ACCOBAMS-SC17/2026/Inf06

THE TUNISIAN DOLPHIN PROJECT, EXPANDING THE MONITORING PROGRAMME TO THE GULF OF GABÈS SECOND MIDTERM REPORT

Note of the Secretariat

At their First Meeting (Monaco, 28 February – 2 March 2002), and as provided by Article IX, paragraph 3, of the Agreement, the Parties to ACCOBAMS established a Supplementary Conservation Grants Fund (SCF) from voluntary contributions of Parties or from any other source in order to increase the funds available for monitoring, research, training and projects relating to the conservation of cetaceans.

Since 2011, projects to be funded under the SCF were selected through calls for proposals launched by the Secretariat, in consultation with the Bureau of the Parties, and following the scientific evaluation made by the Scientific Committee of ACCOBAMS.

The present report is the second interim report of a project selected from the 2022 call for proposals under the Supplementary Conservation Fund.

Accord sur la Conservation des Cétacés de la Mer Noire, de la Méditerranée et de la zone Atlantique adjacente

ACCOBAMS

Agreement on the Conservation of Cetaceans
of the Black Sea, Mediterranean Sea and contiguous Atlantic Area

The Tunisian Dolphin Project, expanding the monitoring programme to the Gulf of Gabes

Second Midterm Report

ATVS

24/11/2025

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Second Midterm Report

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1. SUMMARY

During fall 2025, the Tunisian Dolphin Project (TDP) conducted 7 out of the planned 10 cetaceans mark-recapture surveys in the Gulf of Gabès (34°00'N 10°25'E / 34.000°N 10.417°E / 34.000; 10.417) as part of the Project's monitoring scheme to study the bottlenose dolphin population of Tunisia. In this campaign, supported by the ACCOBAMS Supplementary Conservation Fund (SCF), the survey team, combined mainly of TDP, the Kratten Association for Sustainable Development, the Tunisian Association for Wildlife (ATVS) personnel conducted the fieldwork activity (A.2) of the Memorandum of Understanding N° 02/2023/FAC. Seven trips were conducted as part of the survey covering approximately 430 km of on-effort monitoring (averaged 60km per trip) in which the Observers recorded 9 dolphin sightings, with group sizes varying from solitary individuals to 12 individuals. From post-survey photo processing, preliminary results indicates the recording of new 14 distinct individuals (including one probable female with a calf) which were added to the national catalogue of Tunisia supervised by the TDP. Preliminary processing and analysis also shows at least 2 recapture events occurred during the survey which might indicate the small population size in the area. Other observations included several seabird species such as; Scopoli's shearwater (*Calonectris diomedea*), European shag (*Phalacrocorax aristotelis*), Yellow-legged gull (*Larus michahellis*), slender-billed gull (*Chroicocephalus genei*), Sandwich tern (*Sterna sandvicensis*); a sighting of a seaturtle (most likely loggerhead -*Caretta caretta*) and jellyfish (*Pelagia noctiluca*). This report integrates project contractual and proposal context, capacity building and public awareness activities, and provides a consolidated picture of 2025 field work, methodological advances, preliminary results, challenges, and recommendations. Also, a dedicated section at the end of the document offers communication approaches to celebrate the TDP's 10-year anniversary and recommendations for outreach initiatives with the remaining budget of the project.

2. INTRODUCTION

The Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic Area (ACCOBAMS) was established in 1996 to facilitate cooperative conservation, monitoring, research and mitigation of threats to cetaceans in the Mediterranean and adjacent Atlantic waters (ACCOBAMS, 2001). Through its Supplementary Conservation Fund (SCF), ACCOBAMS offers much-needed grants to enable range-state projects with constrained budgets, particularly in under-studied regions, thereby catalysing local capacity and generating baseline data in these neglected areas.

Despite the relatively long-term research coverage in parts of the northern and north-western Mediterranean, significant knowledge gaps persist along the North African coast and southern Mediterranean basin. A comprehensive gap analysis demonstrates substantial under-sampling of cetaceans in southern sectors, including Tunisia, and an uneven representation of cetaceans habitat models (Forcada *et al.,* 2004). This disparity hinders the capacity to basin-wide conservation effort and limits targeted management in under-represented regions (Panigada *et al.,* 2024).

