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ANALYSIS OF CONFIRMED SHARK ATTACKS IN THE EASTERN MEDITERRANEAN SEA AND THE SEA OF MARMARA (1827–2025)

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ABSTRACT

This paper analyses data from 46 confirmed shark attacks recorded in the geographical subareas of the eastern Mediterranean Sea (GSAs 22–27) and the Sea of Marmara (GSA 28) from 1827 to 2025. The recent distribution of attacks shows the highest concentration in Turkish waters, followed by the Mediterranean waters of Egypt and Greece. Subarea-specific data reveal that the Aegean Sea (GSA 22) and the southern Levant (GSA 26) had the highest number of incidents. Temporal analysis shows an overall increasing trend in annual shark attacks throughout the study period. Since the large pelagic predatory sharks of the Mediterranean Sea are highly migratory, they can be encountered off any Mediterranean coast at any time. Considering the critical role of predatory sharks in marine ecosystems, a shark-safe eastern Mediterranean means creating safe environmental conditions for both humans and sharks.

Key words: Elasmobranchii, aggression, human, conservation, GSA22-28, shark attack

ANALISI DEGLI ATTACCHI DI SQUALI CONFERMATI NEL MEDITERRANEO ORIENTALE E NEL MAR DI MARMARA (1827-2025)

SINTESI

L'articolo analizza i dati relativi a 46 attacchi di squali confermati nelle sottozone geografiche del Mediterraneo orientale (GSA 22-27) e del Mar di Marmara (GSA 28) dal 1827 al 2025. La distribuzione recente degli attacchi mostra la più alta concentrazione nelle acque turche, seguite dalle acque mediterranee dell'Egitto e della Grecia. I dati specifici per sottozona rivelano che il Mar Egeo (GSA 22) e il Levante meridionale (GSA 26) hanno registrato il numero più elevato di incidenti. L'analisi temporale mostra una tendenza generale all'aumento degli attacchi di squali annuali durante tutto il periodo di studio. Poiché i grandi squali predatori pelagici del Mediterraneo sono altamente migratori, possono essere incontrati al largo di qualsiasi costa mediterranea in qualsiasi momento. Considerando il ruolo fondamentale degli squali predatori negli ecosistemi marini, un Mediterraneo orientale sicuro per gli squali significa creare condizioni ambientali sicure sia per gli esseri umani che per gli squali.

Parole chiave: Elasmobranchii, aggressività, esseri umani, conservazione, GSA22-28, attacchi di squali

INTRODUCTION

Sharks, a diverse group of cartilaginous fish belonging to the class Chondrichthyes (subclass Elasmobranchii), have inhabited the oceans for over 400 million years (Ebert *et al*., 2021). They play important roles as predators, competitors, facilitators, nutrient transporters, and prey across multiple ecosystem types (Dedman *et al*., 2024). Public perception, however, often demonises them as dangerous creatures or 'man eaters' (Kabasakal, 2010a; Peace, 2015), focusing more on their attacks on humans than on their benefits to the ecosystem. The narrative of shark attacks in the Mediterranean Sea has a profound historical background, dating back centuries before the birth of Christ. The epic writings of the Greco-Roman poet Oppian of Cilicia referenced the fear of sharks among sponge divers, describing their fear of being bitten and killed by these ferocious predators (Mair, 1968). Similarly, the Roman historian Claudius Aelianus recorded that divers, under constant pressure from shark threats, painted their hands and feet black to avoid detection by these fearsome creatures (Frost, 1968). According to the Greek historian Herodotus, sharks attacked survivors following the wreck of the Persian fleet off the coast of Thessaly in 493 BC. This incident, documented as case number 128 in the Global Shark Attack File (GSAF, 2025), is considered one of the earliest documented cases of a shark attack in the Mediterranean.

Midway *et al*. (2019) characterise shark attacks as a global phenomenon that attracts widespread attention and publicity, often with adverse implications for shark populations. As one of the few groups of animals with which humans have primarily negative interactions, sharks remain a perpetual source of public fascination. In fact, although the annual risk of dying from a shark attack is extremely low (1 in 4,332,817) – far lower than the likelihood of dying from heart disease (1 in 5), a car accident (1 in 84) or a bicycle accident (1 in 4,919) (International Shark Attack File [ISAF], 2025) – humans have meticulously documented such incidents for centuries. As of 3 July 2025, a total of 7,021 shark attacks had been recorded in the GSAF.

Several country-specific studies have analysed records of shark attacks in the eastern Mediterranean (Taklis, 2023, in Greek waters) and the Sea of Marmara (Kabasakal & Gedikoğlu, 2015). Researchers have also reported sporadic attacks near aquaculture cages (Ergüden *et al*., 2020) or power station cooling water discharges (Abd Rabou *et al*., 2025; Bigal *et al*., 2025), as well as historical cases from almost a century ago (Kabasakal & Gedikoğlu, 2015; Kabasakal & Bayrı, 2021). To date, however, recorded shark attacks in the eastern Mediterranean and the Sea of Marmara have not been analysed as a whole. Given the ongoing expansion of economic activities such as fishing, aquaculture, tourism, and hydrocarbon production in the eastern Mediterranean (Öztürk & Başeren, 2008), it is likely that human–shark encounters will increase as anthropogenic pressures on this marine region intensify. Due to the heterogeneous nature of the phenomenon (Chapman & McPhee, 2016), a better understanding of shark attacks requires an analysis of regional trends. Furthermore, a recent fatal shark attack in Israel in April 2025 (Abd Rabou *et al*., 2025; Bigal *et al*., 2025) and the subsequent spread of conflicting media reports highlight the necessity for a rigorous, data-based analysis of shark attacks in these marine regions. Therefore, this paper analyses recorded shark attacks in the eastern Mediterranean Sea and the Sea of Marmara since 1827, aiming to detect any potential increasing trend and identify the possible causes of the attacks.

