

### APPENDIX 3

#### TA PROJECT REPORT (TEMPLATE)

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(see following pages)

#### TA PROJECT REPORT PACKAGE

- The completed and signed forms included in this package should be sent by email to [jerico.ta@marine.ie](mailto:jerico.ta@marine.ie) and [jerico-s3@ifremer.fr](mailto:jerico-s3@ifremer.fr) within **one month after the completion of the TA project** by the User Group Leader.
- **Refunding of the TA reimbursement to the user group will be processed as soon as these forms will be submitted.**
- The TA project report will be published in the JERICO-S3 website. The report, as well as other information collected with the attached forms, will be used to report to the European Commission.
- **Please note that any publication resulting from work carried out under the JERICO-S3 TA activity must acknowledge the support of the European Commission – H2020 Framework Programme, JERICO-S3 under grant agreement No.871153.**

- Project Information

<b>Proposal reference number<sup>1</sup></b>	JS3_CALL_1_REF_4034
<b>Project Acronym (ID)<sup>2</sup></b>	EMPORIA
<b>Title of the project<sup>3</sup></b>	Exploring the mesoscale processes in the area of freshwater influence (Gulf of Riga)
<b>Host Research Infrastructure<sup>4</sup></b>	Glider Mia + Profiler
<b>Starting date - End date<sup>5</sup></b>	26.09.2021 – 04.08.2022
<b>Name of Principal Investigator<sup>6</sup></b> <b>Home Laboratory</b> <b>Address</b> <b>E-mail address</b> <b>Telephone</b>	Māris Skudra Latvian Institute of Aquatic Ecology (LIAE) Voleru street 4, LV-1007, Riga maris.skudra@lhei.lv +371 28740641

- Project objectives<sup>7</sup> (250 words max.)

The project's scientific objective was to research the dynamic processes (vertical features, movement of water masses, upwellings/downwellings, coastal gradients, etc.) occurring in the northeastern (NE) part of the Gulf of Riga (GoR), describe their characteristics and possible impact on the GoR environment by conducting high-resolution glider survey perpendicular to the E coast complemented with CTD profiling. Likewise, an autonomous profiler was deployed in the central part of the GoR.

A glider survey was the first such application carried out in the GoR water basin, thus, it allowed to obtain important information about the glider operability and functioning in shallower water basins (e.g. GoR) as opposed to deeper basins where a glider has been used till now.

Novel data acquisition using glider surveys in combination with an autonomous profiler and with already known and used methods (e.g. ship-based monitoring) will allow more detailed view about the environment in the GoR – a target which is important for the national level

<sup>1</sup> Reference number assigned to the proposal by the TA-Office.

<sup>2</sup> User-project identifier used in the proposal.

<sup>3</sup> Title of the approved proposal. The length cannot exceed 255 characters

<sup>4</sup> Name of the installation/infrastructure accessed with this project. If more than one installations/infrastructures are used by the same project, please list them in the box.

<sup>5</sup> Specify starting and end date of the project (including eventual preparatory phase before the access).

<sup>6</sup> Fill in with the full contact of the Principal Investigator (user group leader).

<sup>7</sup> Write the short-term, medium and long-term objectives of the project. Use no more than 250 words.

(e.g. marine monitoring program, environmental assessment improvements, setting up indicator values for specific parameters) as well as European level (assessment reports to EU authorities, policymaking etc.).

Finally, such research would improve the international cooperation between scientific organizations (in this case with TALTECH) and personnel involved which might be useful in further scientific projects and/or research.

- Main achievements and difficulties encountered (250 words max.)<sup>8</sup>

Main achievements:

- 1) Successfully conducted glider survey in 2022 and data obtained for the period 04.07-31.07.2022
- 2) Basic knowledge gained on how to practically operate and set-up the glider survey onboard the ship
- 3) Data obtained from the autonomous profiler for the period 04.07 to 12.07. The profiler data were complemented by the measurements in the fixed depths in the water column until end of the glider survey.

Difficulties encountered:

- 1) Malfunction of the glider in the first planned deployment survey during September 2021 and subsequent delay of the project till 2022 in order to obtain data during the summer which was the initial aim of the project
- 2) An autonomous profiler was deployed but its measurements did not cover the full period of the glider mission due to technical issues. The missing profiler data were complemented by the measurements in the fixed depths in the water column.
- 3) Nobody from the user group was able to join the glider deployment cruise in July 2022. However, user group participated in planning of the glider path and in real time piloting of the glider.

