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PROGRESS REPORT OF THE DMAD PROJECT “FROM SMALL CETACEANS TO GREAT WHALES OF THE EAST”

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“FROM SMALL CETACEANS TO GREAT WHALES OF THE EAST”**

Note of the Secretariat:

This report is presented by the SPA/RAC to the Thirteenth Meeting of the ACCOBAMS Scientific Committee for information.

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From Small Cetaceans to the Great Whales of the East
Quarterly Progress Report 2

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12/02/2020

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Title of the report

Autumn 2019 and Winter 2020 Survey Effort of Cetaceans within the Turkish Mediterranean Sea and Stakeholder Engagement

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Reference of the study:

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Contents of the quarterly report

1. Summary (one page)

The second quarterly report summarizes the research efforts and stakeholder engagements that were undertaken between October 2019 and January 2020. The visual and acoustic survey effort has been conducted for both the autumn (3th- 7th November 2019) and winter (10th-14th January 2020) seasons. Research conducted in colder seasons fills an important gap in scientific knowledge throughout the Mediterranean Sea. The observation duration at sea consisted of four days (71 hours) in autumn 2019 and five days (90 hours) in winter 2020. Delphinidae species were recorded on 33 and 24 different encounters in autumn and winter, respectively. The presence of striped dolphins and bottlenose dolphins were visually confirmed. While deep diving species weren't detected during the autumn survey, a pair of Cuvier's beaked whales were visually recorded during the winter effort. Nevertheless, post-survey acoustic analysis still needs to be carried out for a more detailed understanding of species presence. Relatively high number of delphinidae species, in addition to the elusive beaked whale presence in the winter survey, highlights the importance of the Levantine Sea, even in the colder months.

We have also recorded in several cases, loud and impulsive noise present throughout the study area, from an unidentified origin. Whilst impulsive noises have been identified as one of the main threats to the cetacean population, unfortunately there are no known mitigation measures in Turkey. Therefore, we have requested a meeting with stakeholders and have prepared a bilingual guide called, "It's too Loud!: A Guide on What Seismic is, its Denied and Ignored Consequences and How These can be Minimised". The guide will be disseminated to the related Ministries, Navy bases and Oil and Gas companies operating in the survey area. Additionally, the results of the project were presented in the World Marine Mammal Conference in Barcelona, 9th – 12th December 2019 with the results also contributing to a pre-conference workshop on the 8th December 2019. Regarding the public outreach, we had worked closely with fishermen and sailors and the necessity of a simple sighting platform was clear after each meeting, which led us on the development of a "whatsapp" group. Further, the outreach posters for school kids, authorities and fishermen were designed and printed. Finally, we have begun to organize a workshop on "Cetacean Research Techniques" which is planned to take place in Istanbul, on 13th May 2020 with an aim of reaching a minimum of 30 researchers and university students.

2. Introduction (500 words mx):

Despite knowing that season has a role on cetacean distribution, cetacean research is dominantly conducted during the warmer seasons in the Mediterranean Sea. The current study conducted its second research effort in the colder months in order to fill the knowledge gap on autumn and winter distribution of cetaceans within the survey site. The results revealed unexpectedly high encounters of delphinid species in the deeper waters. Whilst the presence of striped dolphins and bottlenose dolphins were visually confirmed, acoustic recordings must be further analyzed in order to identify the extent of the species diversity. Interestingly, bottlenose dolphins were recorded in offshore waters even though the species is known to show a predominantly coastal distribution within the Mediterranean Sea. The offshore distribution of the species must be further studied to understand if there is an offshore population or the species show long distance migrations within the Eastern Mediterranean Sea.

All the Mediterranean subpopulations of cetaceans shows a negative trend in their population sizes and thus are classified as under threat by IUCN, with the main threats identified as habitat destruction, unregulated fishery practices, anthropogenic noise, marine pollution and traffic (Bearzi et al. 2008; Lusseau, 2004; Lusseau and Bejder 2007; Hoyt, 2014). The Eastern Mediterranean has recently being targeted by oil and gas companies after recent exploration indicated potential hydrocarbon sources which has also directly or indirectly given rise to an increase in naval exercises within the same area. The negative consequences of loud and impulsive noises on the species are currently well known with an impact range from mortality to the behavioral alterations from bottom to the top of the food chain (e.g. Jepson et al., 2003; Fernández et al., 2005; Castellote et al., 2012; Halvorsen et al., 2012; Aguilar de Soto et al., 2016; Southall et al., 2016). Therefore, the unmitigated and unregulated activities of the noise sources in the area form a critical threat to the species.

