster Loans**: Economic Injury Disaster Loans (EIDLs) are low-interest working capital loans to help small businesses; small agricultural cooperatives, small businesses engaged in aquaculture and most private, non-profit organizations of all sizes meet their ordinary and necessary financial obligations that cannot be met as a direct result of a disaster, such as drought. These loans are intended to assist through the disaster recovery period. SBA makes EIDLs available after a drought when the U.S. Secretary of Agriculture designates an agricultural disaster. Most of California has been designated under an agricultural disaster for drought. Businesses primarily engaged in farming or ranching are not eligible for SBA disaster assistance; however, in drought disasters nurseries are eligible. Eligible small businesses may qualify for working capital loans of up to $2 million to help meet financial obligations and operating expenses which could have been met had the disaster not occurred. For more information call SBA toll-free at 1-800-659-2955. Hearing impaired individuals may call 1-800-877-8339. For drought specific information, visit SBA's website for drought assistance at: https://www.sba.gov/content/drought-disaster-assistance
4. **The American Red Cross (Red Cross)**: Red Cross provides emergency food, clothing, shelter, and disaster mental health and disaster health assistance to individuals and families affected by emergencies and disasters. Contact the Red Cross at 1-800-RED-CROSS (733-2767). The Salvation Army: The Salvation Army provides a variety of disaster and emergency services including help with food, hydration, emergency energy assistance, clothing and personal needs, emotional and spiritual care. For more information call 1-800-SALARMY (725-2769) or visit the website at: http://www.salvationarmy.usawest.org/usw20/home
5. **Women, Infants, and Children (WIC) Supplemental Nutrition Program**: WIC program helps low-to-moderate-income pregnant women and new mothers to make healthy food choices for themselves and their children up to age 5. WIC provides nutrition and health information, special checks to buy nutritious foods, breastfeeding support, and referrals to health care and community services. For more information, visit the website at: http://www.cdph.ca.gov/programs/wicworks/Pages/default.aspx and click on "Find a Local WIC Agency" under Program Information.

6. **Bureau of Reclamation (BOR) Water SMART Drought Response Program**: The Drought Response Program supports a proactive approach to drought. It provides assistance to water users for drought contingency planning, including consideration of climate change information and to take actions that will build long-term resiliency to drought. Program funding is allocated through a competitive process. Program areas include: Contingency Planning; Resiliency Projects; Emergency Response Actions. More Information: https://www.usbr.gov/drought/

Concepts Still Under Development

1. Water Transfer Markets - A water transfer is a voluntary agreement that results in a temporary or permanent change in the type, time, or place of use of water and/or a water right. Water transfers can be local or distant; they can be a sale, lease, or donation; and they can move water among agricultural, municipal, industrial, energy, and environmental uses. Issues include impacts to other users, complex institutions, environment, local economies, and speculation. Public Policy benefits of water transfers include:
    a. Voluntary: The seller and buyer both benefit from transfers and any potential conflicts can be resolved through direct negotiation.
    b. Decentralize decision-making: Resource decisions are made by participants in transfers so that local conditions and needs are accommodated.
    c. Flexible: Sellers and buyers can find mutually agreeable ways in which the water transferred may vary with hydrologic considerations or adapt to other management needs.
    d. Provide economic incentives for water conservation: Prices established by transfers provide incentive for farmers to shift to lower water-using crops, invest in improved irrigation technology, and implement other water-saving practices.
    e. Allocate water to new uses: Transfers reallocate water to meet emerging water demands, and prices compensate sellers for making water available to buyers.
    f. Drive investment: Prices established by voluntary transfers will increase with increased demand for water. Increased water values will support investment in water conservation, improved water resource management, and new infrastructure required to implement water transfers.

