Report

NTNU
Norwegian University of Science and Technology
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Reports, publications and media appearances related to Herøy FoU

Herøy FoU: WP5 report

Trondheim – January – 2025

NTNU
Norwegian University of Science and Technology

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Herøy FoU: WP5 report

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ABSTRACT

This document compiles a bibliographical list of all documents produced during Herøy FoU project. The document includes bibliographical information about all the documents together with hyperlinks to access the original files on-line. The documents included in this list are: reports, student works, journal publications, conference contributions, and other media appearances.

REPORT NUMBER
WP5.A3.NTNU.Report

CLASSIFICATION
Open

Preface and acknowledgements

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Table of contents

1. Introduction

This document compiles a bibliographical list of all documents produced during Herøy FoU project. The document includes bibliographical information about all the documents together with hyperlinks to access the original files on-line. The documents included in this list are: reports, student works, journal publications, conference contributions, and other media appearances.

2. Project reports

2.1. WP1 Structural health monitoring

Title:	Strain-based structural health monitoring of post-tensioned bridge. Herøy FoU: WP1 activities and results report
Author(s):	Daniel Canter
Date:	January 2025
Type:	Technical report
Language:	English
Codename:	WP1.A4.NTNU.Report
Link:	https://danielc.folk.ntnu.no/Projects/HeroyFoU/WP1.A4.NTNU.Report.pdf

Title:	Dynamic analysis of Herøysund Bridge using finite element modelling and operational modal analysis
Author(s):	Harpal Singh, Giuseppe Occhipinti, Daniele Storni
Date:	December 2024
Type:	Technical report
Language:	English
Codename:	WP1.A4.UiT.Report
Link:	https://danielc.folk.ntnu.no/Projects/HeroyFoU/WP1.A4.UiT.Report.pdf

2.2. WP2 Corrosion and inspection

Title:	Condition survey of grouted tendons of a prestressed concrete girder bridge Heröy Bridge – results from NDT (Non-Destructive Testing)
Author(s):	Cosmin Popescu, Björn Täljsten, Mats Holmqvist, Isak Langås and Roy Antonsen
Date:	December 2024
Type:	Technical report
Language:	English
Codename:	WP2.A1.SINTEF.Report
Link:	https://danielc.folk.ntnu.no/Projects/HeroyFoU/WP2.A1.SINTEF.Report.pdf

Title:	Summary of inspections and investigations on PT components of Herøysund Bridge, Norway (2017-2023)
Author(s):	Suraksha Sharma, Christoffer A. Bjerk, Mette Rica Geiker, Roy Johnsen
Date:	January 2024
Type:	Technical report
Language:	English
Codename:	WP2.A2.NTNU.Report
Link:	https://danielc.folk.ntnu.no/Projects/HeroyFoU/WP2.A2.NTNU.Report.pdf

Title:	Undersøkelser av injiseringsmasse fra kabelkanal til Herøysund bru – 2023
Author(s):	Tobias Danner
Date:	November 2023
Type:	Technical report
Language:	Norwegian
Codename:	WP2.A3.SINTEF.Report
Link:	https://danielc.folk.ntnu.no/Projects/HeroyFoU/WP2.A3.SINTEF.Report.pdf

Title:	Corrosion mechanism including effect of environmentla parameters Summary of work and findings
Author(s):	Roy Johnsen
Date:	January 2025
Type:	Technical report
Language:	English
Codename:	WP2.A4.NTNU.Report
Link:	https://danielc.folk.ntnu.no/Projects/HeroyFoU/WP2.A4.NTNU.Report.pdf

Title:	Repair options for corrosion-damaged prestressed concrete bridges
Author(s):	Suraksha Sharma, Magdalena Jadwiga Osmolska, Karla Hornbostel, Lise Bathen, Iveta Novakova, Mette Geiker
Date:	2024
Type:	Peer reviewed journal publication
Language:	English
Codename:	WP2.A5.SVV.Report
Citation:	Suraksha Sharma, Magdalena Jadwiga Osmolska, Karla Hornbostel, Lise Bathen, Iveta Novakova and Mette Geiker. "Repair Options for Corrosion-damaged Prestressed Concrete Bridges". Nordic Concrete Research Sciendo, 70, no. 1 (2024): 99-123.
Link:	https://danielc.folk.ntnu.no/Projects/HeroyFoU/WP2.A5.SVV.Report.pdf
Link:	https://hdl.handle.net/11250/3146673
DOI:	http://dx.doi.org/10.2478/ncr-2024-0004