- Dissemination of the results<sup>9</sup>

The results produced from the data obtained within the framework of the EMPORIA project are planned to be published as scientific articles touching such topics as coastal processes (e.g. upwellings/downwellings) and water exchange/renewal in the GoR. Outcomes might be presented in international scientific conferences.

<sup>8</sup> Describe briefly the main achievements obtained and possible impacts, as well as possible difficulties encountered during the execution of the project. Use no more than 250 words.

<sup>9</sup> Describe any plan you have to disseminate and publish the results resulting from work carried out under the Transnational Access activity in JERICO -S3: scientific articles, books - or part of them -, patents, as well as reports and communication to scientific conferences, meetings and workshops. Highlight peer-reviewed publications. **Note that any publications resulting from work carried out under the JERICO -S3 TA activity must acknowledge the support of the European Commission – H2020 Framework Programme, JERICO -S3 under grant agreement No. 871153.**

- Technical and Scientific preliminary Outcomes (2 pages max.)<sup>10</sup>

Overall, the glider followed the route of specific coordinates in the GoR and gathered data from July 4-31, 2022. Three coordinate pairs were as follows (red triangle in the figure 1):

23deg39'0000 57deg 36'0000  
 24deg13'0000 57deg 36'0000  
 23deg33'4000 57deg 43'4000

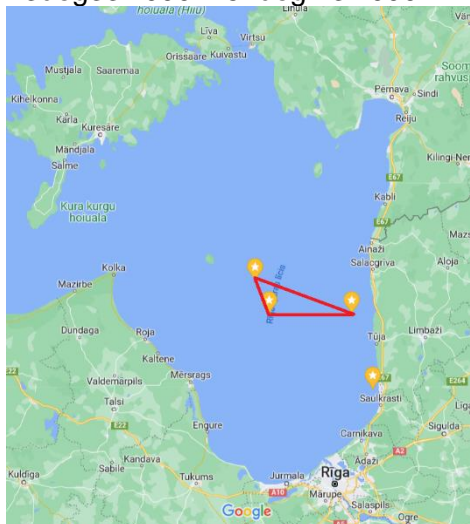


Figure 1. Glider route represented by the red triangle.

One of the aspects was to find out if current setting of glider route would allow to detect upwelling events and their created temperature gradients (lower temperature signal further offshore) in the coastal area. During July 12-14 there was rather short but strong upwelling event in the E part of the GoR (Figure 2). Nevertheless, the lower temperature signal does not seem to appear very clearly in the glider data (Figure 3) which might mean that the closest glider route point to the shore was still too far for the signal to reach it. However, the glider data allows to detect the origin of the upwelled water. Likewise, elevation of the thermocline were measured by glider on July 14-15 (Figure 3). We can also notice from the glider data slightly lower oxygen concentrations and slightly higher turbidity, which might also hint that these waters come from or are related to the aforementioned upwelling event. Thus, glider observations well complemented our coastal time-series at Skulte.

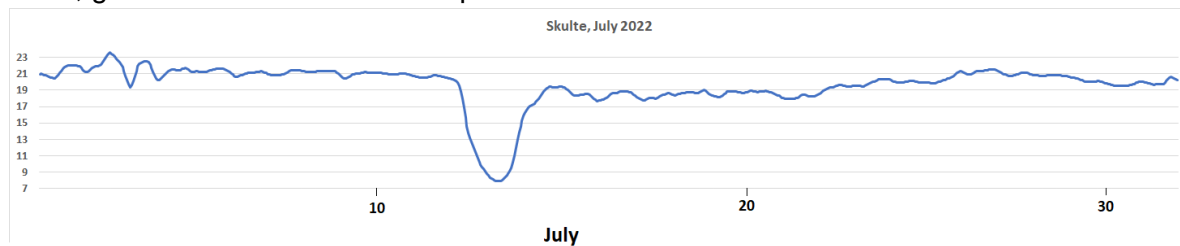


Figure 2. Sea surface temperature (1h temporal resolution) at the Skulte coastal station in the eastern part of the GoR.

<sup>10</sup> Describe in detail results and main findings of your experiment at the present stage.

This might indicate, after all, that it is possible to detect such events further away from the coast or their influence using high resolution equipment. Further details will be explored in the future.