MATERIAL AND METHODS

Study area

The eastern Mediterranean Sea, the easternmost part of the Mediterranean Basin (Fig. 1), is subdivided by the General Fisheries Commission for the Mediterranean (GFCM) into the following geographical subareas (GSAs): the Aegean Sea (GSA 22), Crete (GSA 23), the northern Levant Sea (GSA 24), Cyprus (GSA 25), the southern Levant Sea (GSA 26), and the eastern Levant Sea (GSA 27) (GFCM, 2018). The broader Levantine Basin is bounded by the Cretan archipelago and Anatolian peninsula to the north, the Middle East to the east, and northeastern Africa to the south. It has a total volume of 7.5 x 10^5 km^3 and reaches a maximum depth of ~4,300 m (Akpınar *et al*., 2016). Although the Sea of Marmara (GSA 28; Fig. 1) was once considered the northernmost extension of the Mediterranean ecosystem (Stanley & Blanpied, 1980), it is now classified as part of the larger Black Sea geographical subregion, with the exception of the Dardanelles Strait (GFCM, 2018). With a water volume of 11,500 km^3 and a maximum depth of ~1,390 m, the Sea of Marmara – together with the Dardanelles and Bosphorus straits (collectively known as the Turkish Straits System) – forms a transitional zone between the Mediterranean and Black Sea basins, functioning as a barrier, migration corridor, and acclimatisation zone for marine organisms (Öztürk & Öztürk, 1996). The topography of the Aegean Sea is characterised by hundreds of islands and thousands of islets, making it a highly archipelagic marine region (Onmuş, 2015), where several potential nurseries for top predatory lamniform sharks, such as the white shark, *Carcharodon carcharias*, and the shortfin mako shark, *Isurus oxyrinchus*, have been documented (Kabasakal, 2015, 2020).

Data acquisition

Shark attacks are defined as any forceful or aggressive contact between a living human and one or more sharks that results in injury or death to the person, or causes damage to equipment, such as surfboards, boats or diving fins (Baldridge, 1988; Taglioni *et al.*, 2019). In accordance with this definition, data were filtered from the Global Shark Attack File (GSAF, 2025), a long-running, comprehensive, scientific repository of global shark bite incidents. This initial search yielded 53 incidents from the study area. To identify recent unrecorded cases, a supplementary search was conducted on social media platforms (e.g., Facebook and Instagram), which are extensively used by spearfishers and commercial fishery communities. This search revealed four additional, provoked shark attacks, two of which were documented in published articles (Ergüden *et al.*, 2020; Kabasakal & Gedikoğlu, 2015; Kabasakal & Bayrı, 2021) but not catalogued in the GSAF. The final consolidated dataset – comprising GSAF records, incidents sourced from the literature, and those reported only on social media – thus consisted of 59 shark attacks. It is important to note that the GSAF database also includes two historical shark attacks from around 336 and 493 BC (GSAF case numbers 128 and 129, respectively; see Appendix 1), as well as one incident for which an accurate date is unavailable (GSAF case number 28; see Appendix 1); all three of these occurred in the Greek waters of the Aegean Sea. Furthermore, the GSAF curator has classified 10 records as "invalid or questionable" due to unconfirmed shark involvement prior to death. The distribution of these 10 incidents across countries is as follows: Türkiye (n = 1), Greece (n = 4), Israel (n = 1), Egypt (n = 3), and Syria (n = 1). In total, 13 incidents – comprising the 10 questionable reports, the two historical incidents, and the one undated incident – were excluded from the study. The analysis was therefore based on a final 'safe dataset' of 46 incidents identified as confirmed events of shark attack in the study area. Since the GSAF database lacks data on environmental factors (e.g., sea surface temperature, rainfall, lunar phases, wave height, water turbidity) for the confirmed shark attacks reported in the eastern Mediterranean and the Sea of

