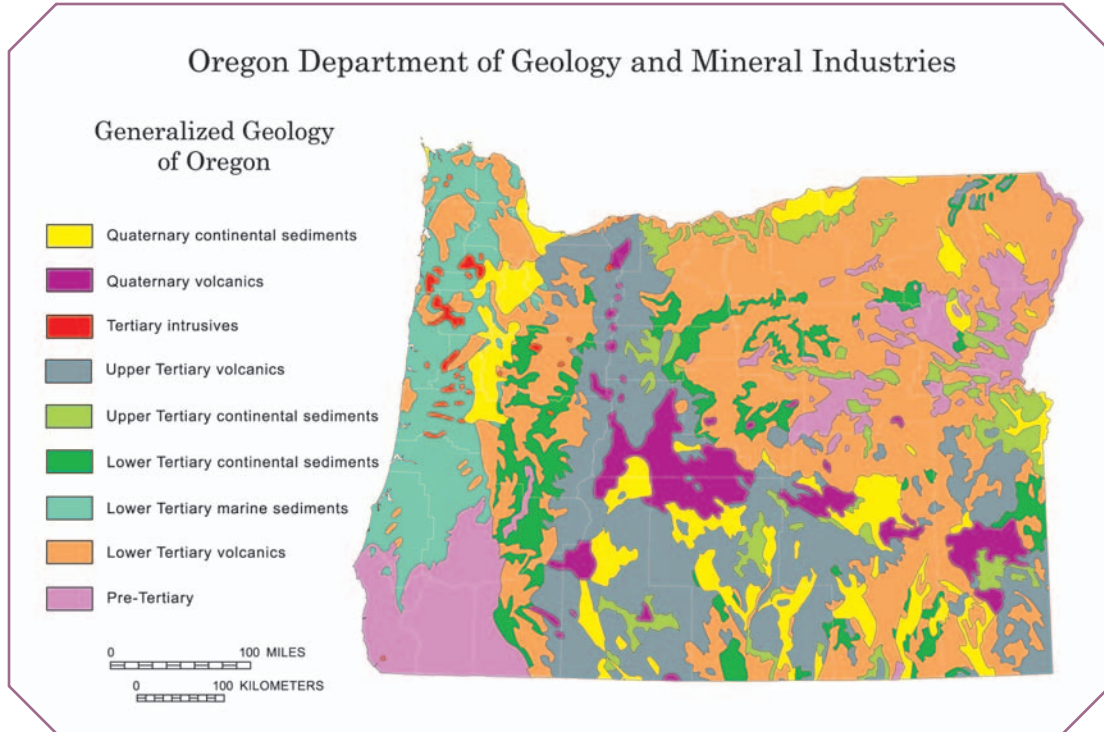

STRATEGIC PLAN

2003-2009



Oregon Department of
GEOLOGY and
MINERAL INDUSTRIES

Dr. Vicki S. McConnell, State Geologist
www.OregonGeology.com

GEOLOGIC SURVEY AND SERVICES PROGRAM

800 NE Oregon Street #28, Portland 97232 (503) 731-4100
1510 Campbell Street, Baker City 97814 (541) 523-3133
5375 Monument Drive, Grants Pass 97526 (541) 476-2496
313 SW 2nd, Suite D, Newport 97365 (541) 574-6642

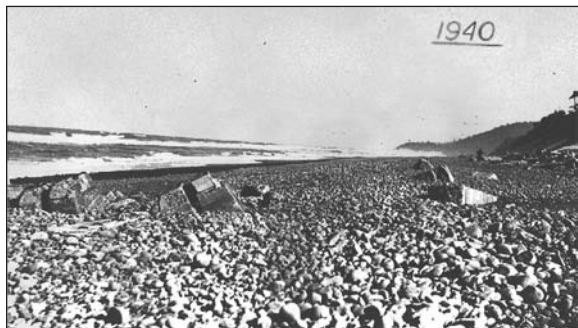
MINERAL LAND REGULATION AND RECLAMATION PROGRAM

229 Broadalbin Street SW, Albany 97321 (541) 967-2039

NATURE OF THE NORTHWEST INFORMATION CENTER

800 NE Oregon Street #5, Portland 97232 www.naturenw.org (503) 872-2750

THE IMPORTANCE OF GEOLOGY . . .