Additionally, clusters of marine debris were notable within the survey area with a dolphin actively interacting with the plastic on one occasion. A study has reported that of the 10 sperm whales that were found stranded in neighboring Greek waters, six had plastic in their stomachs with one young sperm whale having 135 items of plastic in its stomach and being the most probable cause of death (Alexiadou, 2019). Therefore, looking to the future, we must firstly start a new and effective campaign to illustrate the dangers that plastic pollution pose to marine species and secondly look to study pollution in the Levantine to ascertain the magnitude of the problem, what the probable sources are and how we can mitigate the problem as much as possible.

Throughout the survey, fishery-cetaceans interaction weren't been reported although the impact of unregulated and uncontrolled fishery practices on marine megafauna poses a significant threat within the Mediterranean Sea. Therefore, we have developed a mutually respectful relationship with the fishing cooperatives to understand the magnitude of effect of artisanal fishery practices on each species. With the increased usage of smart phones, citizen-science activities have shown a rise in the last decade. The current project is working on developing a sighting network which will encourage the involvement of fishermen and sailors who spend more time in the marine environment and thus aims to create an ownership of nature conservation by the targeted stakeholder groups.

3. Materials and Methods (400 words max)

Data collection

Both visual and acoustic survey protocols were followed during the autumn and winter survey effort, covering the proposed survey coverage. During the autumn survey effort, we had a team of 2 researchers and 3 local university students, whilst in the winter survey our team was formed from 2 researchers and 6 students. Data was planned to be collected for five days with a 24-hour survey effort, however, due to the unfavorable conditions in autumn, the survey team had to stay on the coast for one day which decreased the autumn survey effort to four days. However, the winter survey effort was completed within the planned five-day timeframe. In both of the surveys, on average 80% of the planned transects were followed with the 1000m contour additionally having been followed on the last day of the survey between Finike and Göcek.

During the visual data collection, species identification, group size, group composition, photo-identification data and human presence in the area was recorded. Acoustic data recording was carried out every 15 minutes for 24 hours and not only the species presence and their acoustic type and strength but also the background noise was also recorded with its strength level from 0 (nothing heard) to 5 (nothing else can be heard).

4. Results (500 words max)

Autumn and Winter Survey Effort:

The second and third seasonal survey of the project was conducted between 3th- 7th November 2019 (Figure 1) and the winter from 10th-14th January 2020 (Figure 2). Four days (71 hours) was spent in search of cetaceans at sea in autumn whereas this was increased to five days during winter (90 hours). The highest recorded family was Delphinids in each season. The autumn survey resulted in relatively more encounters which reached a total of 33 different groups while there were 24 encounters in winter. The autumn and winter survey effort revealed no obvious differences in cetacean encounters between the day and night. While bottlenose dolphins (1 group) were the only visually encountered species in autumn, striped dolphins (2 groups), bottlenose dolphins (1 group) and Cuvier's beaked whales (1 group) were visually encountered during the winter survey effort. Interestingly, all the sightings were concentrated in the deeper waters between 1000 and 4000m depth during winter (Figure 1, 2). Post-survey acoustic analysis still needs to be carried out to enable a more detailed understanding of species presence in the area as beaked whale acoustic detections are likely to have been missed during the surveys.

The preliminary results of the surveys, starting from April 2018 have been sent for a publication to the Journal of Black Sea and Eastern Mediterranean Sea.