The Tunisian Dolphin Project (TDP), a long-term monitoring initiative launched in 2015, was designed to provide a step in bridging this gap by establishing a long-term, standardised monitoring programme along Tunisia's coastline, with emphasis on mark–recapture, stakeholder engagement, and national capacity building. The Gulf of Gabès campaign (2023 -2025) marks a further southward expansion in the TDP survey area, supporting the project's evolution and the objectives embedded in ACCOBAMS's cooperative framework.

The common bottlenose dolphin, *Tursiops truncatus*, is the focal species studied by the TDP. Globally, this species displays ecological flexibility, inhabiting coastal, shelf, and offshore habitats and feeding opportunistically on demersal and pelagic fishes. In the Mediterranean, *T. truncatus* is predominantly coastal, with localised populations showing site fidelity and restricted movement (IUCN, 2024). The Mediterranean subpopulation is assessed as Vulnerable due to declining trends and direct threats including bycatch, habitat degradation, prey depletion, and disturbance (Grattarola *et al.,* 2023). During the ACCOBAMS Survey Initiative (ASI, 2018), the bottlenose dolphin Mediterranean population was estimated to be around 63,333 individuals (CV = 0.17) (Panigada *et al.,* 2024). This figure provides a comparative baseline, though smaller subpopulations (like in Tunisia) remain poorly studied and understood.

In this intermediate report, we present the 2025 survey effort conducted by the TDP in the Gulf of Gabès, situating them within the broader TDP mission and ACCOBAMS regional context, with the aim of informing stakeholders, supporting regional collaboration, and guiding future phases.

3. PROJECT CONTEXT, OBJECTIVES & IMPLEMENTATION PROGRESS

3.1 Project framework and contractual background

The TDP's Gulf of Gabès campaign is nested within a broader 24-month project (January 2023 – December 2024) supported under the ACCOBAMS Supplementary Conservation Fund. The project proposal and contract define three core Activities: Capacity Building (A1), Monitoring (A2), and, Public Awareness (A3). The contract describes a collaborative approach in implementing these activities between TDP (The Scientific Leader), ATVS (Local NGO Coordination), and APAL (permit support, implementation liaison). The proposal emphasised alignment with ACCOBAMS Resolutions on capacity building, research, and education (notably Resolutions 2.23, 6.13, 6.23).

3.2 Activities completed and milestones

From the contractual and previous intermediate report documents, the following key activities were implemented:

- **A1. Capacity Building**: In May 2023, a training workshop was held targeting 20 participants from Tunisian NGOs, universities, and government bodies. Training included survey methods, data protocols, photo-ID procedures, and stakeholder engagement. In addition, field training with APAL Eco-Guards was done in regions such as Hammamet and Monastir to build governmental enforcement capacity.
- **A2. Monitoring & Surveying**: The project suggested 10 field trips in this campaign targeting the Gulf of Gabès. The proposal also suggested pilot aerial survey trails to test the feasibility of applying the method in Tunisia which will be beneficial for upcoming basin-wide areal surveys (e.g. ASI II).
- **A3. Public Awareness**: In July 2024, a joint event with ATVS and WWF North Africa commemorated the *World Dolphin Day* and launching the *Atlas of Marine Mammals of Tunisia Vol. 2*, engaging the public, schools, and media. A school campaign and dissemination of awareness materials (posters, brochures) were also foreseen in the proposal.

Implementing these components has strengthen the already expanding TDP network, enhanced stakeholder alignment, and provided a structured approach into which the 2025 field operations are implemented. The Gulf of Gabès campaign should be viewed not in isolation, but as the concluding leg of the contractual mandate, enabling integration of capacity, outreach, and data generation.

4. THE STUDY AREA (GULF OF GABÈS)

The Gulf of Gabès is a semi-enclosed shallow gulf situated along Tunisia's southern coast, laying approximately between 34.5°N and 33.0°N and longitudinally from the Cap Bon peninsula to the Kerkennah archipelago. The gulf's shelf is generally shallow (< 50 m), punctuated by tidal channels, sandbanks and softer sediment zones. Bathymetric heterogeneity, combined with tidal currents and seasonal upwelling, supports benthic productivity and prey aggregation dynamics (Zakhama-Sraieb *et al.*, 2025).