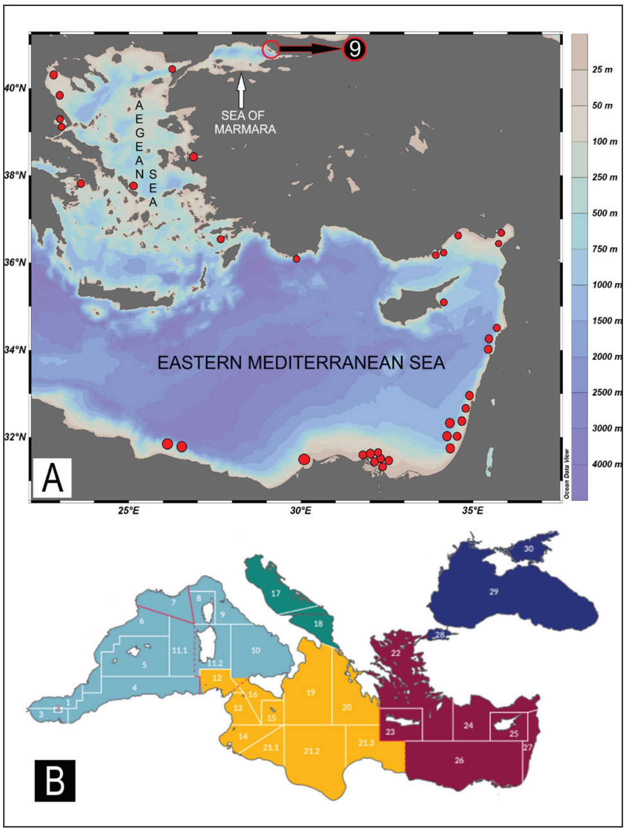

Fig. 1: (A) Approximate locations (red dots and a circle) of the 46 confirmed shark attacks reported in the eastern Mediterranean and Sea of Marmara between 1827 and 2025. The attacks in the Sea of Marmara (n = 9) are aggregated into a single circle, while the red dots represent individual incidents in the GSAs of the eastern Mediterranean. (B) Map of the GSAs of the eastern Mediterranean (GSA 22–27, shown in red) and the Sea of Marmara (GSA 28, shown in blue). Adapted from GFCM (2018).

Sl. 1: (A) Približne lokacije (rdeče pike in krog) 46 potrjenih napadov morskih psov, o katerih so poročali v vzhodnem Sredozemlju in Marmarskem morju med letoma 1827 in 2025. Napadi v Marmarskem morju (n = 9) so združeni v krog, rdeče pike pa predstavljajo posamezne incidente v območjih geografskega področja (GSA) vzhodnega Sredozemlja. (B) Zemljevid območij geografskega področja (GSA) vzhodnega Sredozemlja (GSA 22–27, prikazano z rdečo barvo) in Marmarskega morja (GSA 28, prikazano z modro barvo). Prirejeno po GFCM (2018).

Tab. 1: Data collection and preparation protocol (adapted from Taglioni et al., 2019).

Tab. 1: Protokol zbiranja in priprave podatkov (prirejeno po Taglioni in sod., 2019).

Contextual factors	Date (day; month; year, of attack)
	Attack location (GSA, marine region)
	Shark species involved
Activity factors	Victim's activity at time of attack (spearfishing, fishing, swimming, sponge diving, recreational diving, aquaculture)
Type of attack	Provoked, unprovoked, on watercraft
Consequences of attack	Fatal, non-fatal

Marmara, these parameters were not included in the analyses. The relevant available data for each attack were integrated into the present dataset to illustrate the conditions and consequences of the incidents (Tab. 1).

Data analysis

The collated data from the 46 confirmed shark attacks were analysed retrospectively using a set of statistical tests. A Kruskal–Wallis test was applied to assess for statistically significant differences between the distributions of the tested variable pairs (Parab & Bhalerao, 2010). Where a significant result was obtained, Dunn's post-hoc test was used for pairwise comparisons to identify which specific variable pairs (e.g., geographical subarea [GSA] vs. year, country vs. other countries, or country vs. year) differed significantly (Dinno, 2015). The Mann–Kendall test was used to detect annual trends in the GSA vs. year, country vs. year, and total study area vs. year data (Gilbert, 1987). The data were also disaggregated by country and GSA to calculate and plot the yearly incidence of attacks. Linear regression was applied to these annual counts to determine the overall trend in attack frequency over the study period (Chapman & McPhee, 2016). All analyses were performed using the statistical software PAST, version 4.03 (Hammer *et al.*, 2001), with a p value of 0.05 defined as statistical significance (Parab & Bhalerao, 2010). The data supporting the findings of this study are available from the author upon reasonable request.

RESULTS AND DISCUSSION

Spatiotemporal distribution of confirmed shark attacks

An analysis of collated data identified 46 confirmed shark attacks in the eastern Mediterranean Sea (GSAs 22–27) and the Sea of Marmara (GSA 28) (Fig. 1). The earliest recorded attack occurred in 1827 off the coast of Alexandria (Egypt, GSA 26), the most recent on 30 June 2025 off the coast of Mersin (Türkiye, GSA 24). Detailed information on all analysed attacks is provided in Appendix 1. The distribution of attacks by country showed the highest number in Turkish waters (n = 17, 39.96%), followed by the Mediterranean waters of Egypt (n = 10, 21.74%) and Greece (n = 8, 17.39%) (Fig. 2). Analysis by geographical subarea (GSA) indicated that the Aegean Sea (GSA 22; n = 11, 23.91%) and the southern Levant (GSA 26; n = 11, 23.91%) recorded the highest

