

Who lives in floodplains?

By Mitch Paine

During 2016, NeDNR analyzed Nebraska floodplains in order to answer the question “who lives in floodplains?” Having an answer can help plan for flooding, identify vulnerable populations, and prepare for a smoother recovery process. The answer to that question proved surprising and concerning. After examining communities across the state, we found that floodplains play host to a far greater percentage of renters and that people living in floodplains are twice as likely to be Hispanic.

Our analysis focused on comparing Census blocks in the floodplain versus those not in the floodplain within certain communities. We looked at three main components of Census blocks: housing, household structure, and demographics. These components give us a better idea of the structure of the population and how they live within Nebraska’s flood risk areas.

Unique Characteristics of Flooding

Flooding is a unique hazard and affects people and their communities in ways that other natural hazards do



By Mitch Paine
South Platte Flooding Near Gothenburg

not. Flooding causes long-term damage to homes and often to many homes at once. Families may be displaced for months far away from their neighborhoods, schools, and friends. The flooding itself may last for a long period of time too, complicating and delaying clean-up. These characteristics make recovery difficult for those with certain family or living situations. Single parents, for example, will have to juggle maintaining a job, caring for their children, and dealing with a flooded house all at the same time.

Also, many people do not take flooding seriously and have a bias to ignore the risk. Since flooding happens relatively infrequently, many choose to not believe it will happen to them. Thus, far too few people voluntarily purchase flood insurance, which can protect a person’s property from flood damage. Flood insurance also is difficult to understand and deal with, and many people assume that the government will ultimately pay for their property damage. Financial vulnerability to flood damage should concern floodplain managers everywhere.



By Marlin Peterman
Platte River Flooding 2015

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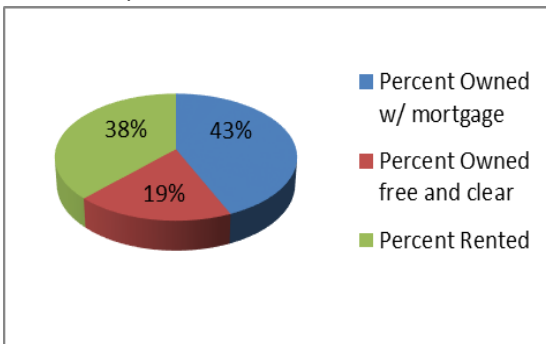
Who lives in floodplains, Cont.

All of our roles in floodplain management include building community resilience and ensuring that recovery after a flood happens smoothly and quickly. Resilience, in part, means that nobody falls *further* or *more often* than anyone else during disasters. Knowing who lives in flood risk zones can help us make more resilient communities.

Renters in Floodplains

In looking at the various characteristics of people living in floodplains, some factors had significant results and some did not. The most significant was the statistic on renting versus owning a property. In non-

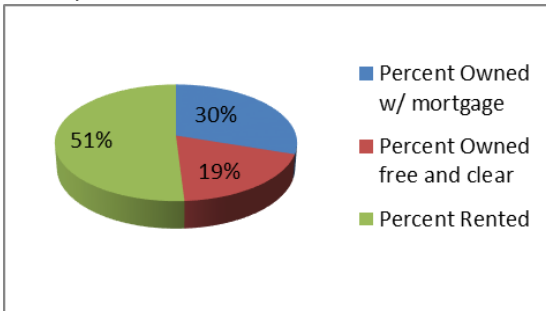
Non-Floodplain Area



floodplain areas, around 63% of people own their home, either with a mortgage or free-and-clear, and 37% rent. In floodplain areas, just 49% of people own their home and 51% rent. And in certain communities the percentage of renters is even higher.

In Lincoln, nearly 68% of the population in the floodplain rent; in Grand Island and Ogallala that number is 57%; in Papillion it is 70%.

Floodplain Area



Flood insurance is required for any property with a federally-backed mortgage. So, those who own their home free-and-clear or rent

are not required to have flood insurance, and indeed, most do not purchase it. Additionally, it is unlikely that most renters know about the need to purchase a contents-only flood insurance policy. With over 50% of floodplain residents as renters, amounting to over ten thousand

households, only about 40 contents-only flood insurance policies are active in Nebraska.

Less than 0.4% of all renters are covered by flood insurance. Renters are often lower income and less able to financially recover after a flood, and yet few renters are actually covered against flood damage. This is a concerning statistic, and communities and emergency managers should be aware.

Other Demographics

The other significant finding is that the population of floodplain areas has a much higher percentage of those who identify as Hispanic. In non-floodplain areas about 9% are Hispanic, but in floodplain areas that figure is 18%. Again, some communities have an even higher percentage of floodplain residents identifying as Hispanic with Crete at 52%, Fremont at 21%, Madison at nearly 59%, and Schuyler at over 65%, all of which are higher than the total community proportion of those identifying as Hispanic.

