

# Benefit Assessment and Economic Impact Analysis for the Northwest Weather and Avalanche Center



December 1, 2008

 BERK & ASSOCIATES

# PROJECT OVERVIEW & APPROACH



## Context

- Washington State Parks & Recreation Commission hired Berk & Associates to conduct an economic assessment of the Northwest Weather and Avalanche Center (NWAC), as part of a larger legislatively mandated project.
- This assessment addresses the following two fundamental issues:
  1. What is the value of NWAC's products and services?
  2. What impacts do NWAC's products and services have on the level and pattern of commerce in Washington State?

## Approach

- This assessment presents analysis and findings based on two analytic frameworks:
  1. **A benefit/cost analysis:** a comparison between how much users value NWAC's services and the cost of providing those services; and
  2. **A discussion of economic impacts:** an examination of the economic and fiscal impacts that the snow and ice activity industry has on economies in the Cascade and Olympic Mountain regions.

# NWAC OVERVIEW



## Budget and Funding

- FY 2008 operating budget of \$340,000.
- Main sources of funding: Washington State Parks and Recreation Commission, U.S. Forest Service, Washington State Supplemental Budget, Washington State Department of Transportation.
- Other supporters: Ski Washington, Pacific Northwest Ski Areas Association, ski area operators in Washington and Northern Oregon.

## Products and Services

- NWAC provides five key services to public and private organizations and individuals:
  1. Mountain weather forecasts;
  2. Avalanche forecasts;
  3. Current conditions data;
  4. Phone consultations; and
  5. Educational services.

# NWAC USERS



## Industry Users

Public and private entities that use NWAC products and services to inform operations:

- Government agencies, including: WSDOT, U.S. Forest Service, National Park Service, National Weather Service, search and rescue organizations; and
- Private entities, including: private weather companies, broadcast media outlets, academic researchers, ski areas, and ski schools.

## Consumers

Ski area and backcountry recreationists who use NWAC products and services to inform travel and recreation plans, and to avoid adverse weather and safety conditions.

- This group includes skiers, snowboarders, hikers, snowshoers, snowmobilers, highway travelers, and climbing groups, among others.

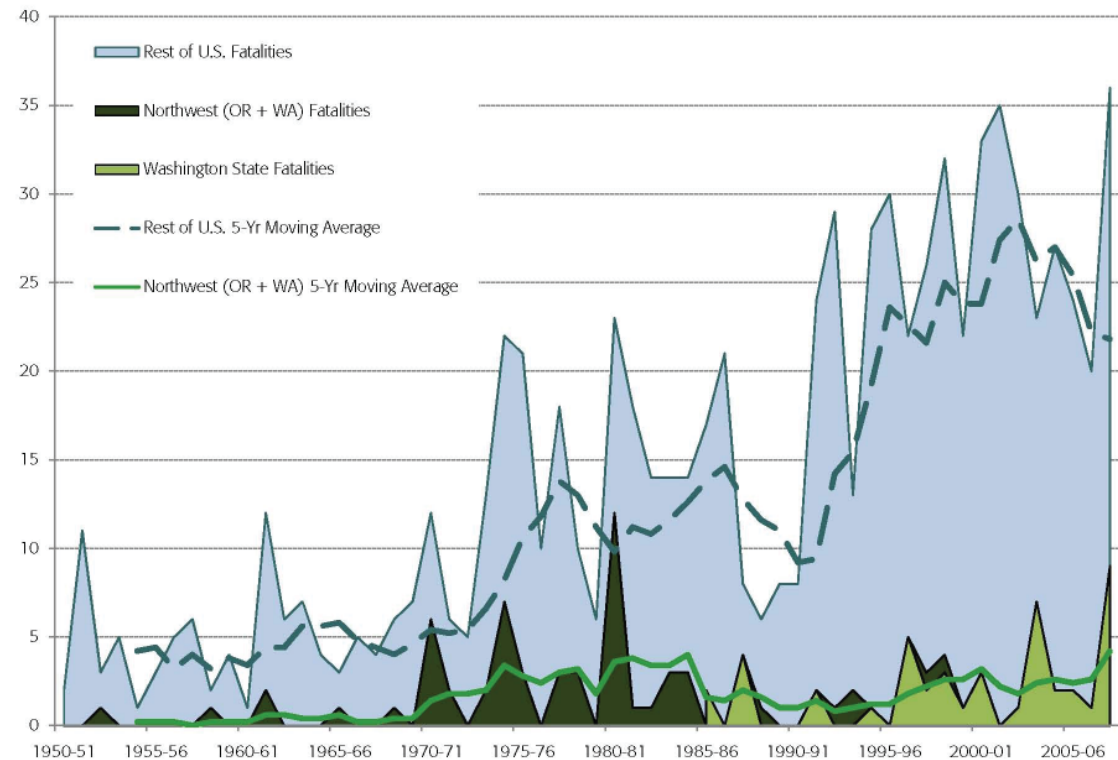
# BENEFITS OF NWAC SERVICES: LIVES SAVED



## Lives Saved

- NWAC saves lives by forecasting, tracking, and reporting weather and avalanche conditions.
- Historical avalanche fatality data suggest NWAC saves between two and nine lives per year.