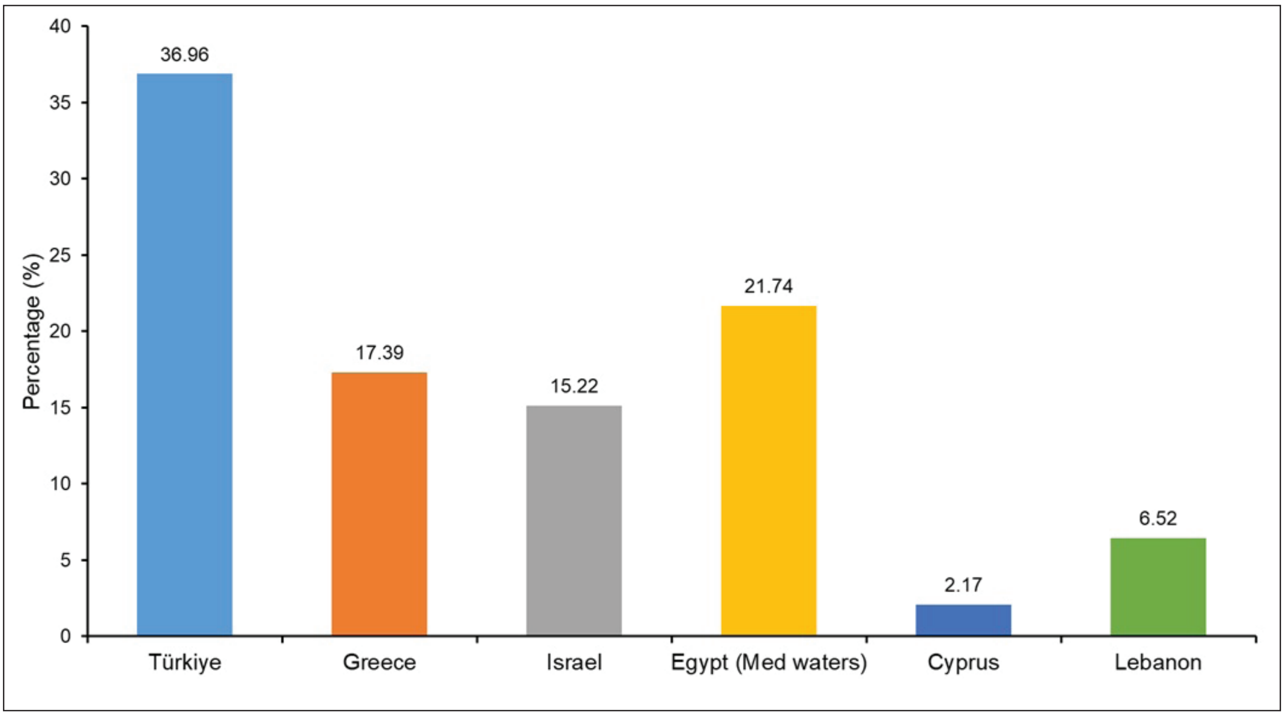

Fig. 2: Percentage distribution of confirmed shark attacks (n = 46) recorded in the eastern Mediterranean Sea (Türkiye, Greece, Israel, Egypt, Cyprus, Lebanon) and the Sea of Marmara (Türkiye) between 1827 and 2025.
Sl. 2: Odstotna porazdelitev potrjenih napadov morskih psov (n = 46), zabeleženih v vzhodnem Sredozemskem morju (Turčija, Grčija, Izrael, Egipt, Ciper, Libanon) in Marmarskem morju (Turčija) med letoma 1827 in 2025.

number of incidents, followed by the eastern Levant (GSA 27; *n* = 10, 21.73%), the Sea of Marmara (GSA 28; *n* = 7, 15.21%), the northern Levant (GSA 24; *n* = 6, 13.04%), and Cyprus (GSA 25; *n* = 1, 2.17%). A statistically significant difference was found in the number of confirmed attacks – whether provoked, unprovoked, fatal or non-fatal – across the GSAs (Kruskal–Wallis test, $p<0.05$, $p = 0.02$ for all GSAs). Significant differences were also identified when comparing the number of confirmed attacks among individual GSAs (Dunn's post-hoc test: $p = 0.008$ for the Aegean Sea, $p = 0.01$ for the southern Levant, and $p = 0.007$ for the eastern Levant). Although the GSAF database lists one alleged shark attack on a sponge diver in Syria from 1880 (case no. 484), the record was deemed invalid due to unconfirmed shark involvement and was consequently excluded from the study. This single exclusion accounts for the absence of any attack records from Syria.

Temporal distribution by year

Although the temporal distribution of confirmed shark attacks in the study area between 1827 and 2025 showed a slight upward annual trend (Fig. 3), no statistically significant trend was observed for

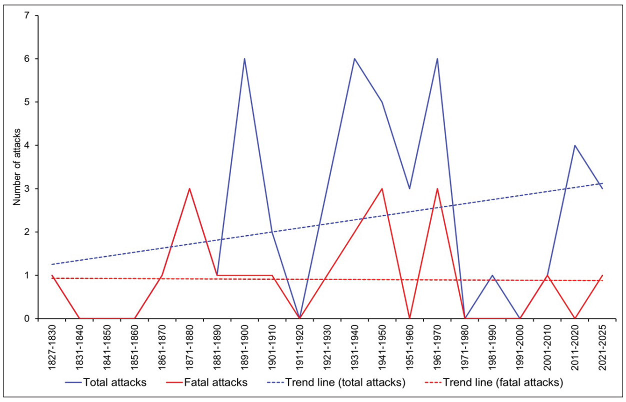

Fig. 3: Annual trend of confirmed shark attacks recorded in the entire study area between 1827 and 2025, showing total (n = 46) and fatal (n = 19) incidents.
Sl. 3: Letni trend potrjenih napadov morskih psov, zabeleženih na celotnem območju raziskave med letoma 1827 in 2025, ki prikazuje skupne primere (n = 46) in primere s smrtnim izzidom (n = 19).