Coastal erosion is not a new danger for residents of the Oregon coast. Bayocean, a community near Tillamook, was completely destroyed by a misunderstanding of ocean processes. Coastal erosion maps produced by the department can target areas of highest hazard (Photo: Tillamook County Historical Society)



Campbell Hall at Western Oregon University is an example of how old brick buildings can be strengthened against earthquake damage without losing their original charm. (Photo: Western Oregon State University)



These views of a mine site during production, then after reclamation, show how well a site can be prepared for a second use. Reclamation activities are an important part of using needed materials in a sustainable way.

CORE VALUES



Crater Lake is the result of a catastrophic volcanic eruption.

ABOUT OUR DEPARTMENT

Our department provides unbiased, scientifically accurate information to government agencies, private sector companies, not-for-profit organizations, and the general public.

This is critical to protect people from geologic hazards and guide the sustainable development of Oregon's geologic resources.

Our staff uses the scientific method, peer review, and scientific information to develop and implement programs.

Both the issues and the answers are in the field, so our emphasis is on a field-based presence of experienced and capable professionals. To do this, we have a network of strategically placed offices in Albany, Baker City, Grants Pass, Newport, and Portland.

Our department structure is flat, without a top-heavy management staff. With fewer than 40 staff members, each employee is responsible for an unusually strong base of knowledge.

One analysis showed that we brought \$200-\$300 of benefits to the state for every \$1 spent.

Because of the amount of resources and effort needed to deal with Oregon's geologic issues, we will continue to aggressively form partnerships with other government agencies, the private sector, and

not-for-profit organizations. These partnerships are the key to developing lasting solutions for Oregon.

Our projects and programs are guided from field observation, as well as information from our Governing Board, Oregon's Governor and Legislature, formal and informal advisory groups, industry and other client organizations, and the general public.

We do not compete with private industry services. Our efforts are focused on providing broader information and processes for the well-being of the public. We have the obligation to map areas of the state and research geologic activities that are vital to understand for the public good.

We also have the responsibility of providing a place for long-term coordination, acquisition, storage, and retrieval of Oregon's geologic data.

This strategic plan will guide our activities for the next six years. We have identified three core areas:

- 1. GEOLOGIC INFORMATION**
- 2. RESOURCE MANAGEMENT**
- 3. COMMUNITY EDUCATION**

Within each area our strategic plan addresses long-term goals and the steps we will take to attain them.



MISSION STATEMENT

Mount Hood is an area for tourism, recreation, water and mineral resources, and hazards. Geologic maps can help delineate all of these.

GEOLOGIC PROCESSES

Geology has built mountains, filled lakes, etched river valleys, and pounded the shape of the ocean shore. Today, when Earth's dynamic features meet human development, the result can be natural disasters. However, millions of years of geologic processes have produced mineral resources we need,



Fast-moving landslides can disrupt traffic and streams, as well as endangering lives. (Photo: Oregon Department of Transportation)

including sand, gravel, and crushed rock for roads and construction, plus geothermal energy and natural gas for heating.

MISSION

To produce and use geologic information to promote the health, safety, and welfare of Oregonians by assisting in the formulation of state policy.

We can:

- Produce geologic maps of practical value for the public
- Help Oregonians apply geologic information in practical ways
- Provide information to reduce future losses from geologic hazards
- Develop and maintain information on mineral resources and mineral fuels.