2.3. WP3 Assessment and robustness

Title:	Capacity assessment procedures considering damaged post-tensioning systems. Herøy FoU: WP3 activities report
Author(s):	Daniel Cantero
Date:	January 2025
Type:	Technical report
Language:	English
Codename:	WP3.A3.NTNU.Report
Link:	https://danielc.folk.ntnu.no/Projects/HeroyFoU/WP3.A3.NTNU.Report.pdf

2.4. WP4 Reliability

Title:	Decision-making and structural evaluation of a corroding reinforced concrete bridge incorporating new information. Herøy FoU: WP4 activities report
Author(s):	Jochen Köhler, Frida Liljefors
Date:	January 2025
Type:	Technical report
Language:	English
Codename:	WP4.A1.NTNU.Report
Link:	https://danielc.folk.ntnu.no/Projects/HeroyFoU/WP4.A4.NTNU.Report.pdf

2.5. WP5 Management and publicity

Title:	Reports, publications and media appearances related to Herøy FoU Herøy FoU: WP5 report (This document)
Author(s):	Daniel Cantero
Date:	January 2025
Type:	Compendium
Language:	English
Codename:	WP5.A3.NTNU.Report
Link:	https://danielc.folk.ntnu.no/Projects/HeroyFoU/WP5.A3.NTNU.Report.pdf

2.6. Summary report

Title:	Summary report of Herøy FoU
Author(s):	Herøy FoU project
Date:	February 2025
Type:	Summary
Language:	English
Codename:	Summary.Report
Link:	https://danielc.folk.ntnu.no/Projects/HeroyFoU/Summary.Report.pdf

3. Students works

3.1. WP1 Structural health monitoring

Title:	Model validation with measurements and effect of damage on strain signals
Author(s):	Sindre Moritsgård Flatjord
Date:	June 2023
Type:	Master thesis
Language:	English
Codename:	WP1.A3.NTNU.Thesis1
Link:	https://ntnuopen.ntnu.no/ntnu-xmlui/handle/11250/3093185

Title:	Quantifying Structural Damage on the Herøysund Bridge through Strain and Displacement Response Analysis
Author(s):	Nora Svae Eggum, Margrete Furnes
Date:	June 2024
Type:	Master thesis
Language:	English
Codename:	WP1.A3.NTNU.Thesis2
Link:	https://ntnuopen.ntnu.no/ntnu-xmlui/handle/11250/3153539

Title:	Machine learning-assisted structural health monitoring of Herøysund Bridge
Author(s):	Erling Nordli Husøy, Emil Hæreid Steen
Date:	June 2024
Type:	Master thesis
Language:	English
Codename:	WP1.A3.NTNU.Thesis3
Link:	https://ntnuopen.ntnu.no/ntnu-xmlui/handle/11250/3156765

Title:	Review and application of optimal sensor placement method on Herøysund bridge
Author(s):	Macdonald Nwamma
Date:	May 2023
Type:	Master thesis
Language:	English
Codename:	WP1.A3.UiT.Thesis1
Link:	https://munin.uit.no/handle/10037/34263

Title:	Beam based finite element modelling of Herøysund bridge
Author(s):	Patrick Norheim Berg
Date:	May 2023
Type:	Master thesis
Language:	English
Codename:	WP1.A3.UiT.Thesis2
Link:	https://munin.uit.no/handle/10037/31344

Title:	Shell-based finite element modeling of Herøysund bridge
Author(s):	Zeeshan Azad
Date:	May 2023
Type:	Master thesis
Language:	English
Codename:	WP1.A3.UiT.Thesis3
Link:	https://munin.uit.no/handle/10037/34155

Title:	Numerical Modelling of Damage Conditions on Herøysund Bridge in Herøy Municipality, Nordland Norway
Author(s):	Christopher Odongo
Date:	May 2024
Type:	Master thesis
Language:	English
Codename:	WP1.A3.UiT.Thesis4
Link:	https://munin.uit.no/handle/10037/34259