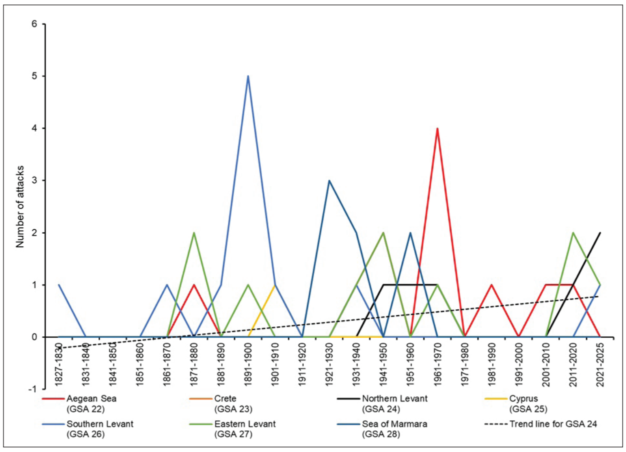

Fig. 4: Annual trend of confirmed shark attacks (1827–2025) by GSA. The dashed line indicates the increasing trend for GSA 24 (northern Levant). GSA 23 (Cretan waters) is omitted due to a lack of confirmed incidents.
Sl. 4: Letni trend potrjenih napadov morskih psov (1827–2025) po GSA. Črtkana črta označuje naraščajoči trend za GSA 24 (severni Levant). GSA 23 (kretske vode) je izpuščena zaradi pomanjkanja potrjenih primerov incidentov.

Tab. 2: Results of the Mann–Kendall trend test for individual countries and GSAs (z: normalised test statistic; p: p value; Y: yes; N: no).
Tab. 2: Rezultati Mann-Kendallovega trendnega testa za posamezne države in geografska podobmočja (GSA) (z: normalizirana statistika testa; p: vrednost p; Y: da; N: ne).

	z	p	Significant trend Y/N
Türkiye	1.86	0.06	N
Greece	1.19	0.23	N
Israel	2.08	0.04	N
Egypt (Med waters)	-1.77	0.08	N
Cyprus	0.25	0.80	N
Lebanon	-0.96	0.34	N
Aegean Sea (GSA 22)	1.76	0.08	N
Northern Levant (GSA 24)	2.42	0.02	**Y**
Cyprus (GSA 25)	-0.25	0.80	N
Southern Levant (GSA 26)	-1.00	0.32	N
Eastern Levant (GSA 27)	1.13	0.26	N
Sea of Marmara (GSA 28)	0.25	0.80	N
Total study area	**1.33**	**0.18**	N

the entire study area (Mann–Kendall trend test: z = 1.33, p = 0.18) or for individual countries (Tab. 2). A statistically significant difference, however, was identified in the annual number of confirmed attacks with respect to countries (Kruskal–Wallis test, $p<0.05$, p = 0.03 for year vs. country). Although fewer attacks occurred in the northern Levant (GSA 24, n = 6) than other GSAs – except for Cyprus (GSA 25, n = 1) – the Mann–Kendall trend test indicated a statistically significant increasing trend for this geographical subarea (Tab. 2; Fig. 4).

With the exception of the eastern Levant (GSA 27), no more than one attack was recorded after 2010 in the other GSAs: the Aegean Sea (GSA 22), Cretan waters (GSA 23), Cypriot waters (GSA 25), the southern Levant (GSA 26) and the Sea of Marmara (GSA 28). Despite the overall low number of attacks in GSA 24 between 1827 and 2025, the relatively high number of incidents (n = 3) after 2010 likely contributed to the statistically significant upward trend observed for this area.

Temporal distribution by month and season

Of the 46 confirmed shark attacks, the month of occurrence was recorded for 45 (97.82%; Fig. 5). A significant difference was found in the number of attacks by month (Kruskal–Wallis test: $p<0.05$, p = 0.03). Seasonally, the highest number of attacks occurred in summer (n = 23, 51.11%). The greatest number of incidents (n = 10, 22.22%) was recorded in August, which showed a statistically significant difference compared to several other months of the year, and followed by September (n = 8, 17.39%). Seven or fewer attacks were recorded in each of the remaining months, with none in October (Fig. 5) and Dunn's post-hoc test confirmed no statistically significant differences between these months ($p>0.05$).