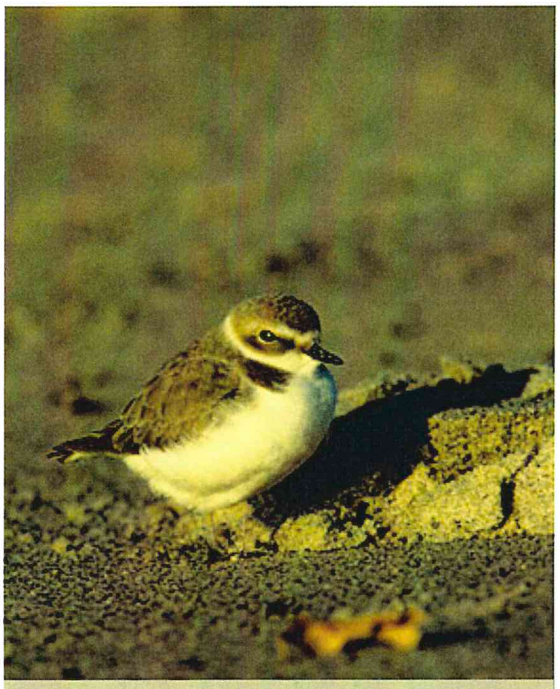
   Many western states anticipate that water transfers will play a significant role in the allocation of water to existing and future demands. As part of the WSWC survey, western states water administrators were asked: How does the reallocation of water through voluntary, market transfers fit into your state's plans for meeting future water demands? Twelve of the seventeen states indicated that water transfers are occurring and will likely play a significant role in meeting new water demands. The remaining five states acknowledged that transfers are occurring to some degree but replied that they did not have a centralized planning process, had not formally adopted transfers as part of the water supply plan, or had no data to estimate the role of transfers. More information here:
   file:///C:/Users/cna130/Downloads/Water_Transfers_in_the_West_2012.pdf

Making *the* Most *of* Our Money:

Recommendations for State Conservation Programs

by Sandra Tassel, Look at the Land Inc.
For The Nature Conservancy and The Trust for Public Land

Executive Summary



California: endangered snowy plover, and other rare species, rely on protected lands.

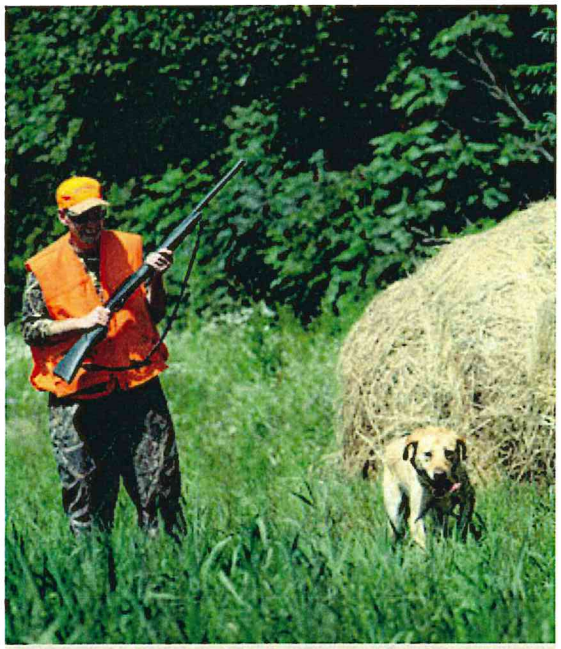
Voters and legislators in 10 states approved $11.43 billion in new state-funded conservation measures between 2004 and 2012.

Oakland, California's Lake Merritt became the country's first state wildlife refuge, established in 1870. Actually a tidal estuary, it is now surrounded by dense urban development but remains an important respite for migratory birds, home to an abundance of creatures that rely on the tidal flows and an oasis for area residents.

On the other side of the country, New York claims the first state park. New Yorkers, led by famed architect Frederick Law Olmstead, successfully lobbied for protection of Niagara Falls and the surrounding area. The Niagara Reserve was created in 1885 by Governor Grover Cleveland, together with funding for acquiring Goat Island and Bath Island. The Reserve, now Niagara Falls State Park, accomplished Olmstead's vision of making the magnificent natural feature and its "soothing power" available to the public.