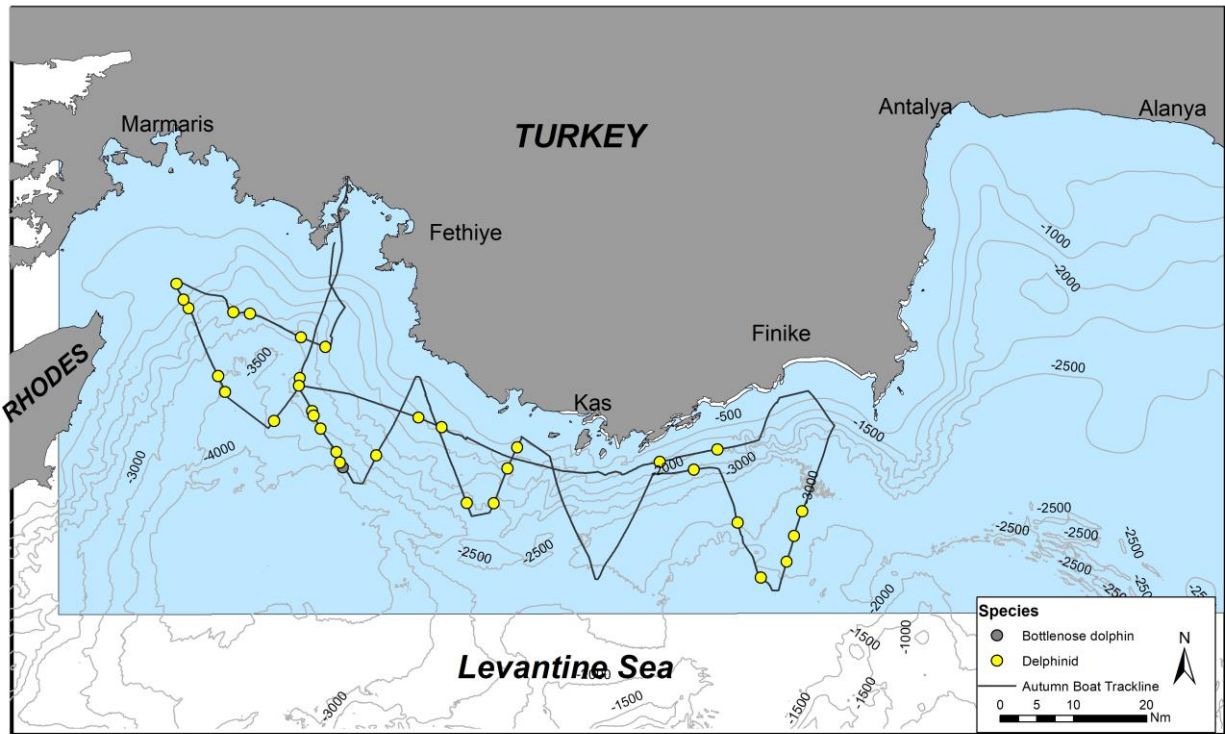


Figure 1. Autumn 2019 Survey Effort and Cetacean Detections

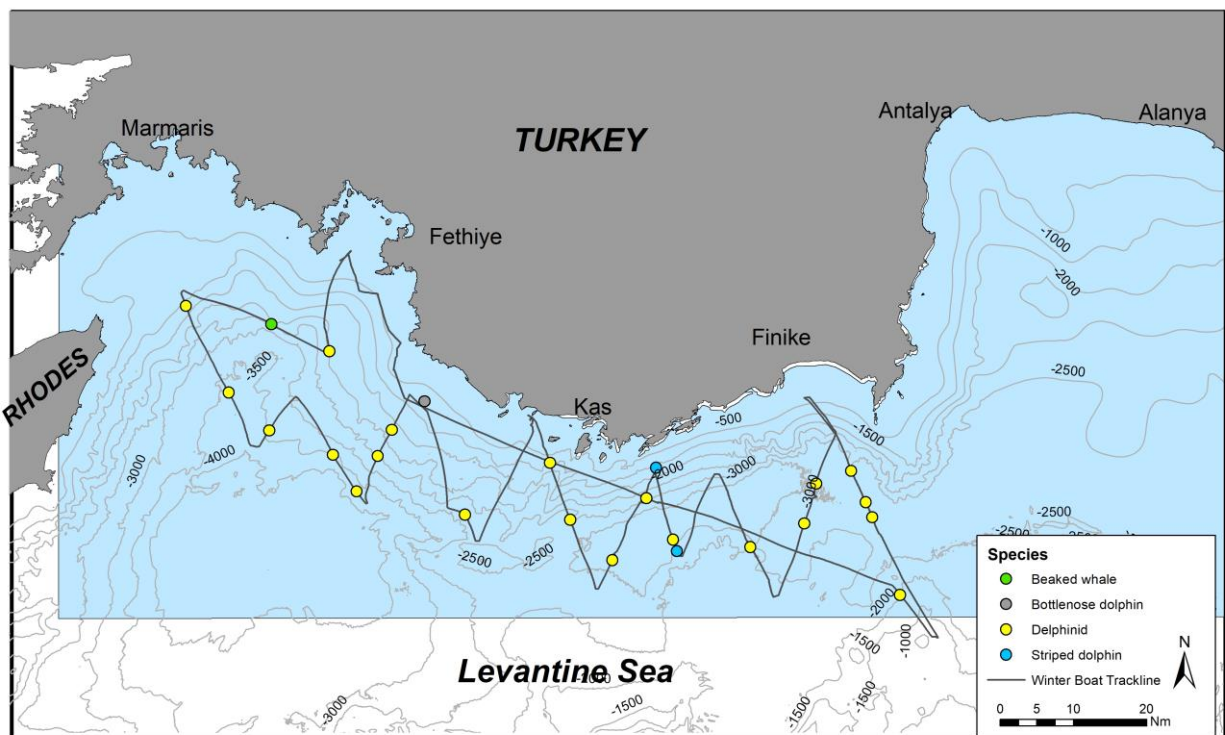