This statistic is concerning as well because nearly all of our outreach at the state and local level is conducted in English. While many who identify as Hispanic speak English, there are many who only speak Spanish. Some communities, particularly those listed above, do have outreach efforts in Spanish, but more attention across the state needs to be paid to Hispanic communities who are at risk from flooding.

Other less significant aspects of those who live in floodplains include that these residents are more diverse and more likely to live in nonfamily households.

For more information on your community, please contact me at mitch.paine@nebraska.gov.

The importance of models

The Nebraska Department of Natural Resources (the Department) has developed several hydrologic models to assist with water management across Nebraska by providing a better understanding of regional hydrogeology and water availability. Each model was developed through collaborative efforts with local natural resources districts (NRDs) and stakeholders. By assisting with the assessment of the impacts of water use and management practices on long-term water supplies, the Department's hydrologic models play an integral role in the planning and management of Nebraska's water resources to meet the objectives of local integrated management plans (IMPs), basin-wide plans, state legislation, and interstate water agreements.

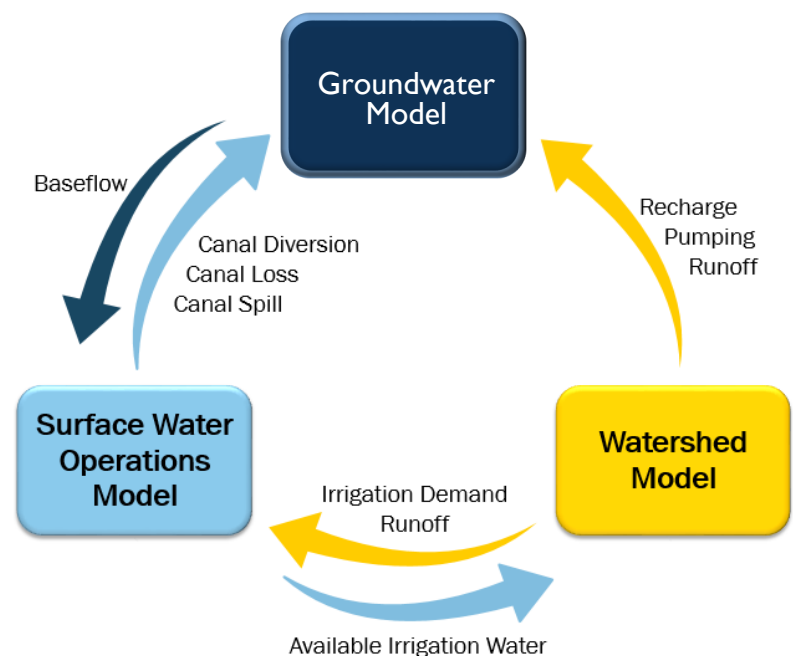
Some specific applications of the Department's hydrologic models include:

- Simulating surface water-groundwater interactions in support of the Department's annual evaluation of the availability of hydrologically connected water supplies (i.e., the fully appropriated basin (FAB) analysis),
- Reproducing historic trends under varying hydrologic and hydrogeologic conditions,
- Helping water administrators understand the short-term and long-term balance between water supplies and demands,
- Analyzing depletions of hydrologically connected surface and groundwater supplies, and
- Projecting the cumulative effects of water use and water management decisions on each region's total water supply.

Several models have been developed and applied across the state of Nebraska, as shown in the figure above. All of the Department's models use similar input data, including land use, stream flow, pumping rates, and aquifer properties such as total

water storage and water delivery rates. In basins with significant surface water use, such as large reservoirs or significant surface water diversions, these additional model aspects are also included. Model input data are derived by incorporating a groundwater flow model, such as USGS MODFLOW, with CROPSIM, a water-driven, soil water-balance point model used to investigate the system response to different forms of vegetative growth.

Each hydrologic model is based on the Department's integrated water management modeling framework, which operates through the integration and interaction of three different models: a watershed model, a surface water operations model, and a groundwater model. Each of these three models is first operated independently, and then integration occurs through a series of data processing and transfers, as shown in the figure below:



Natural Resource Commission approves 11 projects for funding

The Natural Resources Commission (the Commission) approved the funding of approximately \$19.5 million for 11 projects whose sponsors submitted applications for cost-shared funding assistance from the Water Sustainability Fund (the Fund), which was created through LB1098 in 2014. This is the second application, review and funding cycle since the Fund was established.

A Lincoln Water System Drought Resiliency and Flood Protection project was the largest project selected for funding at \$7.637 million.