It has been nearly a century and a half since California and New York demonstrated the importance of state leadership in protecting and restoring land and water resources for fish and wildlife habitat, economic development and the health and enjoyment of their citizens. During this time, all 50 states and US territories have established both state park departments and wildlife management agencies. According to the North American Bird Conservation Initiative, 189 million acres are managed by state agencies for a variety of public purposes. These lands offer more than peace and quiet. Wildlife management areas provide hunting and fishing opportunities, while also serving as "the last line of defense in efforts to conserve species under the federal endangered species act," according to Jeff Vonk, President of the Association of Fish and Wildlife Agencies. State recreation areas and parks contain a spectrum of services and facilities ranging from primitive trails, to marinas and ski slopes, millions of campsites and thousands of cabins and lodges. This network of public properties serves people from all walks of life and interests.

All New England states have programs that protect farmland for economic, scenic, and watershed conservation purposes.



Hunting is an American tradition – and big business in some states – that requires wildlife habitat that is open to the public. State programs such as the one in Minnesota protect that heritage.

The International Association of Fish and Wildlife Agencies found hunting was an important economic driver:

- $25 billion in retail sales
- $17 billion in salaries and wages
- Employs 575,000 Americans

Economic Importance of Hunting in America (2002)

This report highlights some state programs that are leading the continued evolution of natural resource conservation and the mission of providing opportunities for Americans (and visitors) to get outdoors. The programs profiled are catalysts of conservation, leading local governments and a network of other partners to protect our lands and waters, and make them accessible. These leading programs are doing much more than buying properties to create or expand state parks or wildlife management areas. In fact, some are only minimally engaged in adding to the common wealth of state-owned lands. State programs are funding conservation projects initiated by other government entities, and even nonprofits.

It is clear there is a trend toward state programs participating in or even incentivizing a broad range of conservation efforts. Instead of relying solely on land acquisitions some state programs encourage or incentivize local land use planning or commitments to permanently protecting existing parks and open lands that might otherwise be disposed of in the future by financially strapped communities. Others have acted as conveners, bringing together nonprofit and government partners to develop landscape-level plans to ensure that limited public funds are used to protect their state's highest priority resources. As part of the trend, state programs are often addressing public goals that probably would have been unimaginable 100 years ago, including park and recreation facility development, historic preservation or affordable housing.

Sadly, at the same time that leading state conservation programs are producing a wider range of public benefits and inventing new resource protection methods, others have been gutted, discontinued, or hindered by political gridlock or severe funding cuts since the economic downturn beginning in 2007. Nevertheless, public support for state conservation programs remains quite strong, despite the rough

economic climate. Voters and legislators in 10 states approved $11.43 billion in new state-funded conservation measures between 2004 and 2012, according to LandVote (www.landvote.org), the Trust for Public Land's online database on voter-supported funding for land conservation. These measures direct public monies to state agencies and grant programs they administer to support natural resource conservation, outdoor recreation and preservation of working lands.

In Alabama, one of the states hardest hit by the recession, 75 percent of voters opted to renew funding for the state's Forever Wild program to purchase natural lands for public access and recreation in 2012. Voters in Minnesota, Maine, New Jersey and Rhode Island also voted in favor of conservation funding during the Great Recession.

No two state conservation programs are exactly alike. They reflect their states' political climate, landscape, culture, funding realities and public priorities. Program founders adapt and combine elements of other programs, then add their own modifications in hopes of improving on older models or gaining political support. Some states' conservation programs have proven to be durable, effective and publicly valued institutions that now have decades of experience. Others exist relatively briefly.

There are inherent challenges for programs and their leaders working to accomplish long-term conservation goals while operating in a continually fluctuating political context. The experts interviewed for this report most commonly pointed to political and funding challenges as the greatest barriers to effective state conservation programs, although the dilemmas vary by state. Beyond the initial act of acquiring land or conservation easements, these experts most commonly cited concerns about the long-term stewardship and maintenance of conservation lands, parks and easements.

Western states, including Colorado, help ranchers to maintain their properties for open space and wildlife habitat while preserving a tradition.

Solutions to the challenges facing state programs also revolve around themes of funding and politics. They focus on partnerships, a governance structure that buffers programs from the political winds of change, and communication and engagement with diverse stakeholders. Strong partnerships with stakeholders, local governments and nonprofits are helping states prioritize projects and leverage municipal, county and philanthropic dollars to amplify the conservation impact of state monies. At the same time, local and grassroots supporters have proven to be strong political advocates when state program funding is on the chopping block. Partners are also providing capacity and expertise to steward conservation lands in their region, helping to ensure that acquisition dollars are truly well spent.