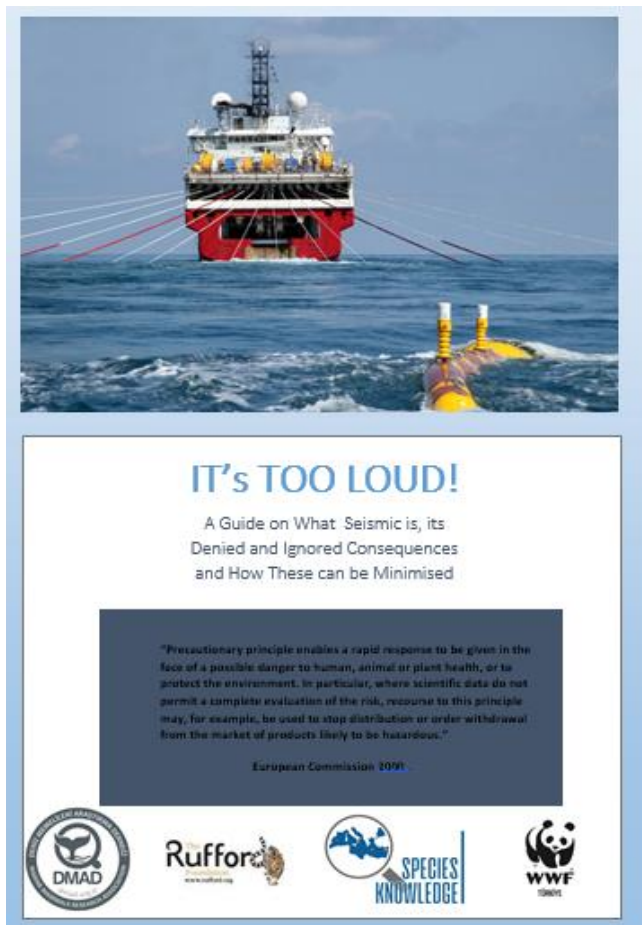


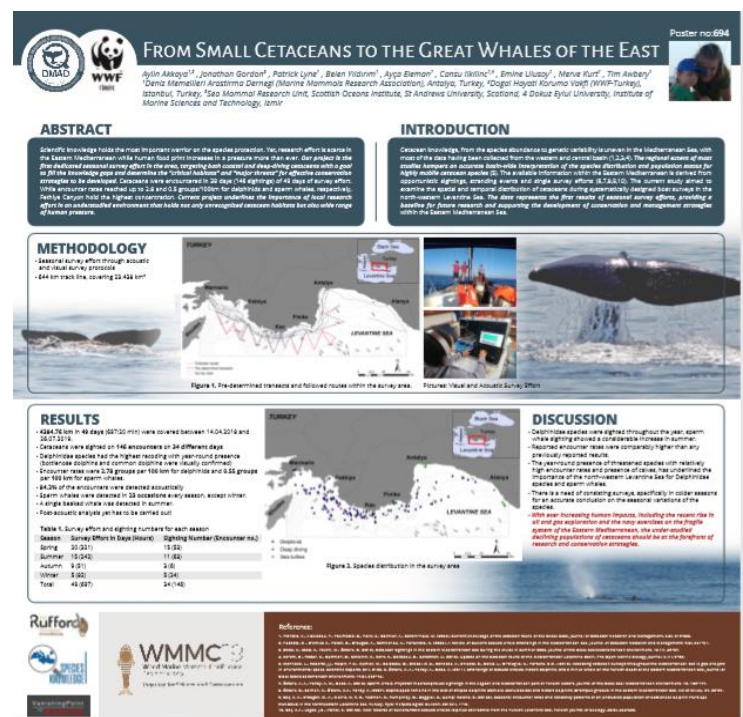
Figure 2. Winter 2020 Survey Effort and Cetacean Detections

Outreach activities:

1. Due to the intense presence of human generated noise, a bilingual guideline has been prepared to distribute to the oil and gas companies active in the Eastern Mediterranean Sea, Ministry of Energy, Ministry of Forestry and Agriculture and related NGOs and institutes in Turkey (Picture 1).
2. A poster on the recent results of the project has been presented during World Marine Mammal Conference in December 2019, Barcelona (Picture 2)



Picture 1. A guide to Seismic Surveys



Picture 2. Scientific Presentation at the WMMC

3. We reached 18 fishermen to discuss the fishery-cetacean interaction. The head of the cooperative reported their willingness to provide cetacean sighting data. Additionally, we met with the sailors in Marmaris, Fethiye, Göcek and Finike. Each individual expressed their interest in sharing their sightings information and thus contributing to the project as citizen-scientists. We will be developing a "WhatsApp" group that will serve as a sighting network.

4. Three different posters are designed and printed to disseminate in the schools, ministries and fishermen cooperatives. The disseminating part of the activity will be carried out this month.
5. T-shirts and sweatshirts have been designed and send to printing for 100 items. They will be distributed to the fishermen during the May 2020 survey.
6. Website and social media accounts are continuously updated with the information on the current project.

5. Discussion, conclusions or speculations (200 words max)

The autumn and winter survey efforts are pioneer studies on cetaceans in the colder season not just within Turkish waters but within the entire Levantine Sea and confirm the importance of pelagic waters of the Levantine Sea for cetacean year-round presence. The majority of the detections were recorded acoustically which emphasizes the importance of elevated sighting platforms to increase sighting rates. The continuous unmitigated noise presence in the area, originating both from navy and seismic explosions, puts this vulnerable and not yet fully understood area under heavy pressure. The guideline produced on impulsive and loud noise is going to be dispersed to the media and likely to get the attention of public and the authorities. Further, both small scale fisheries and sailors in the region expressed their positive opinion on marine protection, even if this means no-take zones and proposed sharing their sighting information. The materials needed for public outreach has been prepared and will be disseminated within the upcoming months.

6. Obstacles and issues (500 words max)

- Using a sailing boat as a sighting platform decrease the chance of visual sightings. Even though elevated platforms are necessary to increase sighting rates, it is not possible with the charter boats. The lack of effective visual sightings emphasizes the importance of acoustic surveys, especially in the data gap locations.
- The sea state wasn't ideal and we lost some survey days and some transects due to the storm both in autumn and winter survey effort.
- In addition to the unfavorable weather conditions, due to the limited finances, the track lines in Antalya Bay haven't been followed since the beginning of the survey, which has resulted with an absence of one block within the entire survey area. However, we have dedicated 4 days in Antalya to conduct land surveys to collect additional data, which resulted with sightings of four different groups of bottlenose dolphins in the coastal waters.

- Our several attempts to arrange meetings with the Turkish Oil and Gas Companies as well as our request with the Ministry of Forestry and ACCOBAMS Focal Point were unfortunately unsuccessful. However, we will be visiting their office this May 2020 to discuss the importance of the issue and their role in making sure that the mitigation measures are being followed.
- Due to the delay in funding, we were unable to actively start organizing the workshop or disseminate the materials on cetacean research techniques.

7. *Changes (if any) to the original timeline of the Initiative (300 words max)*

Even though we are on the schedule with each of the scientific surveys and have completed the first three seasons, we still need to track the artisanal fishery and marine traffic which will be immediately carried out once the loggers are purchased. Additionally, the first workshop is going to be carried out in May 2020, instead of January 2020. The first manuscript has been submitted in January 2020 which is earlier than planned.

8. *Next stage of the Initiative (500 words max)*

- We are currently in the process of receiving the AIS data for the target area. As soon as the marine traffic data is received, we will map the traffic density in the target location to understand if and where there is overlap with cetacean distribution.
- We will commence documentation of the distribution of small-scale fisheries in our target location through the use of GPS loggers to quantify the overlap between fishing practices and cetacean distribution.
- We will conduct the final spring survey in May 2020 with a team of Turkish students and researchers.
- We will organize the first workshop on “Cetacean Research Technique” in May 2020 in Istanbul and local students, researchers and personals of Ministries, NGOs and Institutes will be invited with a goal of reaching a minimum of 30 participants.
- The post-survey acoustic analysis has yet to be carried out.
- We will develop a “WhatsApp” group for our sighting network and share the information with the related stakeholders.
- We have started to examine the best and worst practices of conservation strategies and have begun to develop Species Conservation Action Plan which will be useful during workshops