Historically, the gulf hosted extensive *Posidonia oceanica* and *Cymodocea nodosa* meadows; however, recent assessments indicate fragmentation and regression, of these meadouws which is attributed to nutrient loading, mechanical disturbance (notably trawling), and coastal urbanisation

(Zakhama-Sraieb *et al.*, 2025; Mosbahi *et al.,* 2022). Also, fisheries pressure is high in the gulf area; small-scale and trawl operations dominate the gulf, with documented cases of ghost gear and habitat degradation (El Zrelli *et al.*, 2020). The gulf also serves as a corridor and feeding zone for marine megafauna, including sea turtles, and elasmobranchs, underlining its ecological importance.

Due to its under-representation in past marine mammal survey datasets, the gulf is scientifically undervalued despite its vulnerability (Panigada *et al.,* 2024). Thus, the Gulf of Gabès is both a high-priority and under-explored region for cetacean monitoring and conservation.

5. MATERIALS AND METHODS

5.1 Survey platform and design

- **Vessel**: A 6 m inflated boat was sued in the survey which enabled the survey team to cover as much as possible of the study area in one trip. The boat is equipped with navigation aids and safety gear.
- **Observer arrangement**: Two primary observers were stationed forward, supported by a third crew member managing cameras/helm and backup scanning. Observers rotated stations routinely to reduce fatigue and maintain detection consistency.
- **Navigation & GPS logging**: A high-precision GPS (WAAS/EGNOS enabled) recorded vessel position, heading and speed at 5–30 s intervals. Track logs were downloaded post-trip and reconciled with sighting records.
- **Photography**: Two cameras were used in capturing the dolphins dorsal side and fins. A Canon 7D Mark II with a zoom lenses (70–200 mm). This was supported by another Nikon camera with a similar zoom to ensure capturing as many individuals as possible during each encounter.
- **Data recording**: A voice recorder was used to collect and document sightings data; digital tablets (with standardised forms) recorded information such as time, GPS, group size, behaviour, environmental conditions (sea state, glare, visibility).

5.2 Observer protocol and sighting procedures

Upon detection of a cue (blow, dorsal fin, splash), the observers recorded time, position, group size estimate, and environmental conditions. The team then executed a slow, nonintrusive approach (parallel or oblique), maintaining distance and following the guidelines of ACCOBAMS to avoid disturbance. Behaviour was noted (travelling, socialising, feeding, milling), with special attention to any interactions with fishing gear or nearby vessels.

5.3 Photo-identification and matching

Images were backed up to a hard drive and after the survey was finished, they were filtered by quality (angle, focus, splash interference). Images were scored (Good, Moderate, Poor) and only Good/Moderate shots used for ID. Selected images were then compared to the existing TDP national catalogue using manual and semi-automated matching tools. A double-review validation was undertaken by two experienced researchers to reduce misidentification risk. New individuals were assigned unique TDP IDs following standard nomenclature (site/trip/sighting). Capture histories (by

trip) for each individual (left, right side) were assembled for future mark–recapture modelling (Würsig and Jefferson 1990; Urian *et. Al* 2015).

5.4 Data quality control, synchronization and metadata

Before each trip, camera and GPS clocks were synchronized. Post-trip, drift corrections were applied during data processing to align sighting timestamps with GPS logs. All datasets (images, processed matches, metadata) were versioned and archived.

6. FIELDWORK SUMMARY AND COVERAGE

Seven survey trips were implemented over October 2025 under varying sea states but mostly within Beaufort ≤ 3. Each trip covered between 60 and 70 km (up to 5 hours per survey) with a total of 430 km. Survey tracks encompassed coastal, mid-gulf and outer shelf zones within the Gulf of Gabes (figure 1).