The Need for a Guide to State Programs

The challenging economic and political climate has added urgency to the quest for insights into the specific program elements most closely associated with success.

The creation and re-invention of state conservation programs is an ongoing experiment in natural resource protection and public process. Each program's evolution potentially offers learning opportunities for others. Over the past 10 to 15 years, advocates have carefully studied what motivates voters to support conservation funding at the ballot box, so that there is a veritable cookbook of recipes for conservation finance success. Many of the lessons learned can be gleaned from The Conservation Almanac (www.conservationalmanac.org) and the Conservation Finance Handbook available at www.tpl.org. However, until now, there had not been a comprehensive investigation into what makes some of these publicly funded state programs more successful than others.

For many years, the leaders of the Conservation Finance Program of The Trust for Public Land and Conservation Campaigns division of The Nature Conservancy have examined the elements of various state programs in an attempt to understand how to maximize conservation

Partnerships in Maine and other states protect rivers, lakes and wetlands for their recreational and water quality values.

outcomes and maintain public support. Until now, they did not, however, have the comprehensive information available that comes from a wide-scale analysis of successful state conservation programs.

Agency and nonprofit partners from the states in which The Nature Conservancy and The Trust for Public Land work wanted guidance on how to formulate new programs, or how to update and improve existing ones, to make the most of their states' limited funding. The challenging economic and political climate in nearly all states has added urgency to the quest for insights into the specific program elements most closely associated with success.

This report, and the research behind it, aims to fill the information void so that anyone with an interest in creating the best possible program, ensuring that money is spent on projects that best meet the public's expectations, and building an enduring legacy can take advantage of what has been learned in other states.

The Research Process

The Doris Duke Charitable Foundation funded this investigation as part of a series of grants made to The Nature Conservancy and The Trust for Public Land to support its national Conservation Finance Initiative. A small group of key conservation finance staff from both organizations was part of the design of the research, the structure and review of the report and its subsequent distribution. The Trust for Public Land and The Nature Conservancy advisors identified 22 programs to research. Each program was selected for its policies or procedures that either contributed to success and might serve as a model for other programs, or were problematic elements that should be avoided.

More than 50 individuals contributed to the research either by telephone interviews or by answering specific questions by email.

Sports fields and parks acquired and constructed with state monies are essential community assets.

Through the thoughtful, knowledgeable input from people with direct experience either working for or with one of the 22 state programs, a list of issues facing state programs and best practices for overcoming these obstacles and increasing program effectiveness emerged.

Timing Disclaimer

The contents of this report are based on the best available information at the time of research and drafting. Every effort was made to ensure that information was up-to-date as of May 2013, however data was gathered and interviews conducted between the fall of 2010 and the spring of 2013. The author believes the material to be instructive even if specific numbers, dates or professional titles have changed.

Primary Challenges for State Conservation Programs

One or more of the interviewees attributed a reduction in the effectiveness of state programs as a result of these challenges:

Program Funding

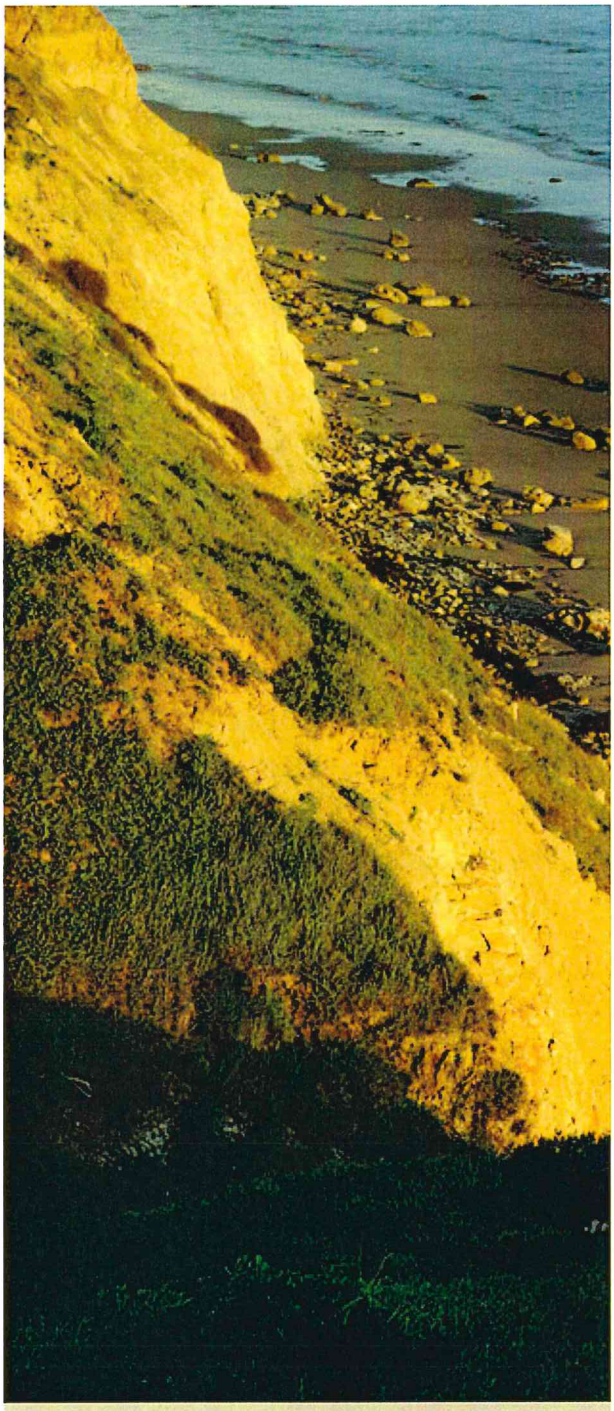
- Reliance on legislative appropriations, no dedicated source of revenue
- Dedicated source of revenue, at risk of legislative reprogramming
- Voter approved bonds require time and the expense of repeated campaigns
- Insufficient levels of funding to accomplish program objectives
- Funding is available only for capital expenditures, not operations or management

Stakeholder Involvement

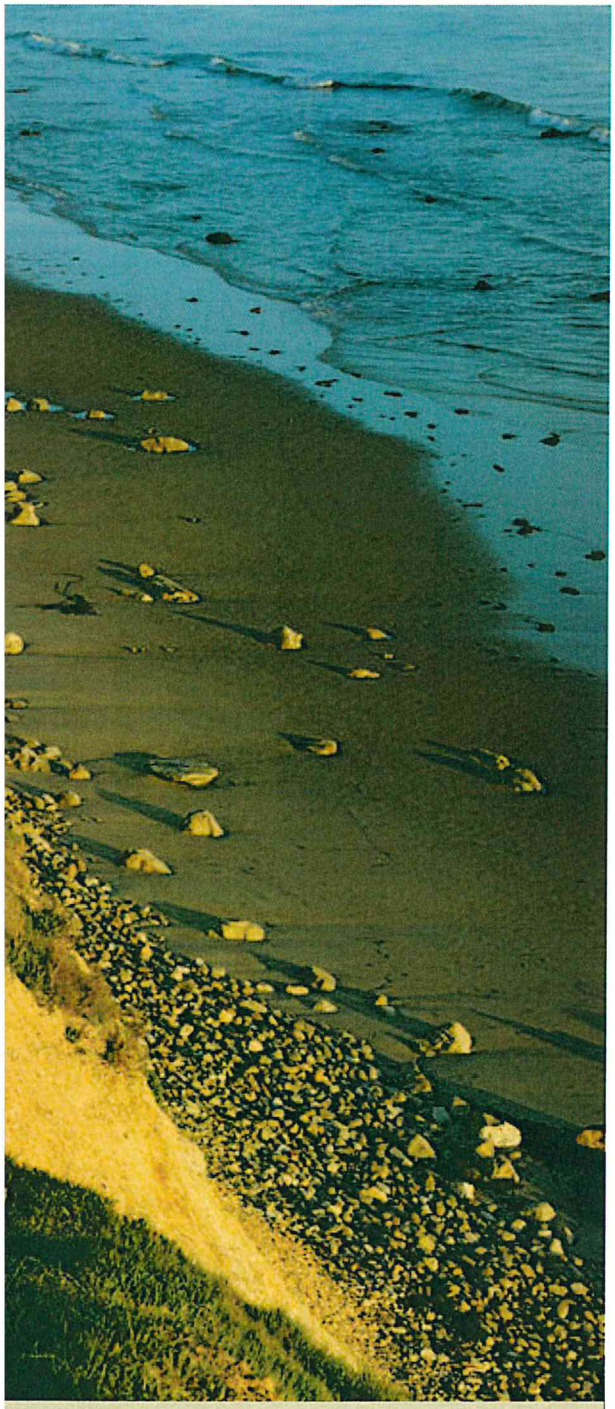
- Stakeholders compete for funding at the legislative level, rather than being a united front
- Coalition that worked to create the program or secure funding subsequently disbands
- Funding beneficiaries are not engaged in promoting or defending the program
- Economic importance of conservation is not demonstrated or understood