A committee of 10 commissioners, evenly divided between elected and appointed commissioners and geographically dispersed, was established to review and draft an initial recommendation for scoring the applications. Scoring is based on questions developed in the Commission's rules, Title 264, using the 15 criteria established by the legislature as described in LB1098. The committee strove to objectively assess whether applications were satisfactory and qualified to be approved in accordance with the statute. Those projects that scored well in a majority of criteria were approved to the extent that funding was available.

"We left about \$5 million in the Fund this time, which will be available for the 2017 cycle of fund applications," explained Kevin Fornoff, Commission Chairman. "We did

not have enough funds to cover the next highest scoring project, and we are mindful of the state's revenue shortfall and want to remain firm in our careful, merit-based decisions in spending state resources. We don't know what this next legislative session will bring."

Governor Pete Ricketts has requested fiscal restraint wherever possible due to a growing revenue

shortfall for the state, and the Commission factored in that restraint in making their final decisions.

A complete list of applications can be found on the NRC website: nrc.nebraska.gov.

LB1098 requires that each year the Commission set aside 10 percent of available funds for Combined Sewer Overflow (CSO) projects. This year that amounted to approximately \$800,000, which went to the City of Omaha.

Applications for the next funding cycle are available on the Commission's website (nrc.nebraska.gov) and will be accepted July 16-31, 2017. Applicants who were not approved for funding in this second round are encouraged to review their applications and the scores associated with each of the 15 criteria and may resubmit their project applications for consideration in July.



Natural Resources Commission, Cont.

The other projects approved for funding included:

Lower Platte South NRD	Lower Platte River Drought Contingency Plan
Village of Howells	Repurposing of Pokorny Dam
Middle Republican NRD	Middle Republican NRD High Tech Irrigation Implementation
Little Blue NRD	Instream Weir Stabilization/Recharge Pilot Project
Little Blue NRD	Low-head Embankment Stabilization/Recharge Pilot Project
Lower Platte South NRD	GeoCloud and Airborne Electromagnetic (AEM) Data Integration
Mitchell	Mitchell Wastewater Improvements -2016
Frenchman Cambridge ID	FCID Storage Enhancement and Retiming Project
Papio NRD	West Branch Papillion Creek Structures WP 6 & WP 7

New booklet helpful to dam owners

By Tim Gokie, P.E.

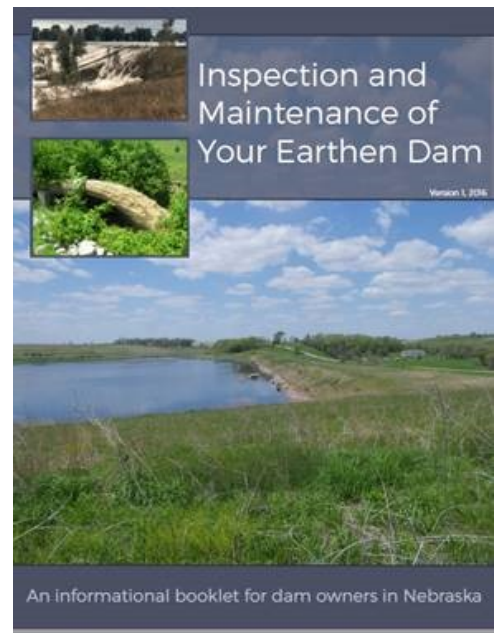
NeDNR is excited to introduce a new booklet for dam owners in Nebraska. The booklet, *Inspection and Maintenance of Your Earthen Dam*, contains helpful tips and advice gained by NeDNR during its 50 years of inspecting dams across the state.

NeDNR started routine inspections of dams in 1967 and has seen just about everything. The booklet is full of photos showing what has worked well, what has not, and what can go wrong. There are several photos of dam failures in Nebraska and a discussion of the legal liability associated with owning a dam.

Two sections teach dam owners how to identify and respond to an emergency situation at their dam. However, most of the booklet is dedicated to more routine maintenance issues and how to fix common problems.

An inspection checklist is included that can be used by dam owners to inspect their dam. The checklist is followed by recommendations for addressing virtually any problem that is found.

A copy of the booklet can be found at <http://dnr.ne.gov/media/damsafety/pdf/damownerbooklet2016ver1.pdf> or call 402-471-2363 to request a copy.



NeDNR staff complete process improvement training



NeDNR is participating in Governor Ricketts' ongoing Process Improvement Initiative. All state employees are now White Belt Certified in Lean Six Sigma, an innovative process improvement methodology.

NeDNR staff completed this training ahead of schedule.

A staff member dedicated to process improvement, Madeline Hoffer, is currently undergoing Green Belt training. This will allow NeDNR to improve our services to the public.

The Lean Six Sigma process will help NeDNR staff fulfill the State's mission to create opportunity through more effective, more efficient and customer-focused state government.

Staff will have the opportunity through online courses to further their Lean Six Sigma development.