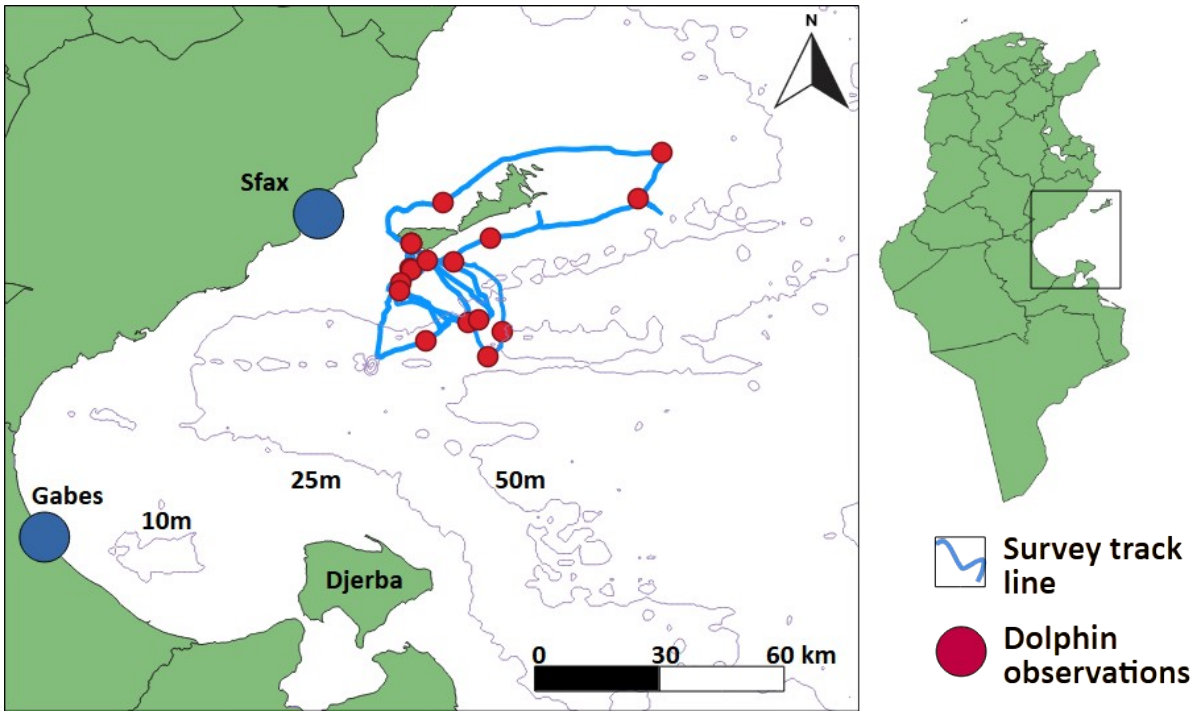

Figure (1): Map of the Study area showing the effort and the dolphins' observations

7. GENERAL RESULTS AND VALUES

7.1 Sightings and Encounter Rates

A total of nine confirmed dolphin sightings were recorded during seven trips, yielding an encounter rate of ≈ 0.021 pods per km (≈ one pod every 48 km of on-effort trackline). Group sizes ranged from 1 to 12 individuals, with a mean of 5.3 ± 3.2.

Aggregating the mid-range of group counts gives an approximate total of 49 individuals encountered. Calves were noted in two sightings (about 20–25 % of observed pods), and may suggest active reproduction in the gulf area.

7.2 Behavioural Patterns

Feeding behaviour was the most frequently recorded (five pods), followed by socialising / breaching (four pods). bow-riding was also observed in which the dolphins were engaging the survey boat or other fishing vessels encountered during the survey. Feeding events were often associated with visual cues of pelagic fish schools and/or bird activity especially of Scopoli's shearwater (*Calonectris diomedea*). Notably, three encounters occurred very close to operating fishing boats (trawlers or small artisanal fishers), supporting previous observations of dolphin foraging near human activity zones (see Forcada *et al.,* 2004; Panigada *et al.,* 2018).

7.3 Data Reliability and Preliminary Interpretation

Of the nine sightings, eight (≈ 89 %) yielded usable photographs suitable for dorsal-fin identification, enhancing reliability for mark–recapture analysis. One sighting lacked imagery due to short duration of the encounter and the long distance to the dolphins. Given the moderate sample size, inference remains qualitative; however, repeated detection of small pods and calves suggests local habitat use, potentially year-round residency consistent with patterns reported in other Mediterranean coastal sectors (Cheney *et al.*, 2014; Boyd *et al.,* 2021).

8. PHOTO-IDENTIFICATION, RECAPTURES & PRELIMINARY ANALYSIS

- **Image portfolio**: Approximately 2,700 images were taken using two cameras. Selection and filtering process reduced this to roughly 95 images meeting quality thresholds and photo-ID guidelines (Urian *et. al.,* 2015).
- **Cataloguing**: Fifteen well-marked individuals were provisionally catalogued; two of these were recaptured across 2 trips (figures 2 and 3).
- **Preliminary estimators**: A simple Chapman or Lincoln–Petersen estimator may be attempted, but with explicit caveats; alternative modelling (robust design or mixture models) will be explored in the final analysis phase.
- **Caveats and biases**: The assumption of temporal closure may not strictly hold over multiple survey days; heterogeneous detectability across individuals (due to dorsal fin distinctiveness, behaviour, position) may bias estimates. Additional bootstrapping or sensitivity testing is necessary.