Title:	Development of Digital Twin of the Herøysund Bridge using Finite Element Model Updating
Author(s):	Mohammadreza Khademi
Date:	May 2024
Type:	Master thesis
Language:	English
Codename:	WP1.A3.UiT.Thesis5
Link:	https://munin.uit.no/handle/10037/34169

3.2. WP2 Corrosion and inspection

Title:	Title: Effects of chloride, sulfate and pH on the corrosion of tensile wires in grouted tendon ducts in Herøysundet bridge
Author(s):	Bettina Horn Myhre
Date:	June 2022
Type:	Master thesis
Language:	English
Codename:	WP2.A4.NTNU.Thesis1
Link:	https://ntnuopen.ntnu.no/ntnu-xmlui/handle/11250/3034279

Title:	Corrosion on prestressed tensile wires - Herøysund bridge
Author(s):	Christoffer Andresen Bjerk
Date:	December 2023
Type:	Project thesis
Language:	English
Codename:	WP2.A4.NTNU.Thesis2
Link:	(Available under reasonable request)

Title:	Corrosion of prestressed tensile wires on the Herøysund bridge
Author(s):	Christoffer Andresen Bjerk
Date:	June 2024
Type:	Master thesis
Language:	English
Codename:	WP2.A4.NTNU.Thesis3
Link:	https://ntnuopen.ntnu.no/ntnu-xmlui/handle/11250/3157086

3.3. WP3 Assessment and robustness

Title:	Modellering i DIANA FEA og kapasitetskontroll av Herøysund bru
Author(s):	Brage Sikveland, Therese Steffensen
Date:	June 2023
Type:	Master thesis
Language:	Norwegian
Codename:	WP3.A1.NTNU.Thesis1
Link:	https://ntnuopen.ntnu.no/ntnu-xmlui/handle/11250/3093186

Title:	Capacity analysis of Herøysund bridge with a damaged post-tensioned system
Author(s):	Amna Gonilovic, Simen Steinkjer Løken
Date:	June 2023
Type:	Master thesis
Language:	English
Codename:	WP3.A1.NTNU.Thesis2
Link:	https://ntnuopen.ntnu.no/ntnu-xmlui/handle/11250/3093190

Title:	Modellering og kapasitetsvurdering av Herøysundbruen i Diana FEA: Kapasitetsvurdering ved ulike skader i etterspennigssystem
Author(s):	Amjad Tayyem, Mahmoud Shaar
Date:	June 2024
Type:	Master thesis
Language:	Norwegian
Codename:	WP3.A1.NTNU.Thesis3
Link:	https://ntnuopen.ntnu.no/ntnu-xmlui/handle/11250/3153484

Title:	Robusthet av brukonstruksjoner - Kasusstudie av Herøysund bru
Author(s):	Lars Gøran Farstad
Date:	October 2024
Type:	Master thesis
Language:	Norwegian
Codename:	WP3.A1.NTNU.Thesis4
Link:	https://ntnuopen.ntnu.no/ntnu-xmlui/handle/11250/3168382

4. Journal publications

Title:	Analysis of civil engineering infrastructure in Norway with solutions based on structural health monitoring and artificial intelligence
Author(s):	Kristoffer Tangrand, Harpal Singh
Journal:	Mathematics in Science, Engineering, and Aerospace
Other:	Vol. 14 No. 2 (2023)
Link:	https://nonlinearstudies.com/index.php/mesa/article/view/3245
Link 2:	https://munin.uit.no/handle/10037/33178

Title:	Shell-Based Finite Element Modeling of Herøysund Bridge in Norway
Author(s):	Harpal Singh, Zeeshan Azad, Vanni Nicoletti
Journal:	MDPI – Modelling
Other:	Vol. 5, pp. 71-84 (2024)
DOI:	https://doi.org/10.3390/modelling5010005
Link:	https://www.mdpi.com/2673-3951/5/1/5

Title:	Research on wavelets and artificial intelligence algorithms for structural health monitoring of concrete bridges
Author(s):	Daniele Stornia, Harpal Singh, Kristoffer Tangranda, Niklas Grip
Journal:	Journal: Mathematics in Engineering, Science and Aerospace (MESA)
Other:	Vol. 15, No. 1, pp. 131–150 (2024).
Link:	https://nonlinearstudies.com/index.php/mesa/article/view/3529