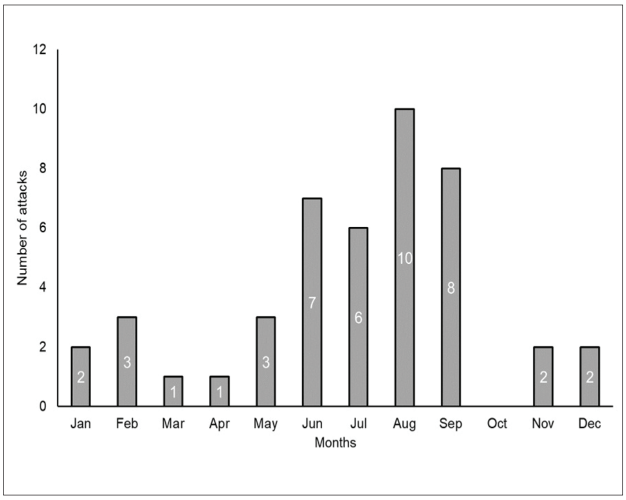

Fig. 5: Monthly distribution of confirmed shark attacks (n = 45), 1827–2025). Values above columns indicate the number of attacks per month. Results of Dunn's post-hoc test: August vs. January, p = 0.024; vs. March, p = 0.007; vs. April, p = 0.007; vs. October, p = 0.001; vs. November, p = 0.024; and vs. December, p = 0.024). September had the second highest number of attacks (n = 8, 17.77%, Dunn's post-hoc test: September vs. March, p = 0.025; vs. April, p = 0.025; and vs. October, p = 0.007), followed by June (n = 7, 15.55%, Dunn's post-hoc test: June vs. March, p = 0.029; vs. April, p = 0.029; and vs. October, p = 0.009).

Sl. 5: Mesečna porazdelitev potrjenih napadov morskih psov (n = 45), 1827–2025. Vrednosti nad stolpci označujejo število napadov na mesec. Rezultati Dunnovega post-hoc testa: avgust v primerjavi z januarjem, p = 0,024; v primerjavi z marcem, p = 0,007; v primerjavi z aprilom, p = 0,007; v primerjavi z oktobrom, p = 0,001; v primerjavi z novembrom, p = 0,024; in v primerjavi z decembrom, p = 0,024. V septembru je bilo drugo največje število napadov (n = 8, 17,77 %, Dunnov post-hoc test: september v primerjavi z marcem, p = 0,025; v primerjavi z aprilom, p = 0,025; in v primerjavi z oktobrom, p = 0,007), sledil mu je junij (n = 7, 15,55 %, Dunnov post-hoc test: junij v primerjavi z marcem, p = 0,029; v primerjavi z aprilom, p = 0,029; in v primerjavi z oktobrom, p = 0,009).

Victim activity during shark attacks

Information on the activities of the victims at the time of the attack was available for 45 incidents (97.83%). Most shark attacks occurred during swimming (n = 15, 33.3%), fishing (n = 12, 26.6%), or sponge diving (n = 10, 11.1%). Five shark attacks were recorded during spearfishing (n = 5, 11.1%), two during recreationally scuba diving (n = 2, 4.4%), and one during aquaculture cage maintenance (n = 1, 2.2%). Although no significant difference was found between activity type and the number of attacks (Kruskal–Wallis test: $p > 0.05$; p = 0.07), the Mann–Kendall trend test indicated a statistically significant increasing trend for spearfishing (z = 2.674; p = 0.008). The results of the Mann–Kendall trend test for victim activity at the time of confirmed shark attacks are presented in Tab. 3.

Type of shark attack

Of the 46 confirmed shark attacks, 44 (95.6%) were categorised by incident type (provoked, unprovoked, or involving watercraft). The majority were unprovoked attacks (n = 29, 65.9%), followed by attacks on watercraft (n = 8, 18.1%), and provoked attacks (n = 7, 15.9%). A statistically significant difference was found in the number of attacks by type (Kruskal–Wallis test: $p < 0.05$, $p = 0.0008$). Despite unprovoked attacks being most common, the Mann–Kendall trend test indicated a statistically significant increasing trend for provoked attacks ($z = 2.166$, $p = 0.03$; Tab. 3).

Consequences of a shark attack

Information on the outcome of shark attacks (fatal or non-fatal) was available for 43 of the 46 incidents (93.4%). Of these, 24 were non-fatal (55.8%) and 19 were fatal (44.1%). No statistically significant difference was found in the frequency of fatal and non-fatal attacks (Kruskal–Wallis test: p>0.05, $p = 0.81$), and the Mann–Kendall trend test detected no statistically significant temporal trend for either category (Tab. 3).

Shark species involved in attacks

The species of the shark involved in the attack was identified in 9 of the 46 incidents (19.56%). No statistically significant associations were found between shark species and victim activity, type of attack, or outcome (Kruskal–Wallis test: p>0.05, $p = 0.86$ for activity, $p = 0.27$ for type, and $p = 0.46$ for consequences), nor between species and the year of attack ($p = 0.13$). Nevertheless, a statistically significant increasing trend was observed for the involvement of *Isurus oxyrinchus* (Mann–Kendall trend test: $z = 2.272$, $p = 0.023$; Tab. 3).

In the vast marine environment, few phenomena evoke as much terror in humans as shark attacks – one of the most recognised examples of aggressive interactions between humans and nature. Due to this historic apprehension, humans have continually sought methods to fend off sharks and reduce the risk of attacks in coastal waters (Valenti, 2023), most notably through the use of shark nets (Valenti, 2023). However, these mitigation tools are known to have devastating environmental impacts (Cliff & Dudley, 2011). For example, based on the long-term observations by Queensland Shark Control Program in Australian waters, Sumpton *et al*. (2011) reported that higher numbers of marine mammals, teleost fish and rays have been unintentionally captured in protective nets, while the highest mortality of threatened loggerhead turtle *Caretta caretta* recorded in baited drumlines. Conversely, understanding the underlying causes of shark attacks has long been a major challenge for researchers. Over the years, numerous theories have been proposed to explain the occurrence of shark attacks globally. For instance, in a paper for the Taronga Conservation Society of Australia, West (2014) outlined 18 different theories regarding shark attack causation. While early explanations focused primarily on "hunger and feeding" as the motivating factors (Baldridge & Williams, 1969), contemporary perspectives are more varied and nuanced. Following the recent unprovoked fatal shark attack on a scuba diver off the coast of Hadera, Israel (GSA 27), Abd Rabou *et al*. (2025) proposed several potential contributing factors, ranging from the diver's sudden movements and loud noises to behavioural changes in the sharks due to human harassment. Given the complex behaviour of sharks, as emphasised by West (2014), the motivation for most attacks remains unclear, rendering the prediction of unprovoked incidents nearly impossible.