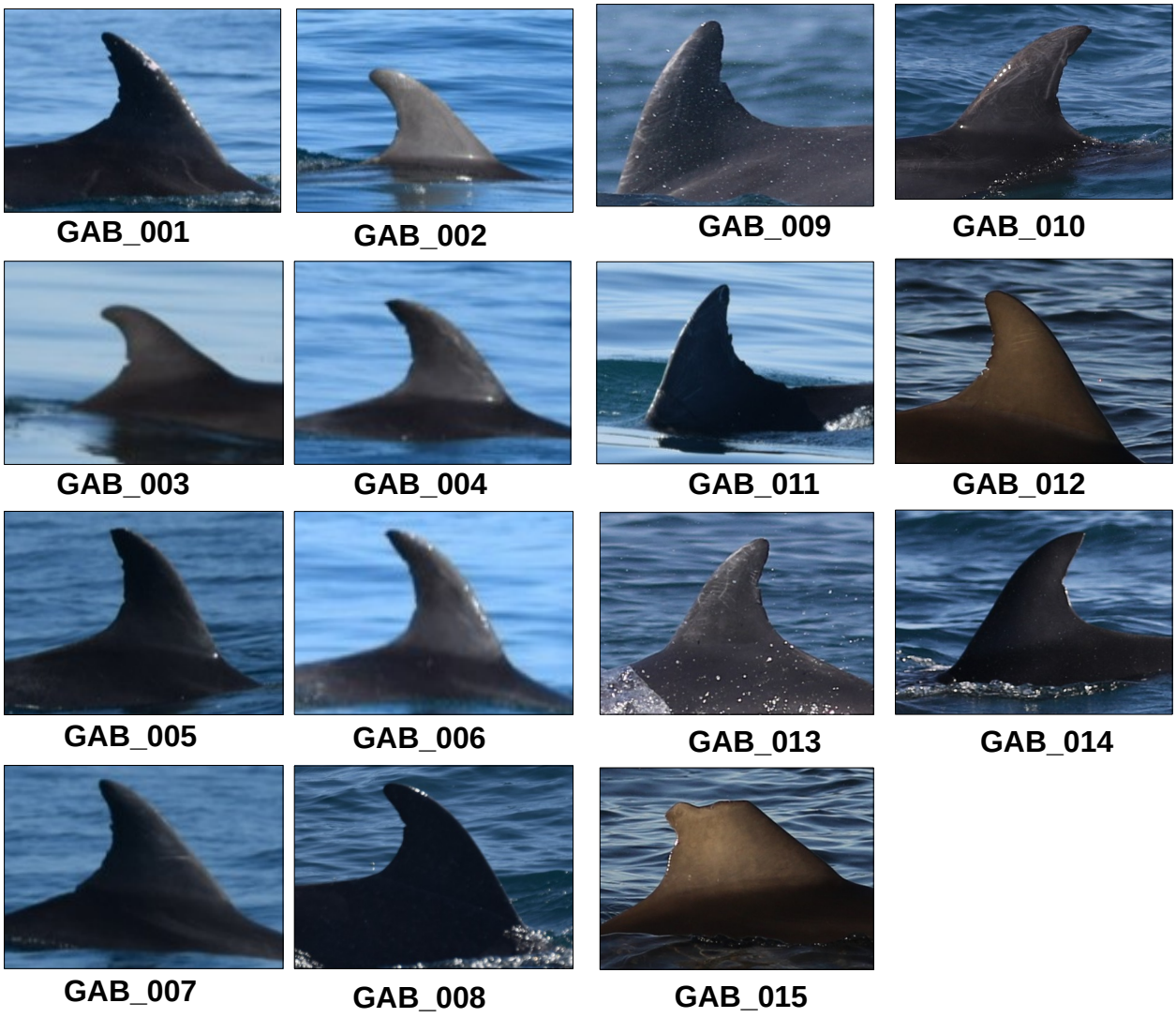

Figure (2): Marked individual images extracted from the 9 encounters of dolphins.