We can also help provide for the sustainability of state resources by:

- Guiding responsible development of mineral production through regulatory and voluntary means
- Providing geologic information needed for water management
- Providing information for coastal hazard management



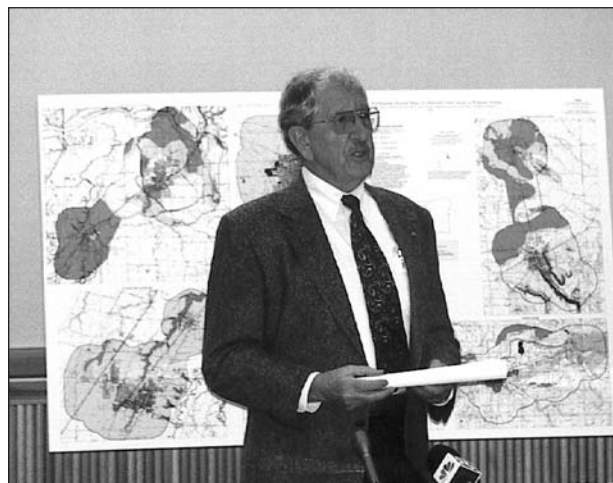
Department geologists search for clues of prehistoric earthquake activity.

OUR EFFORTS INCLUDE:

1. Using the scientific method to produce geologic information for practical applications in Oregon. This includes using professional principles in field investigation, data collection, peer review, distributing and explaining data, and understanding the complex relationships between science and policy.
2. Reducing future losses of life and property from the geologic hazards in the state: earthquakes, tsunamis, landslides, floods, coastal erosion, and volcanoes. We do this primarily through assessing hazards and distributing information.
3. Producing geologic maps that include geologic hazards and resource potential. These can be used for a variety of purposes, including watershed management.
4. Developing and maintaining information on mineral resources and mineral fuels (oil, gas, geothermal), and geology related to groundwater and surface water management.
5. Assisting in the formulation of state policy where understanding of geologic materials, geologic resources, processes, and hazards are key to decision-making. Although geology does not dictate answers, it does guide the development of effective choices.

CORE STRATEGIES

6. Guiding, through both regulation and voluntary action, the responsible development of mineral resources (aggregate, industrial minerals, stone, oil, gas, geothermal), reclamation of mined land, and coordinating the production with other land use decision-making.
7. Supporting the Oregon Plan and other watershed-related initiatives and continuing to improve our understanding of river behavior and landforms.



A Governing Board, appointed by the Governor, oversees department activities and is an important communications link with the public.

GEOLOGIC INFORMATION

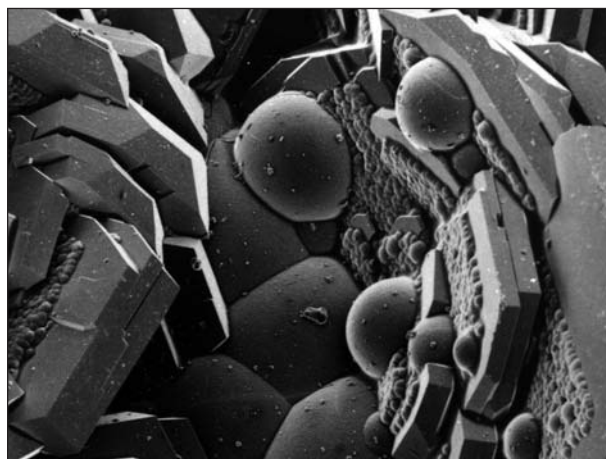
WHY IS IT IMPORTANT?

Geologic maps are as essential for navigating resource and hazard management issues as road maps are for navigating the state's geography.

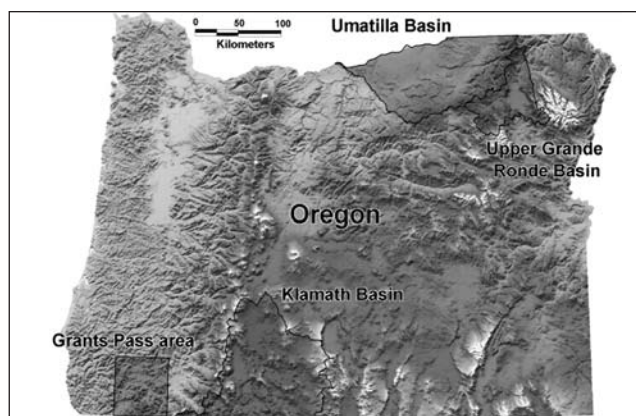
Coastal erosion, earthquakes, landslides, tsunamis, floods and volcanic eruptions can be explained by geology, and vulnerable land can be identified in advance of potential natural disasters.