Whatever the underlying cause(s) of shark attacks, aggressive interactions with humans – particularly unprovoked shark bites – have increased

Tab. 3: Results of the Mann–Kendall trend test for victim activity, type of attack, outcome, and shark species involved (z: normalised test statistic; p: p value; Y: yes; N: no).
Tab. 3: Rezultati Mann-Kendallovega trendnega testa za aktivnost žrtve, vrsto napada, izid in vpletene vrste morskih psov (z: normalizirana statistika testa; p: vrednost p; Y: da; N: ne).

	z	*p*	**Significant trend Y/N**
Victim activity during shark attack (n=45)			
• Spearfishing	2.674	0.008	**Y**
• Fishing	0.268	0.789	N
• Swimming	0	1	N
• Sponge diving	0.659	0.510	N
• Recreational diving	2.217	0.027	N
• Aquaculture	1.404	0.160	N
Type of attack (n=44)			
• Provoked	2.166	0.030	**Y**
• Unprovoked	0	1	N
• Watercraft	0.533	0.594	N
Consequences of attack (n=43)			
• Fatal	0	1	N
• Non-fatal	1.911	0.056	N
Shark species involved (n=9)			
• *Carcharodon carcharias*	0.651	0.515	N
• *Isurus oxyrinchus*	2.272	0.023	**Y**
• *Carcharhinus plumbeus*	1.404	0.160	N
• *Carcharhinus obscurus*	1.569	0.117	N

worldwide over the past few decades (Chapman & McPhee, 2016; Taglioni *et al*., 2019). In this context, the results of the present study are consistent with global findings (Chapman & McPhee, 2016; Taglioni *et al*., 2019), revealing an increasing, though not statistically significant, annual trend in the eastern Mediterranean Sea (GSAs 22–27). This regional trend, however, masks a significant local shift. During the first half of the 20th century, the Sea of Marmara (GSA 28) was a seasonal hotspot for provoked attacks on handline fishing boats by white sharks pursuing Atlantic bluefin tuna (*Thunnus thynnus*), which migrated seasonally into this small inland sea (Kabasakal & Gedikoğlu, 2015; Kabasakal, 2016). However, with the extirpation of large pelagic predatory sharks such as *C. carcharias*, *Lamna nasus,* and *Prionace glauca* – with the exception of the common thresher shark (*Alopias vulpinus*) – from the Sea of Marmara decades ago (Kabasakal & Karakulak, 2024), the most recent confirmed shark attack in the region dates to 1983 (Kabasakal & Gedikoğlu, 2015). Consequently, the increasing annual trend observed in the wider eastern Mediterranean Sea is not applicable to the Sea of Marmara. However, ongoing severe deoxygenation and habitat deterioration in the region's deep bathyal and shelf waters have forced the large, deep-dwelling, demersal bluntnose sixgill shark (*Hexanchus griseus*) – which still inhabits the basin – to migrate to shallow coastal zones (Kabasakal *et al*., 2024). Although this species is not known for unprovoked attacks (Compagno, 1984), its considerable size (total length up to 570 cm; Lipej *et al*., 2022) and predatory capacity suggest it may still pose a potential danger to swimmers and divers along the coast.

In their analysis of global shark attack hotspots, Chapman and McPhee (2016) suggested that increases in shark bites are likely the result of a combination of factors beyond the shark-specific motivators proposed by West (2014) and Abd Rabou *et al*. (2025). They argued that a disruption to the natural balance of an area, whether at a local or regional level, can increase the likelihood of interactions between sharks and humans. The conditions underlying several provoked and unprovoked shark attacks in the northern Levant (GSA 24; Ergüden *et al*., 2020) and the eastern Levant (GSA 27; Abd Rabou *et al*., 2025) exemplify such ecological disruptions that may eventually trigger aggressive interactions. For example, the presence of excessive amounts of wounded and/or dead farmed fish in aquaculture cages anchored on the seabed nearly 4 km off the coast of Taşucu in Türkiye (GSA 24) caused a feeding frenzy among sandbar sharks (*Carcharhinus plumbeus*), resulting in non-fatal attacks and minor injuries to two commercial divers (Ergüden *et al*., 2020). Under unstimulated and unprovoked conditions, *C. plumbeus* is not considered particularly dangerous and has never been implicated in attacks on humans (Compagno, 1984). In a second incident, the water discharged from the Orot Rabin power plant in Israel (GSA 27), which is 10 degrees warmer than the surrounding sea, attracts schools of two large coastal shark species – the dusky shark (*C. obscurus*) and the sandbar shark – to the coast of Hadera every year from November to May (Abd Rabou *et al*., 2025; Bigal *et al*., 2025). According to Barash *et al*. (2018), sharks are observed much more frequently near power plants, likely due to elevated water temperatures. Adventure-seeking divers, of which are trying to feed the sharks or touch them at designated aggregation spots – created by anthropogenic impacts – have been known to elicit stress-related behaviours in sharks. All of these factors confirm the role of provocation in the progression of a fatal attack (Abd Rabou *et al*., 2025). Therefore, as coastal development can degrade habitat quality and induce environmental changes that disrupt shark behaviour (Chapman & McPhee, 2016), environmental impact assessments for projects such as coastal aquaculture facilities or power plants with hot water discharges should explicitly consider their potential impact on local shark populations in the eastern Mediterranean Sea and elsewhere.