Annual Avalanche Deaths in U.S., Northwest, and Washington  
1950/51-2007-08



## Value of Lives Saved

- How much should be invested to save a life? The U.S. Department of Transportation pegs the value of a statistical life between \$3.2 million to \$8.4 million.
- Using U.S. DOT guidelines, lives saved by NWAC translate to **annual economic benefits ranging from \$6.4 million to more than \$75 million.**

# BENEFITS OF NWAC SERVICES: INCREASED ACCESSIBILITY



## Increased Accessibility and Enjoyment for Backcountry Users

- Estimates suggest that between 220,000 and 417,000 recreational backcountry trips were made during the 2007-08 season in NWAC's Washington service area.
- For these recreationists, their enjoyment was greater due to NWAC because:
  1. They knew where to find the best possible conditions;
  2. They felt confident they understood the nature of avalanche risk; and
  3. They had the best possible information about expected weather conditions.

## Value of Increased Accessibility and Enjoyment for Backcountry Users

- Based on existing spending and stated-value willingness-to-pay preferences, one could assume a modest per-trip value to backcountry recreationists of \$5 to \$10.
- Given the number of backcountry trips, this results in **annual economic benefits between \$1.1 million and \$4.2 million.**

# BENEFITS OF NWAC SERVICES: OPERATIONAL EFFICIENCIES



## Increased Efficiency of Backcountry Operations

- Many federal, state, local, and private organizations derive direct benefits from NWAC.
- These organizations rely on NWAC for day-to-day planning, streamlining operations, maintaining safety of staff, and reducing the demand for search and rescue services.

## Value of Increased Efficiency of Mountain and Backcountry Operations

- The value of this benefit differs for each operator.
- The following organizations use NWAC services to inform their operating decisions:
  1. WSDOT makes decisions regarding avalanche control and road clearing;
  2. Ski areas make decisions regarding operations, avalanche control, and staffing levels;
  3. U.S. Forest Service and National Park Service make decisions regarding staff and public safety;
  4. Search and rescue organizations make decisions affecting response time and personal safety;
  5. Local governments make decisions regarding road clearing operations; and
  6. National Weather Service uses NWAC data to increase the accuracy and reliability of its forecasts.

# ECONOMIC AND FISCAL IMPACTS



## Increased Revenue to Non-Urban Counties

- By supporting snow and ice activities, NWAC supports industries that bring economic activity and revenue streams to non-urban parts of the state.
- Snow and ice activities generate \$100 million or more in annual economic activity outside the urban centers of the Puget Sound region.
- Snow and ice activities generate nearly \$1 million in annual revenues for local jurisdictions, with most revenues going to cash-strapped counties.

## State Competitiveness

- Immense natural amenities are one of Washington's greatest competitive advantages.
- NWAC leverages these amenities by facilitating wintertime recreational activities.
- This helps Washington State attract and retain industries, entrepreneurs, and high-skill workers.



## Public vs. Private Goods

An economic framework to inform the development of future funding considerations:

- Goods can be public or private, based on two considerations:
  1. Are they rivalrous in their consumption?
  2. Is consumption of the good excludable?
- Private goods are rivalrous and excludable; they are efficiently provided by private enterprise. Public goods are neither rivalrous nor excludable; they are best provided by government.

## Application to NWAC Services

Some NWAC services could be categorized as more of a private good, while others are more like a public good.

- **Excludable Product Example:** Current conditions data. Restricting access to data is technically feasible, but possible legal and political ramifications exist. Potential revenue generating options include: access fees and memberships; sponsors and advertisements.
- **Non-Excludable Product Example:** Avalanche forecasts. Technically feasible to limit access to information, but increased public risk from restriction makes this action unsupportable.

# CONCLUSIONS



## Important Tangible Benefits

- NWAC saves between two and nine lives per year.
- NWAC makes the backcountry more accessible and enjoyable.
- NWAC improves the efficiency of enterprises that operate in the backcountry.

Conservative estimates of **NWAC's benefits are at least \$7.5 million annually**. More likely benefits range from **\$20 million to \$79 million annually**. Given an annual budget of \$340,000, this translates to an **annual return on investment of at least two thousand percent**.

## Broader Fiscal and Economic Impacts

- NWAC brings revenue streams and economic activity to rural areas of Washington State.
- NWAC increases the overall competitiveness of Washington State.