Understanding our geology also makes it possible to manage mineral resources, energy resources, and water supplies. Agency activities relating to water are the highest priority of the Department.

As our population grows and people live in more densely developed communities, understanding both hazards and resources become more important.



Geologists rely on a variety of scientific tests and equipment, as well as field work. This micrograph from a scanning electron microscope shows particular minerals found in basalt from near the Clackamas River.



This map indicates areas of high priority for geologic mapping. Future focus areas will be the Willamette Valley, Rogue River, and John Day basins.

GOAL

Reduce the risk from natural disasters and increase our knowledge of geologic resources.

STRATEGIES

Geologic mapping priorities include: high-resolution data around population centers; water data in high-priority areas; and regional data for broader decision-making.

For watersheds, a clear understanding of geology and landscape evolution is important in ecosystem management, riparian policy development, and fluvial management.

We will aggressively work toward a geologic hazard-resistant state as outlined in the Showcase State model and Oregon Benchmarks. Our task is to characterize hazards, pursue partnerships to reduce risks from the hazards, and deliver accurate information for use by broad audiences.

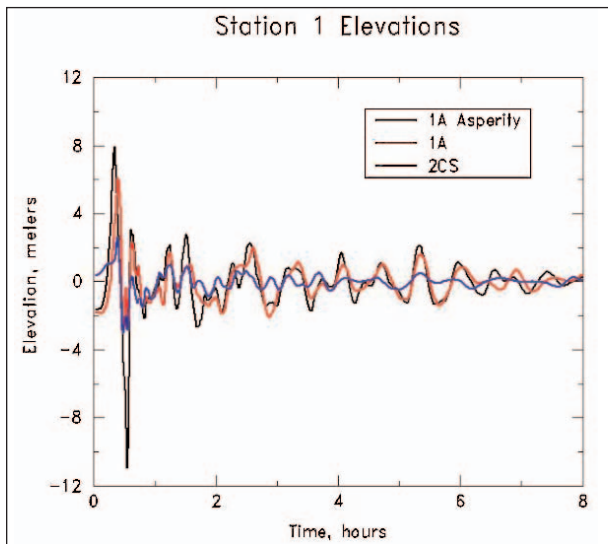
Tasks include:

1. Continuing to produce good geologic maps that depict geologic deposits and structures including faults, landslides, and potential mineral resources.
2. Specifically developing information in key areas, including groundwater storage, to help partners strategically manage ground and surface water in priority areas such as the Klamath Basin, Umatilla Basin, Willamette Basin, or interior southwestern Oregon.
3. Providing more information about Oregon's geology to support policy decisions. This will include production of data that can be integrated into geographic information systems (GIS) and other electronic applications.



Landslides are a common problem in many areas of Oregon; they affect roads, houses, and the economic livelihood of communities.

4. Refining our earthquake risk assessment of the state, including the incorporation of building inventories as well as refined geologic data.
5. Helping preserve beach resources and producing more information on coastal hazards (including tsunamis, wave erosion, and landslides) to help communities reduce loss of life and property.
6. Assessing Oregon's energy potential, including geothermal resources across central and eastern Oregon.



Time charts like this one show the pattern of tsunami waves expected after an earthquake. This information can help save lives through more effective evacuation planning.

CASE HISTORY: GEOLOGIC MAPS AND WATER RESOURCES

In the Klamath Basin, recent severe water shortages have led to unprecedented reductions of irrigation water, threatening the economic future of the community and several endangered species. Our agency is producing new geologic maps in cooperation with the Oregon Water Resources Department and the U.S. Geological Survey (USGS) Water Resources Division.