Governance

- Lack of oversight of fund distribution
- Monies channeled directly to a state agency
- Direct oversight by legislature, unwieldy and politically challenging
- Legislators feel entitled to make any changes they want to the program, or its funding, even when the funds are "dedicated" and approved by voters



Land use rules like California's facilitate conservation and



ublic use of valuable oceanfront land.

- Highly partisan leadership appointed by the governor, and/or high-ranking legislators

Program Structure and Operations

- Operational policies and procedures are insufficiently adaptable
- Funding is available for acquisitions and capital projects but not for operations or stewardship
- Limitations on potential partners; funds available only for state agency initiatives
- Aversion to collaborative work with nonprofits and/or local governments
- Legal and other services provided by state employees outside of the agency or department where program is housed

Project Selection and Criteria

- Legislators can add or subtract projects from slate of those approved for funding
- Overly or burdensome process from application to completion, superfluous approval steps
- Unclear prioritization or ranking methodology
- Inflexible criteria
- Subjective or unclear criteria, reducing transparency and objectivity
- Unpredictable funding availability for partner-led projects
- Absence of overarching strategy to which projects must contribute

Stewardship and Land Management

- Reliance on future general fund support for stewardship
- Assumption that state agencies have capacity to monitor easements
- Allowing local governments and nonprofits to complete projects without proof of stewardship funding
- Acquired land is not improved or open to the public for a long period

Recommended Practices to Address Primary Challenges

The report discusses these issues and offers recommendations for how they can be avoided. In aggregate these recommendations create a checklist of the ideal characteristics of a state conservation program. No one program currently exhibits all of these elements, although several feature a high percentage. These are notably successful by all measures, including resilience in the face of the outside challenges experienced by other programs.