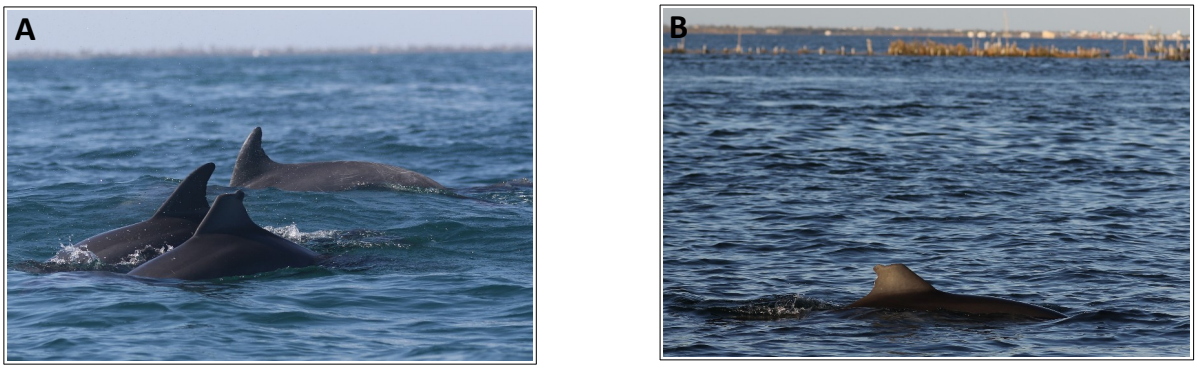

Figure (3): the Individual GAB_015 first sighting on 08 October and then on 10 October two days after.

9. OTHER SIGHTINGS

- **Seabirds:** Frequent observations included Scopoli's shearwater (*Calonectris diomedea*), European shag (*Phalacrocorax aristotelis*), Yellow-legged gull (*Larus michahellis*), Slender-billed gull (*Chroicocephalus genei*), and Sandwich tern (*Sterna sandvicensis*). Many individuals were observed following the survey vessel, particularly during mid-gulf transects (figure 4).
- **Seaturtles**: At least one sighting was recorded, likely *Caretta caretta*. Details included surfacing behaviour and approximate location.
- **Other observations / notes**: Some marine debris, possible ghost gear fragments, and visible vessel-fishing interactions (e.g. trawler paths) were noted adjacent to transects. These observations enrich the ecosystem context and may serve to cross-validate anthropogenic stressor overlays.

Figure (4): bird species encountered during the survey. A: Sandwich tern (Sterna sandvicensis), B: Slender-billed gull (Chroicocephalus genei), C: European shag (Phalacrocorax aristotelis), D: Scopoli's shearwater (Calonectris diomedea).

10. CHALLENGES, LIMITATIONS & LESSONS LEARNED

- **Sea and weather variability**: Wind, glare and occasional swell hampered observer efficiency and forced truncated or postponed transects. October is one of the months which the weather is not always stable and can change rapidly and quickly in the south of Tunisia.
- **Photographic losses**: Motion blur, splash interference and suboptimal angles rendered many images unusable despite redundancy.

- **Sparse recapture counts**: With the resulting few repeated sightings, statistical analysis for mark–recapture models is not valid at this points and more monitoring need to be conducted in order to have enough data (images) to run a prediction model.
- **Coverage gaps**: due to logistic and accessibility issues, only a minimum part of the gulf was covered since the area is very shallow and the boat could not navigate close to shore. There were also areas in which the survey team was not given permission to access for the survey.
- **Coordination and logistics**: Scheduling, weather contingency and coordination with local authorities (ports, fisheries) proved demanding, especially given remote sectors.

11. FINANCIAL REPORT

After receiving the second part of the fund, equal to 3750 Euros = 12198,109 TND, on the 3rd of june 2025, the project had the following financial progress: 3.252 EXCHANGE RATE