One well, drilled in response to the current shortage, was sited by a DOGAMI geologist based on our geologic mapping. The well brought in about 4,000 GPM at a depth of 200 feet, a truly successful well.



Good geologic data can be used to model complex groundwater and surface water systems in order to understand how to best manage water quality and quantity.

Geologic maps provide a wide variety of information. For example, mapping in the Klamath Basin has also served as a basis for new earthquake hazard maps of the region and has identified new active fault lines which may threaten the region. In September 1993, two lives were lost and at least \$10 million damage was done from two earthquakes centered near Klamath Falls.

Geologic mapping, including ground water resources, was also commissioned by the Grande Ronde Model Watershed Program. The goal was to better understand surface-groundwater interactions and evaluate possible improvements in stream flow to aid anadromous fish. This effort has been expanded to the entire upper Grande Ronde Basin.

RESOURCE MANAGEMENT



Bayview Transit won an Outstanding Operator award for protecting fragile natural resources while providing aggregate for asphalt and concrete production.

WHY IS IT IMPORTANT?

Oregon's mineral resources are vital to economic growth. In recent years, the annual production of mines has averaged over \$275 million. The Mist Gas Field has produced more than \$125 million of gas since its discovery in 1979.

Every Oregon community benefits directly from reliable sources of aggregate (sand, gravel, and crushed rock) and secondary products such as concrete and asphalt.

There may be future opportunities for economic diversification in rural parts of Oregon as the demand for industrial minerals increases. Current production includes cement, diatomaceous earth, pumice, bentonite, and zeolites.

Our programs benefit large-scale sustainability. They:

1. Minimize waste during production of natural gas,
2. Return disturbed land to a second beneficial use, and
3. Help guide intelligent use of water resources by providing information about rock aquifers.

GOAL

Promote creative stewardship of resources to meet the joint needs of mineral production, environmental protection, second beneficial use of the land, protection of correlative rights of oil, gas, and geothermal mineral owners, and paced extraction to conserve the resource.

STRATEGIES

Our emphasis will continue to include the promotion of voluntary governance, using regulation when necessary.

We support professional and scientifically guided regulation in the field. Our goal is to be sensitive to local conditions and proceed from field-based observations, in order to meet the needs of the regulated communities and take advantage of unique opportunities present at each regulated site.

We will continue to foster cooperative relationships and partnerships with water-oriented agencies and groups. This is an important part of salmon and steelhead recovery efforts as well as meeting water needs for Oregon's growing population.

Tasks include:

1. Reclamation, which is a high priority for our department. Incentives such as the Annual Awards Program are an important format to exchange ideas and promote good practices.

Unbiased, scientifically appropriate regulation will be enforced as necessary. Our department has overseen the reclamation of 4,000 acres of mined



This reclaimed storm-water pond was one of many voluntary projects that earned Glenbrook Nickel Company an award for Outstanding Voluntary Reclamation.



The department worked with Enerfin Resources on this well to plan the drilling, extraction, and reclamation phases.

land and drill sites, and there are currently 8,000 acres under bond.

2. Continuing to interpret and distribute existing data on economic minerals to advise industries on mineral resource availability and evaluating for other agencies the mineral potential of specific parcels and areas.

3. Continuing the oil, gas, and geothermal regulatory programs. This includes supervising the drilling, production, maintenance, abandonment and reclamation of exploratory, development and service wells, and seismic and information holes.



Exploration for energy resources is more active in times of high energy prices. Newberry Crater is often discussed as a potential geothermal power source.

4. Assessing the geothermal energy potential throughout Oregon and conducting an oil and gas assessment for the Umatilla Basin. Synthesizing geothermal data can help find resource targets for industrial development.



The River Island site is at Barton along the Clackamas River.

Parker Northwest donated 138 acres of the former mine site to Metro and sold another 109 acres at \$400,000 below market value. The total donation is valued at \$1,150,000, the largest in Metro history.