The Ideal Program's Characteristics

Program Funding

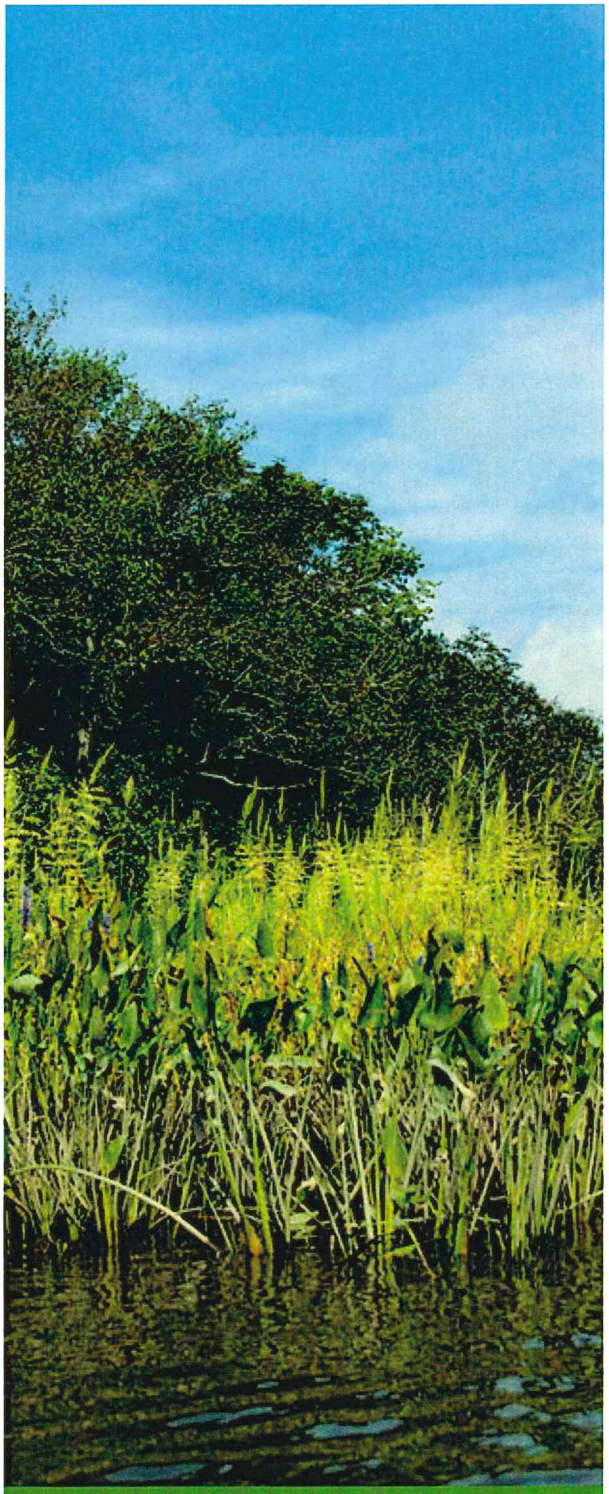
- Funding source established through a constitutional amendment
- Non-compensatory methods of protecting land are part of an over-arching leverage strategy
- Matching funds are incentivized and encouraged, but not always required

Stakeholder Involvement

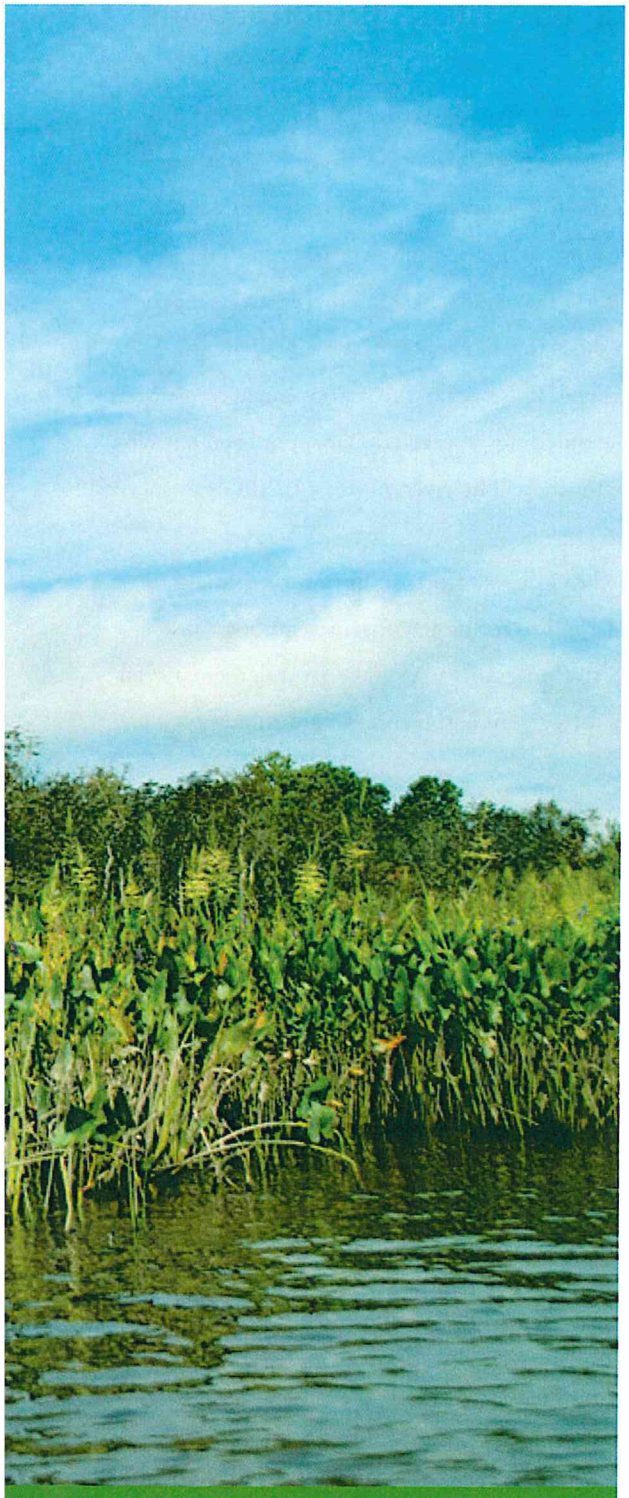
- Reports are provided annually to the legislature and the general public
- Communications and outreach efforts ensure that program expenditures and accomplishments are publicized
- Stakeholders maintain an active coalition to support the program and its funding