Activities	**Categories**	**Budget requested to ACCOBAMS**	**Expenses Amount (TND)**	**Amount (DT)**	**Amount (EUR)**
Activity 1 (Capacity Building)	Personnel	300	-	0	0
	Consumables and other	1260.00 (Consumables: 780.00 Others: 480.00)	-	0	0
	Travel	360	-	0	0
Activity 2 (Fieldwork)	Personnel *(10 field trips, 3 researchers, 36€ /person/trip)*	1080	-	0	0
	Non-consumable Equipment	**210.24**	-	0	0
	Consumables *(30€ per trip to cover meals, water, other consumables)*	300	Consumables for the team for 7 trips	197.550	60.74
	Travel *(car rent to carry the team from Bizerte to the Gulf of Gabes, roughly 470 km trip)*	1210	Indemnity car 570 km	228	70.110
	Field Work Preparation *(renting of boat for 10 trips, each 370€ + 80€ extra to compensate for increasing price of fuel or other expenses).*	**2560**	Renting boats for 7 field trips	6000	1845.018
	Other *(shared accommodation for one night for each of*	1800	Accomodation for the team for 7 trips	910.560	280

	the 10 field trips to benefit from the early morning good weather)				
Activity 3 (Public Awareness)	Consumables and other	1650	-	0	0
	Personnel	100	-	0	0
	Travel	140	-	0	0
Others	Admin. Fees (10%)	1333	-	0	0
	Banking Fees (2.5%)	333.25	-	64,731	19,90
Total				**7400.841**	**2275.768**

12. NEXT STEPS (CELEBRATING THE 10th ANNIVERSARY OF THE TDP)

Since the Project did not complete the planned 10 field trips stated in the ACCOBAMS contract, alternative activities to spend this budget and the remaining budget in the contract were stated here after. Depending on expenses, the budget can be used to support one or more activities:

12.1 Celebrating the 10th Anniversary of the TDP (2015 – 2025):

Remaining funds can be allocated to produce a high-impact communication materials in celebrating the 10th Anniversary of the Tunisian Dolphin Project (2015 - 2025):

- Laminated posters (French/Arabic) for the species, the project development that will be distributed to the many partner NGOs, and local fisheries communities.
- T-shirts with the new TDP 1o Years Anniversary will be distributed to ACCOBAMS, the partners of the project and participants in the capacity building activities of the project.
- Branded notebooks, folders, pens and stationery with the new logo
- Bilingual brochures or leaflets summarising TDP accomplishments, during the 10 years period.
- A public ceremonial event (venue to be determined) to mark the 10-year milestone and present results to stakeholders and communities
- A targeted social media campaign using #TDP10Years, with images, short video teasers, interviews and countdowns.

12.2 Development of the TDP Geo-Tracking and Recording App

To strengthen long-term data collection and citizen-science participation, part of the remaining budget will support the creation of a geo-tracking and recording mobile application (a prototype is already developed and called CetaMare). The app will serve as a dedicated platform for field data collection and species observation reporting with the following components:

- Operate in three languages (Arabic, English, and French) to facilitate use by researchers, NGOs, and volunteers across North Africa.
- Integrate GPS-based tracking and effort recording tools compatible with standard line-transect and photo-ID protocols used in cetacean surveys.
- Feature an illustrated field guide summarising the main cetacean, seabird, and marine-fauna species encountered in the Mediterranean sea, developed in coordination with national experts and ACCOBAMS technical guidance.
- Ensure compatibility with existing datasets to allow future integration with regional monitoring initiatives.

The tool will enhance the project's outreach while improving field efficiency, harmonising data input formats, and broadening the participation of coastal NGOs, fishers, and students in cetacean monitoring activities.

12.3 Feasibility Study on Aerial Survey Options

Another approach for spending the remaining budget is to test and try the feasibility of conducting aerial surveys in Tunisian waters using small, privately operated aircraft. Several aerial-tourism Tunis-Carthage airports—for example, Fly Tunisia (operating from Mahdia) https://www.facebook.com/ulm.tunisie/.
Preliminary discussions will assess cost, permits, safety standards, flight duration, and operational logistics to determine whether such partnerships could support future large-scale monitoring under ACCOBAMS guidelines.
If viable, the approach could provide a cost-effective platform for coastal aerial monitoring, filling current spatial gaps in coverage and complementing vessel-based surveys in Tunisia. This will also set clear milestones for the upcoming ASI II survey and how it could be implemented from Tunisia.