Parker spent an additional \$250,000 restoring the property to a more natural state and helped fund a hydrologic study. The company could have earned far more than the purchase price paid by Metro. But with the interests of Oregon's wildlife and Oregon's largest urban area in mind, the operators provided critical habitat for fish and wildlife and a natural environment for public access.

By showcasing these and other activities with our awards program, other operators get ideas for improving their own reclamation efforts.

CASE HISTORY: OREGON PLAN AWARD

The Oregon Plan Award is given each year to a mining operation that goes well beyond the legally required standards for reclamation, specifically with projects that improve fish habitat.

On February 9, 1996, a flood inundated a large portion of the Parker Northwest Paving Company River Island operation on the Clackamas River. Over the next three years all plans to continue mining were put on hold. The former mine site consisted of over 100 acres of ponds that were captured by a channel change. The ponds provide excellent areas for the rearing of young salmon and steelhead.



Damage from the February 1996 flood was extensive.

COMMUNITY EDUCATION

WHY IS IT IMPORTANT?

In a sense, our department translates nature into terms that we can use in every day efforts to improve our communities. For example, an Oregon resident can make a more informed decision on whether to buy earthquake insurance after reading our maps. On a different level, policy makers can use a broad range of our products as they develop strategies for solving problems.

In addition, with information in the right hands at the right time, public attitudes can drive voluntary actions to supplement the use of regulation to solve many of the complex problems facing Oregon.

GOAL

Get geologic information into the hands of the right people at the right time to help with decisions on a regional, statewide, local, and personal level.

STRATEGIES

We will continue to promote the ideas of the Showcase State by working closely with other groups to reduce future losses from natural disasters.

Because we are a small agency, we do not have the

A number of coastal communities have erected warning signs and developed evacuation routes in case of a major tsunami.



Our Coastal Field Office staff have special expertise to understand and explain the processes, resources, and hazards of the Oregon coast.

resources to attempt broad education efforts on our own. We aggressively seek partners, including other state agencies, federal and local governments, the private sector, and not-for-profit organizations.

Tasks include:

1. Continuing efforts to work with coastal residents and local governments to solve community-based geologic hazard problems.

Our department is a recognized source of information during natural disasters. We work with the public, other agencies, and the news media to get accurate data to the people who need it to make decisions. (Photo: Oregon Department of Transportation)





Our department is part of an interagency group to provide early warning of landslide dangers in Western Oregon. (Photo: Oregon Department of Transportation)

2. Developing partnerships to use geologic information to guide priorities and expenditures for water-related problems throughout the state.
3. Developing partnerships and information on the geologic and hydraulic behavior of major streams to guide floodplain management efforts.
4. Coordinating several workshops around the state each year. Each workshop will focus on the particular needs and resources of the area.
5. Improving access to our library. Our library includes a wide variety of publications from other agencies and commercial publishers, and copies of site-specific seismic reports on large projects.
6. Developing new formats for digital information distribution and storage, including increasing the amount of information available on our website.
7. Continuing two-way communication with the public—through an accessible Board and staff and systematic communication with key audiences.
8. Improving the distribution of information by more aggressively using digital technology, including the web site and electronic publishing.

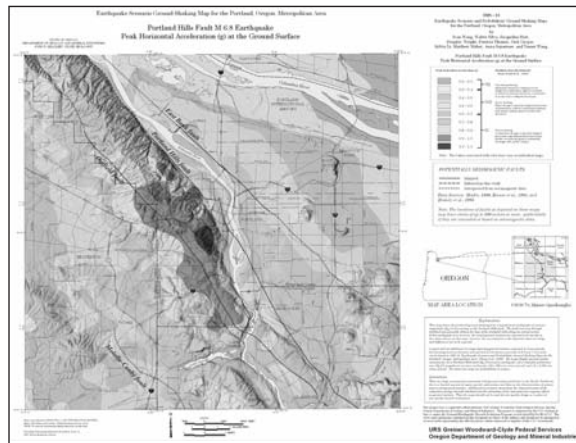


One of our most important lessons is that geology is not only important, but fun.

