CHANGES IN NATURE-BASED RECREATION CAUSED BY CLIMATE CHANGE

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In this presentation:
Background
Scenarios of outdoor recreation
Conclusions and discussion
Background

Almost all (97 %) of Finns recreate outdoors during the year
40 % makes a nature trip during a year
46 % participate in skiing activities
68 % participate in swimming in natural waters
Background

• nature-based tourism is about one fourth part of the tourism in total (4.9 mil foreign tourists)

• regionally more important in economy

• in Lapland, 7 % of labour force
Climate data and scenarios

- Current climate data 1998-2000
- projected changes
  - A2 high emission
  - B1 low emission
- near term 2020:
  - 0.9 °C increase in temperature
  - 8% - 16 % decrease in snow depth
- mid term (2021-2050)
- long term (2071-2100):
  - 3.2-5.0 °C increase in temperature
  - 48% -78 % decrease in snow depth
Regional differences in recreation participation

Recreation participation relates to climate conditions

Participation in x-country skiing %
- > 40
- 30-40
- < 30
Demographic scenario

- Population 65+ years
- Population 35-64 years
- Population 0-34 years
- Total Finnish population

Graph showing population trends from 2000 to 2080.
Objectives of the study

- to present scenarios of autonomous adaptation in outdoor recreation behaviour

- to discuss needs and options of adaptation
  - Recreationists
  - Recreation service provision of public sector
Method

- LVVI data – 15-74 years old Finnish population
- Connected to weather data – survey responses
- Models
  - binary logistic regression
  - left truncated negative binomial regression model
Studying present behaviour, exploring explaining factors:
- socio-economic background
- climate
- unknown?

Assumption: no change in behavior

Process

selecting climate sensitive activities

Applying scenario information in models

participation scenarios,

CLIMATE A2 & B1
AGE, EDUCATION, URBANIZATION...

outdoor recreation participation

• skiing
• snowmobiling
• swimming

CALIBRATED WITH DEMOGRAPHIC CHANGE
Scenarios of Snowmobiling

Snowmobiling

Participants, million/year

Participation days, million/year

participants climate change (A2) & socio-economic
participants climate change (B1)
days climate change (A2)
days socio-economic

present near term mid-term long term
Downhill skiing

![Graph showing downhill skiing participation over time](image)

- **Participants, million/year**
  - Present: 0.6
  - Near term: 0.5
  - Mid-term: 0.4
  - Long term: 0.3

- **Participation days, million/year**
  - Present: 3
  - Near term: 2.5
  - Mid-term: 2
  - Long term: 1.5

Legend:
- Participants climate change (A2) & socio economic
- Participants climate change (A2, B1)
- Days climate change & socio economic
- Days climate change (A2, B1)
Swimming in natural waters

Swimming

Participants, million/year

Participation days, million/year

present  near term  mid-term  long term

participants socio-economic

days socio-economic

days climate change (A2) & socio-economic

participants climate change (A2)

Concluding remarks

- adaptation in recreation participation:
  - strongest decline in skiing and snowmobiling
  - increase in swimming
- to adapt to climate change
  - skiers: 1) shift to other activities, 2) travel longer distance to ski, 3) use new types of skies
  - snowmobilers: shift to other activities
- recreation service providers:
  - Ski trails on artificial snow
  - other options for services for alternative activities
Future research needs

- Monitoring recreation and travel behaviour
- Awareness of climate change by tourists and recreationists, their perceptions of the future conditions and options of adaptation (contingent behaviour studies)
- Regional differences; the possible transition of tourists and tourism industry to new regions
- Economic, social and cultural impacts
- Evaluation of potential adaptation mechanisms and strategies, and their economic, social and cultural impacts
- Different time perspectives of adaptation in private and public sector
THANK YOU!

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