9. Financial statement

AUTUMN 2019							
ACTIVITY	Categories	COMPANY	DATE	EXPLANATION	EXPENSES TL	EXPENSES EUR	Exchange Rate
Boat Survey	ACCOMODATION	Öztürk Apart	02.11.2019	A day before the survey starts	250	€39.18	(TL to Eur) 6.38
	CONSUMABLES	Team meal	01.11.2019	Spent for meals of the survey team	222	€34.80	
		Team meal	02.11.2019		246	€38.56	
		Team meal	04.11.2019		49.5	€7.76	
		Team meal	08.11.2019		28	€4.39	
	FIELD WORK	On-board food	02.11.2019		433.65	€67.97	
		Water for boat	02.11.2019		36.5	€5.72	
		On-board food	04.11.2019		516.23	€80.91	
		Fuel for the boat between 04-07th 11.2019	04.11.2019		1968	€308.46	
		Boat Rent between 3th and 7th 11.2019	07.11.2019		12500	€1,959.25	
		Marina cost in Kas	07.11.2019		122	€19.12	
		Off-board food	07.11.2019		122	€19.12	
	STATIONARY	Electronics for the Boat	08.11.2019		14	€2.19	
	TRAVEL	Highway Pass	02.11.2019		7	€1.10	
		Car Petrol to Göcek	02.11.2019		150	€23.51	
		Hydrophone Transportation to Marmaris and Bak	01.11.2019	Hydrophone has to be transfered to the	1000	€156.74	
		Bus ticket between Izmir and Marmaris	01.11.2019		73	€11.44	
		Car rental between Fethiye and Göcek	02.11.2019	A secound boat has to be rented becace the first boat had a problem with the	250	€39.18	
		Flight round ticket of the team to the project site	01.11.2019	Our acoustician has to participate to the survey from Ireland		€613.95	
	TOTAL	€3,433.37					

WINTER 2020							
ACTIVITY	Categories	COMPANY	DATE	EXPLANATION	EXPENSES TL	EXPENSES EUR	Exchange Rate
Boat Survey	FIELD WORK	Boat Rent	15.01.2020	Survey conducted between 10th and 14th January 2020	11375	€1,750.00	(TL to Eur)=6.5
		Boat Fuel	12.01.2020	Covers the entire January fuel of the boat	3253	€500.46	
		On-board food	09.01.2020	Covers the entire food storage of the boat during the survey	963	€148.15	
		Transitlog of the team in the boat	09.01.2020	Custom payment of the private sailing boat	600	€92.31	
	TRAVEL	Hydrophone transportation	09.01.2020	It has to be transported each time from the base to the site	750	€115.38	
		Transportation to the project team	09.01.2020		450	€69.23	
		Flight ticket of the acoustician	10.01.2020		2710.5	€417.00	
		Arrival Flight ticket of the team	28.12.2019		1491.21	€229.42	
		Airport shuttles	28.12.2019	Ticket was bought in euros		€160.00	
		Departure Flight tickets of the team	26.01.2020		200	€30.77	
	ACCOMODATION	Team accomodation for 2 days	09.01.2020	It was in Istanbul and Izmir	690	€106.15	
	STATIONARY	Notebooks	09.01.2020	Used during the survey	10	€1.54	
Informal meetings	Other	Project tshirts and sweatshirts for fishermen and students	01.02.2020	It's designed and printed (50 tshirts and 50 sweatshirts). It will be given to the fishermen during the spring survey effort	3750	€576.92	
Formal meetings	None-consumable equipments	Poster design and print	10.02.2020	50 item has been printed (250TL) and an additional 50 Euro has been given to the local student who designed the poster	575	€88.46	
		Report design and print	20.12.2019	We have designed a report for the seismic activities and their mitigation measure, printed 20 item. The additional payment of reports and local student stipends were done from the remaining budgets of the items	1000	€153.85	
Public awareness	Personal	Website and social media manager	continous	Local student has been continously updating the social media accounts. It is paid to 1 student in Euros.		€300.00	
	None-consumable equipments	Posters for public halls	20.12.2020	100 item has been printed (500TL) and an additional 50 Euro has been given to the local student who designed the posters	825	€126.92	
		WMMC Conference Registration Fee	07.12.2019	WMMC participation to present the project poster, paid in euros.		€462.00	
	TRAVEL	Flights to WMMC conference	07.12.2019	It covers the flight coast of DMAD researcher to the WMMC		€228.28	
TOTAL		€5,556.85					

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