CASE HISTORY: SHOWCASE STATE

In 2000, Governor John Kitzhaber signed an Executive Order designating Oregon a “Showcase State for Natural Disaster Risk Reduction.” This Executive Order follows a model developed by the Institute for Business & Home Safety (IBHS), an initiative of the insurance industry to reduce deaths, injuries, property damage, economic loss, and human suffering caused by natural disasters.

Specifically, the mission of the Showcase State Initiative is to prevent injuries and deaths, protect public and private property, and create a disaster-ready statewide economy through public and private partnerships. Many departments of state and local governments, as well as the University of Oregon, are involved in these activities.

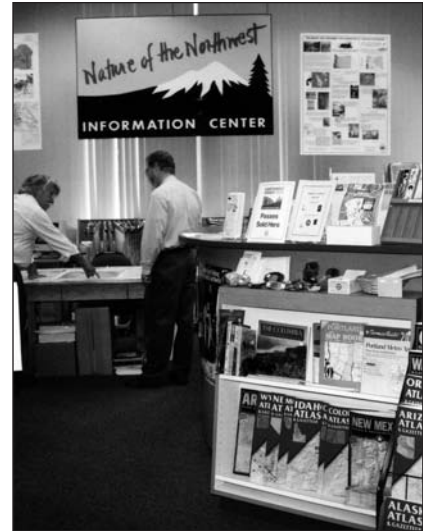


The earthquake, tsunami, coastal erosion, and landslide hazard maps produced by the department are an important step in planning for natural disaster mitigation.

Oregon ranks third nationally for potential earthquake losses, which are projected to exceed \$12 billion in the case of a major event in the Cascadia subduction zone off the Oregon coast. The direct costs of floods, landslides, tornadoes, earthquakes, hailstorms and wildfires severely tax public disaster relief programs and private insurance.

Catastrophic events strain government, not-for-profit, and private-sector abilities to pay for services. In addition, these events weaken the core of any state—its businesses and communities. These issues underscore the need for coordinated efforts to reduce risks in Oregon.

THE NATURE OF THE NORTHWEST INFORMATION CENTER



The Nature of the Northwest has a wide variety of information about the outdoors.

When you walk into the **Nature of the Northwest**, you won't feel like you're in an office of bureaucrats. It's our joint venture with the USDA Forest Service to serve the public with a wide variety of outdoor products, all in one place.

The **Nature of the Northwest**

is on the first floor of the State Office Building in Portland. All department publications are for sale here, as well as many U.S. Geological Survey (USGS) and other publications. The center has its own web site with online ordering.

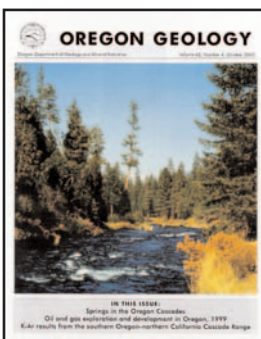
In addition, we carry a full line of USGS topographic maps for the state, as well as maps from the USDA Forest Service, U.S. Bureau of Land Management, State Parks, and others.

Several thousand people visit the Information Center each year, in person,

over the phone, or through the website, and many hundreds of publications are sold.

If you're not in Portland, visit our Baker City or Grants Pass field offices, which also have maps and reports for sale.

YOUR ONE-STOP RESOURCE CENTER FOR GEOLOGY, MAPS, AND RECREATION INFORMATION



Two of our most important education tools are our magazines.

Oregon Geology serves an important function for the scientific and technical community working in Oregon. We can publish articles that are useful for this area but wouldn't have the opportunity to be published in national journals. It is published on our website.

Cascadia is designed for nontechnical readers who need or want to know more about our geologic processes, resources and hazards. Each issue is devoted to a single topic: geologic hazards and resources, and descriptions of the geologic processes and history of various parts of our state.