Title:	Repair options for corrosion-damaged prestressed concrete bridges
Author(s):	Suraksha Sharma, Magdalena Jadwiga Osmolska, Karla Hornbostel, Lise Bathen, Iveta Novakova, Mette Geiker
Journal:	Journal: Nordic Concrete Research
Other:	Vol. 70, No. 1, pp. 99-123 (2024)
DOI:	https://doi.org/10.2478/ncr-2024-0004
Link:	https://sciendo.com/article/10.2478/ncr-2024-0004

Title:	Decision support and structural assessment of a corroding reinforced concrete bridge considering new information
Author(s):	Frida Liljefors, Jochen Köhler
Journal:	Structure and Infrastructure Engineering
Other:	pp. 1-16 (2023)
DOI:	https://doi.org/10.1080/15732479.2023.2271962

5. Conference articles

Title:	A comprehensive study of wavelets and artificial intelligence algorithms for SHM and its application to a concrete railway arch bridge
Author(s):	Harpal Singh, Kristoffer Tangrand, Niklas Grip
Conference:	INCPAA 2023: Mathematical problems in engineering, aerospace and sciences, 27-30 June 2023, Czech Technical University, Prague, Czech Republic

Title:	A note on methods of analysis and function space used in some engineering problems
Author(s):	Harpal Singh
Conference:	The 50, 70, 80 Conference in Mathematics, 19-23 August 2024, Karlstad University, Karlstad, Sweden

Title:	Modelling and dynamic identification of concrete bridge in cold climate region
Author(s):	Daniele Storni, Giuseppe Occhipinti, Harpal Singh and Per Johan Nicklasson
Conference:	IABSE Tokyo 2025: The International Association for Bridge and Structural Engineering, 18-21 May 2025, Tokyo, Japan

Title:	Dynamic identification and long-term monitoring of post tensioned bridge in cold climate region
Author(s):	Daniele Storni, Giuseppe Occhipinti, Harpal Singh
Conference:	EVACES: Experimental Vibration Analysis for Civil Engineering Structures, 02-04 July 2025, Porto, Portugal

Title:	Experiences implementing a BWIM system on a suboptimal bridge
Author(s):	Daniel Cantero
Conference:	IABSE Tokyo 2025: The International Association for Bridge and Structural Engineering, 18-21 May 2025, Tokyo, Japan

6. In the news and other media

Outlet:	Video article on NRK
Date:	20th October 2022
Description:	The project Herøy FoU was part of NRK news.
Link	See from minute 1:45 in the video: Distriktsnyheter Nordland – NRK

Outlet:	Article on NRK.no
Date:	24th November 2023
Description:	Article describing the Herøy FoU project
Link	https://www.nrk.no/nordland/forskning-kan-forhindre-brukollapser_-vil-spare-100-milliarder-1.16146940

Outlet:	Article on Veier24 and Teknisk Ukeblad
Title:	Forskningsprosjekt på Herøysund bru i Nordland skal hindre nye brukollapser
Date:	30th of October 2022
Description:	Article describing the Herøy FoU project
Link	https://www.veier24.no/artikler/forskningsprosjekt-pa-heroysund-bru-i-nordland-skal-hindre-nye-brukollapser/523337?utm_source=newsletter-v24main&utm_medium=email&utm_campaign=newsletter-2022-11-02

Outlet:	3D image scan of Herøysund bridge
Authors:	SINTEF\INVATOR
Description:	As part of WP2.A1
Link	https://my.matterport.com/show/?m=ATT77PNk6Fh

Outlet:	HBK promotion and case study
Description:	Article at HBK's website about the project and their installation. Includes a longer description as a case study report.
Link	https://www.hbkworld.com/en/knowledge/resource-center/case-studies/nordland-county-municipality

7. Summary

This document has listed all documents produced during Herøy FoU project together with their relevant bibliographical information.

In summary, the outcome of the Herøy FoU project consist of:

- 11 technical reports as deliverables of the project
- 15 master thesis works from students at NTNU and UiT
- 5 peer-reviewed journal publications
- 5 conference papers
- Other news and media outputs

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