Governance

- Monies are directed to a protected fund, managed by trustees with fiduciary responsibility
- Expenditures are either decided by the board of trustees so they are not subject to legislative approval, or a process is in place that prevents legislative modifications to a slate of priority projects
- Trustees are appointed in a manner that ensures bipartisan representation and engagement of key stakeholders



Strategic state programs invest in landscapes, like this



estuary, to provide multiple ecologic and economic benefits.

- Trustees' terms are staggered so that changes in control of the legislature or governor's office do not disrupt the program's work
- Law provides specificity about the funding purpose and use but allows the trustees and staff to determine how the program will accomplish its purpose

Program Structure and Operations

- All people who implement the program are within the same department or division
- State agencies, local governments and nonprofits are eligible funding recipients
- Most of the funding is distributed through a competitive grant process
- If the program will accept applications from partner entities, the procedures and/or prioritization are formulated so that smaller, less-well-to-do communities and nonprofits can take advantage of funding opportunities
- Funding applications, if used, are accepted on a regular schedule so that grantees can plan ahead and work efficiently to bring forward a competitive slate of priority projects
- Technical assistance is available to encourage participation and develop projects

Project Selection and Criteria

- There is a statewide plan or stated objectives which provide a framework for project ranking and funding priority so that investments produce a coherent outcome
- Project selection criteria are objective and tied to the program purposes and statewide plan

Stewardship and Land Management

- Funding for stewardship is available to grantees but the state has the capacity to pay for stewardship if necessary

Public participation is integral to program success.

Implementing These Recommendations

This report presents an exhaustive list, covering almost every aspect of program function. In reality, the structure of state conservation programs – and their funding sources – is the product of negotiations that take place among advocates, opponents, legislators, and a spectrum of stakeholders. The positions of all these parties set the context within which the actual elements of a new or changing program will be developed. If, however, the parties can agree on the goal of maximizing the outcomes for each dollar spent then perhaps more programs in the future will be given more of the tools to succeed.

This report is intended to inform efforts to initiate or refine state conservation programs, and to facilitate consensus among those working to shape effective programs to protect natural, recreational and historic resources for present and future generations.

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1 The Lake Merritt Institute, "What is Lake Merritt," www.lakemerrittinstitute.org/abt_lake_whatis.htm, accessed 09-29-2013

2 Niagara Falls State Reserve, http:/ www.fredericklawolmsted.com/niagra.html, accessed 09-29-2013

3 North American Bird Conservation Initiative, U.S. Committee, "The State of the Birds 2013: Report on Private Lands" U.S. Department of Interior, Washington DC, June 2013

4 US Fish and Wildlife Service, "U.S. Fish and Wildlife Service Boosts State Endangered Species Conservation Efforts with $32 million in Grants," www.fws.gov/news, July 10, 2013

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DORIS DUKE CHARITABLE FOUNDATION

To view the full report, see www.tpl.org/statebestpractices
For more information please contact:

THE TRUST for PUBLIC LAND

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