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14. REFERENCES

ACCOBAMS Secretariat. (n.d.). *ACCOBAMS call for proposals.* Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area. Retrieved from https://accobams.org/main-activites/accobams-call-for-proposal/

Boyd, C., Harwood, J., Bravington, M., & Thomas, L. (2021). Shifting trends: detecting changes in cetacean population size and trend within a changing environment. *PLoS ONE, 16*(9), e0256238. https://doi.org/10.1371/journal.pone.0256238

Cassar, T., Vella, A., & Schembri, P. J. (2023). Common bottlenose dolphin habitat suitability in Malta's coastal waters as a human-altered environment. *Marine Biology, 170*(2), 15. https://doi.org/10.1007/s00227-023-04158-0

Cheney, B., Thompson, P. M., & Hammond, P. S. (2014). Long-term trends in the use of a protected area by small cetaceans: applying Bayesian mark–recapture models. *Marine Mammal Science, 30*(3), 1234–1249. https://doi.org/10.1111/mms.12105

Diederichs, A., Nehls, G., & Adler, S. (2008). Methodologies for measuring and assessing potential displacement and impact on marine mammals from offshore construction. *Tethys Technical Report*.

El Zrelli, R., Courjault-Radé, P., Rabaoui, L., Daghbouj, N., & Boukthir, M. (2020). Economic impact of human-induced shrinkage of seagrass meadows in the Gulf of Gabès, Tunisia. *Marine Pollution Bulletin, 150*, 110706. https://doi.org/10.1016/j.marpolbul.2019.110706

Forcada, J., Gazo, M., Aguilar, A., Gonzalvo, J., & Fernández-Contreras, M. (2004). Bottlenose dolphin abundance in the NW Mediterranean: addressing heterogeneity in distribution. *Marine Ecology Progress Series, 275*, 275–287. https://doi.org/10.3354/meps275275

Grattarola, C., Minoia, L., Giorda, F., Consales, G., Capanni, F., Ceciarini, I., … Fossi, M. C. (2023). Health status of stranded common bottlenose dolphins (*Tursiops truncatus*) and contamination by immunotoxic pollutants: a threat to the Pelagos Sanctuary—Western Mediterranean Sea. *Diversity, 15*(4), 569. https://doi.org/10.3390/d15040569

Hammond, P. S., Francis, T. B., Heinemann, D., Thomas, L., & Bravington, M. V. (2021). Estimating the abundance of marine mammal populations: challenges and methodologies. *Frontiers in Marine Science, 8*, 735770. https://doi.org/10.3389/fmars.2021.735770

IUCN. (2024). *The IUCN Red List of Threatened Species: Tursiops truncatus (Mediterranean subpopulation).* Retrieved from https://www.iucnredlist.org/

Mosbahi, N., Pezy, J.-P., Dauvin, J.-C., & Neifar, L. (2022). COVID-19 pandemic lockdown: an excellent opportunity to study the effects of trawling disturbance on macrobenthic fauna in the shallow waters of the Gulf of Gabès (Tunisia, Central Mediterranean Sea). *International Journal of Environmental Research and Public Health, 19*(3), 1282. https://doi.org/10.3390/ijerph19031282

Panigada, S., Boisseau, O., Canadas, A., David, L., Di Méglio, N., Mussi, B., … Lauriano, G. (2018). Assessing cetacean surveys throughout the Mediterranean Sea: a gap analysis in environmental space. *Scientific Reports, 8*, 1842. https://doi.org/10.1038/s41598-018-19842-9

Panigada, S., Lauriano, G., Di Méglio, N., Boisseau, O., Moulins, A., & Raga, J. A. (2024). The ACCOBAMS Survey Initiative: establishing a coordinated monitoring system for cetaceans across the ACCOBAMS region. *Frontiers in Marine Science, 11*, 1328485. https://doi.org/10.3389/fmars.2024.1328485

Urian, K., Gorgone, A., Read, A., Balmer, B., Wells, R. S., Berggren, P., Durban, J., Eguchi, T., Rayment, W., & Hammond, P. S. (2015). Recommendations for photo-identification methods used in capture-recapture models with cetaceans. *Marine Mammal Science, 31*(1), 298-321.

Würsig, B., & Jefferson, T. A. (1990). Methods of photo-identification for small cetaceans. In P. S. Hammond, S. A. Mizroch & G. P. Donovan (Eds.), *Individual Recognition of Cetaceans: Use of Photo-Identification and Other Techniques to Estimate Population Parameters* (IWC Special Issue 12, pp. 43–52). Cambridge: International Whaling Commission.

Zakhama-Sraieb, R., Mabrouk, L., & Bradai, M. N. (2025). Seagrass carbon stocks and fluxes in the Gulf of Gabès: implications of meadow decline. *Marine Ecology Progress Series, 715*, 91–104. https://doi.org/10.3354/meps14326