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<html><head>
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    .cpselementcontainer label {
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    }
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      color: gray;
    }

    BODY {
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</head><body><fieldset
class="elhs7dele8aa571f318863d73fec3b99f3df"><legend>Project
information</legend><dl class="afwelementview" data-
idstr="465j76803da63b8ef83731319d523c5fe7df"><dt
class="elcategory  ">Keywords</dt><dd style=""
class="elvalcategory  " >Anadromy, behavior, Arctic charr, brown
trout, Atlantic salmon, European whitefish</dd><dt class="elname
">Project title</dt><dd style="" class="elvalname  " >The
coastal migratory behaviour of anadromous fish in relation to
environmental parameters</dd><dt class="elyear  ">Year</dt><dd
style="" class="elvalyear  " >2017</dd><dt
class="elproject_leader  ">Project leader</dt><dd style=""
class="elvalproject_leader  " >Guttorm Christensen</dd><dt
class="elgeolocation  longinput">Geographical localization of the
research project in decimal degrees (max 5 per project, ex.
70,662&deg;N and 23,707&deg;E)</dt><dd style=""
class="elvalgeolocation  longinput" >69.758, 29.892</dd><dt

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Participants

UiTscale environmental changes. Recent studies have demonstrated a strong relationship between water temperatures and salmonid migratory behavior, and these species may therefore be affected in a global climate warming scenario. The study have investigated the marine migratory behavior of Arctic charr, brown trout, Atlantic salmon and the rare anadromous European whitefish by use of acoustic telemetry during four years, and is relating the migratory behavior to environmental parameters and human developments.

**Goals:**

- Understanding the environmental parameters controlling these species behavior at sea. The species exhibit varying degrees of anadromy and by relating their migratory behavior to environmental parameters, the project ultimately aims to predict how anadromous fish will respond to future increases in coastal water temperatures.
- Comparing the marine area habitat use among species, to investigate if they interact at sea.

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<li style="color: black; font-family: 'Calibri', sans-serif; font-size: 11.5pt; font-style: normal; font-weight: normal;">
<p style="color: black; font-family: 'Calibri', sans-serif; font-size: 12pt; font-style: normal; font-weight: normal; margin-top: 0cm; margin-bottom: 0pt; mso-list: l0 level1 lfol1;"><span lang="EN-US" style="font-size: 11.5pt; mso-ansi-language: EN-US;">Investigate if and how established and planned human developments affects fish behavior.</span></p>
</li>
</ol>
<p><span lang="EN-US" style="font-size: 11.5pt; mso-ansi-language: EN-US;">The findings from the three papers that will be submitted by the end of 2017/in the beginning of 2018 includes methods for investigating how different species utilize different fjord areas in relation to planned human coastal developments, documentation of how different species migratory behavior is affected by environmental parameters, and novel knowledge on the behavior and physiology of a species that are normally non-anadromous (whitefish).</span></p>
<p>&nbsp;</p></dd><dt class="elstudents_involved editor">Master and PhD-students involved in the project</dt><dd style="" class="elvalstudents_involved editor" ><p>&nbsp;</p>
<p style="margin: 0cm 0cm 0pt; line-height: normal;"><span lang="EN" style="mso-ansi-language: EN;"><span style="font-family: Calibri; font-size: medium;">The project has produced two master students, Pierre Fagard (2015) studying the physiology and migratory behavior of European whitefish at UiT &ndash; The Arctic University, and Odin Kirkemoen (2016) working on Arctic charr&acute;s and brown trout&acute;s use of established and planned developed coastal areas at NMBU &ndash; Norwegian University of Lifesciences. </span></span></p>
<p>&nbsp;</p></dd><dt class="elfor_the_management private editor">For the Management</dt><dd style="" class="elvalfor_the_management private editor" ><p>&nbsp;</p>
<p style="margin: 0cm 0cm 8pt;"><span lang="EN" style="mso-ansi-language: EN;"><span style="font-family: Calibri; font-size: medium;">Findings have been communicated to the management and stakeholders during previous study years, through reports, presentations and local media. Published results will be distributed when available. </span></span></p>
<p>&nbsp;</p></dd><dt class="elpublished_resultsplanned_publications editor">Published Results/Planned Publications</dt><dd style="" class="elvalpublished_resultsplanned_publications editor" ><p>&nbsp;</p>
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Paper 1: Behavior and saltwater tolerance of European whitefish in an Arctic estuary and sea. Led by: Jo Espen Tau Strand at UIT (to be submitted in 2017).

Paper 2: Area use of Arctic charr (*Salvelinus alpinus*) and brown trout (*Salmo trutta*) in an Arctic fjord system. Led by: Thronnd Haugen at NMBT (to be submitted in 2017).

Paper 3: Environmental drivers of anadromous fish's coastal migratory behavior. Led by: Jenny Jensen at APN (to be submitted in the beginning of 2018, partial other funding).

Communicated Results

Se paragraph "For the Management "

Interdisciplinary Cooperation

No

Budget in accordance to results

The budget was reduced by 50 000 NOK from the application. The cooperating institutions have balanced this by putting in own effort into publishing of the results.

Could results from the project be subject for any commercial utilization

No

Conclusions

The Fjord and Coast project together with the main project have revealed many new interesting aspects of the behavior of our three most commonly occurring salmonid species, amongst other that Arctic charr, brown trout and Atlantic salmon will be affected differentli by changes in environmental parameters. It has also documented that the species European whitefish can exhibit anadromous behavior including physiological

adaptations to salt water in Arctic environments.</p></dd></dl></fieldset></body></html>