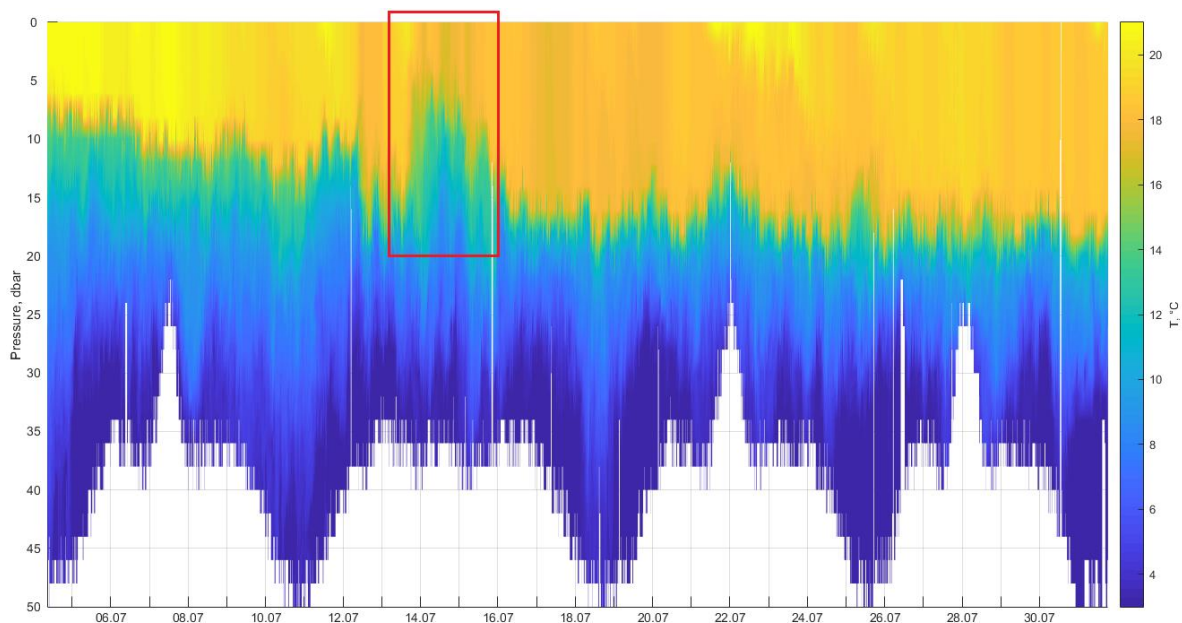


Figure 3. Temperature distribution from the obtained glider data. Red rectangle represents the lower temperatures in the upper layer which might be the indication of the upwelling event which occurred in the eastern part of the GoR couple days before.

**Remaining ongoing work.** The obtained glider data will be used as an additional data source to explore and research the coastal processes as well as to analyse water exchange/renewal in the GoR deep part. More detailed data analyse is yet to be performed. Currently, it is planned that the results obtained within framework of EMPORIA project would contribute to at least 2 scientific publications.

Riga, 01/12/2022

Location and date



Signature of principal investigator

**USER GROUP INFORMATION**

Project Acronym <sup>11</sup> [EMPORIA]	Researcher			Employing organisation/Home institution			Activity Domain (Discipline)
	Name	Gender	Nationality	Name	Legal Status	Country	
<b>Project leader (Principal Investigator):</b>	Māris Skudra	M	Latvian	Latvian Institute of Aquatic Ecology	UNI (Agency of University of Daugavpils) <sup>12</sup>	Latvia	Earth Sciences & Environment <sup>13</sup>
<b>Project user 1:</b>	Miks Papirtis	M	Latvian	Latvian Institute of Aquatic Ecology	UNI (Agency of University of Daugavpils)	Latvia	Earth Sciences & Environment
<b>Project user 2:</b>	Rita Poikāne	F	Latvian	Latvian Institute of Aquatic Ecology	UNI (Agency of University of Daugavpils)	Latvia	Earth Sciences & Environment
<b>Project user 3:</b>	Astra Labuce	F	Latvian	Latvian Institute of Aquatic Ecology	UNI (Agency of University of Daugavpils)	Latvia	Earth Sciences & Environment

Riga, 01/12/2022



Location and date

Signature of principal investigator

<sup>11</sup> User-project identifier used in the proposal.

<sup>12</sup> UNI = University and other higher education organisations; RES = Public research organisation (including international research organisation as well as private research organisation controlled by a public authority); SME = Small or Medium Enterprise; PRV = Other Industrial and/or profit Private organization; OTH = Other organisation not fitting in one of the above categories.

<sup>13</sup> [Physics]; [Chemistry]; [Life Sciences & Biotech]; [Earth Sciences & Environment]; [Engineering & Technology]; [Mathematics]; [Information & Communication Technologies]; [Material Sciences]; [Energy]; [Social Sciences]; [Humanities]