Ne150 Challenge



On March 1 Nebraska turns 150 years old.

There are many special events and activities planned to celebrate this milestone in statehood. One of those is the Ne150 Challenge.

A joint effort of Nebraska 150 Celebration and the Nebraska Sports Council and based on Missouri's 100 Miles program, Nebraskans can sign up at www.ne150challenge.com and begin logging miles.

Miles can be logged for walking, running, cycling, paddling... There's even an application that can turn your yoga time into miles!

NeDNR has joined many others in creating a group. We currently have 18 staff taking part, and we have logged more than 1,000 miles.

Find out about more opportunities to celebrate the State's sesquicentennial at Ne150.org.

Public hearing procedure

The Nebraska Department of Natural Resources (NeDNR) is statutorily authorized to hold hearings in a variety of situations. The type of hearing being conducted depends upon the function being performed by NeDNR at the time of the hearing.

At public hearings, typically a proposal of NeDNR is being considered and members of the public have the opportunity to provide comments and suggestions. Examples of such hearings include rule changes, approval of integrated management plans (IMPs), and adoption of associated controls. In such hearings, the comments and suggestions of the public are offered in an effort to inform NeDNR concerning the proposed rule, IMP or control. The public comments or suggestions are not required to be sworn testimony but typically are recorded so that they can be preserved and reviewed subsequent to the hearing. Such hearings are legislative in nature and are analogous to the legislative hearings held by the Nebraska Unicameral when bills are considered by its various committees. The type of review of decisions made by the Director in such cases is limited to a determination of whether the procedural laws were followed when the Director makes a decision and whether or not the decision is constitutional.

Another category of hearing would be those in which evidence is submitted for the purpose of providing a basis for the Director of NeDNR to make a decision in a contested matter. Such decisions are quasi-judicial in character and are analogous to the types of decisions a court has to make, i.e. applying the law to the facts as contained in the record of a matter. Examples of such hearings include hearings on enforcement actions taken by

NeDNR to enforce the Safety of Dams Act, hearings in which NeDNR receives evidence concerning an application for a new water right, such as an instream flow water right application, hearings regarding permits to transfer groundwater, or hearings adjudicating the status of an existing surface water right. In such cases witnesses are sworn under oath to tell the truth and are subject to perjury sanctions if it is determined that a person lies under oath. Additionally, only evidence admitted into the record can be considered by the Director when deciding the final disposition of a matter.

Usually, a Department attorney or other Department staff represent the Department's interest in the hearings and another staff attorney or other Department staff act as the administrative law judge (hearing officer) for the hearing. The final decision is always made by the Department's Director. During the hearing process, staff representing the Department or appearing as a witness for the Department may not discuss the subject matter in any manner with the Director or assigned hearing officer or any other person assigned to assist in the decision-making process in order that a fair hearing is conducted for all parties.

Appeals from such decisions are through the Nebraska court system. The reviews of such decisions typically are to determine whether or not the decision is supported by competent evidence in the record, is arbitrary or capricious, or whether or not the laws under which the decision made by the Director are constitutional.



Jennifer Schellpeper named Supervisor of the Year

Jennifer Schellpeper, Water Planning Division Head, was named Supervisor of the Year at the Department of Natural Resources.

Schellpeper took over the Division Head duties at a time when we were understaffed, leadership changes were underway, and the work load was heavy.

She worked with the staff in a professional, efficient manner while injecting fun into the team meetings and fostering a spirit of teamwork and personal accountability. Her knowledge allows her to make quick and prudent decisions on a wide variety of work efforts including integrated management planning, outreach and education, and groundwater modeling.

Schellpeper has done a great job of making professional and personal training available for her staff. She has ensured continuity in our work efforts across the many river basins and Natural Resources Districts by making sure that staff have a broad exposure and the knowledge needed to step in to help if a project leader is unavailable.

"I think she's the most amazing, most capable supervisor or manager I have ever worked under," reports one of her team members.



Laura Paeglis named Employee of the Year

Laura Paeglis was named Employee of the Year for the Department of Natural Resources.

Paeglis is an IT Business Systems Analyst with the Natural Resources Information Technology Division.

Paeglis exemplifies the ideal of service and consistently goes out of her way to lend her experience to anyone who asks.

Paeglis works with a variety of IT projects that are essential to NeDNR.

There are numerous instances where Paeglis has taken phone calls or checked in off the clock to ensure that projects have stayed on schedule.

Paeglis' ability to work across divisions, her attention to detail, and her professionalism were integral for developing the NeDNR's Water Use Reporting application and deploying it across the State of Nebraska. She was instrumental in a smooth process in workflow, testing, and documentation for the Water Sustainability Fund and has been key in completing the first phase of paperless workflow, moving six historic projects into the new system.