Researchers have emphasised that in many marine areas worldwide, the dramatic increase in shark attack risk parallels the increase in time people spend in the sea, and the number of individuals engaging in water sports such as swimming, recreational scuba diving, and surfing (Taglioni *et al*., 2019; Taklis, 2023). Supporting this, Ferretti *et al*. (2015) documented an increase in white shark attack records in California. However, the authors also emphasised that the individual attack risk for ocean users decreased by over 91% between 1950 and 2013. This apparent contradiction could be explained by an undetected long-term shark population decline and/or changes in behaviour and spatial distribution of both people and sharks. In the Sea of Marmara, historical fatal shark attacks during spearfishing and swimming have been attributed to *C. carcharias* (Kabasakal & Gedikoğlu, 2015). Similarly, in Greek waters, most shark attacks were directed at swimmers and divers, and predominantly involved *C. carcharias* (Taklis, 2023). In the present study, swimming was revealed as the most common activity at the time of attack (n = 15, 33.3%); however, there was also a statistically significant increasing trend for spearfishing (n = 5, 11.1%). The examined provoked shark attacks were predominantly caused by the shortfin mako (*Isurus oxyrinchus*), and the Mann–Kendall test also indicated an upward trend for this specific type of attack. The convergence of these trends is of particular importance, as three out of five provoked shark attacks occurred during spearfishing and were caused by shortfin mako sharks.

Spearfishing is a dangerous pastime that can result in shark attacks (Randall, 1986), particularly when carried out offshore or at dawn and dusk and has been associated with a global increase in bites (Duval *et al*., 2025). As of 10 June 2025, the GSAF database had recorded 410 spearfishing victims, accounting for 5.84% of its total incidents (GSAF, 2025). In Reunion Island, a global shark attack hotspot, attacks on spearfishers (n = 6, 17%) are considered a predominant form of human–shark interaction (Taglioni *et al*., 2019). Unlike events involving spearfishing, incidents linked to occupational or recreational diving (scuba or surface-supplied) showed no statistically significant trend, despite the remarkably high number of people practising these activities in the eastern Mediterranean Sea. A comparison of the numbers of attacks in occupational diving (surface-supplied sponge diving, n = 10) and recreational scuba diving (n = 2) reveals that all attacks on scuba divers occurred after 2010, while 90% (n = 9) of attacks on sponge divers occurred between 1871 and 1940 – a historical pattern also supported by Taklis (2023). Unlike freediving spearfishers, recreational scuba divers do not typically harpoon fish or carry dead catch. Therefore, as stated by Taglioni *et al*. (2019), they can be considered the least vulnerable to shark attacks. Also, occupational diving – whether surface-supplied ('Hookah') harvest diving or aquaculture cage maintenance diving – is a year-round activity and appears to carry a higher risk due to the time these divers spend in the water, which can be markedly longer than in recreational divers. As Lippman (2018) noted, diving for seafood collection is a major risk factor for shark attacks. Records of encounters involving occupational harvest divers are therefore important for improving our understanding of the factors that drive diver–shark interactions in the eastern Mediterranean Sea. Although not as common as in certain other regions of the world, hand-feeding or chumming of sharks – an activity known to facilitate agonistic behaviour in sharks (Clua, 2018) – has been initiated by professional underwater filmmakers in some localities of the eastern Mediterranean (Abd Rabou *et al*., 2025), possibly contributing to the region's increasing trend in shark attacks. Despite intensive chumming performed in the Italian waters of the Mediterranean and Adriatic seas for scientific research (Soldo & Peirce, 2005; Micarelli *et al*., 2023), the number of large predatory sharks attracted was extremely low, suggesting a drastic population decline. Ultimately, as the level of interaction between sharks and humans appears to be the most important driver of attacks (Clua, 2018), it is critical to remember that the likelihood of any single interaction resulting in a fatal, unprovoked attack – like the Hadera incident – remains exceedingly low (Abd Rabou *et al*., 2025; Bigal *et al*., 2025).

Identifying the species of shark involved in an attack is not always possible. This information typically relies on survivor accounts, which can be unreliable due to limited public knowledge of shark species. While some, such as the white and shortfin mako sharks, are easily recognisable, a significant knowledge gap exists for many other species. In a global analysis of 1,052 shark bites across six global shark attack hotspots, Chapman and McPhee (2016) found remarkable regional variations, yet the white shark was consistently responsible for most of the incidents. In South African waters, it alone accounted for 42.5% of bites. The predominance of white sharks is further emphasised by the GSAF data, in which they are implicated in 493 cases (7.02%), with only three of these classified as invalid or questionable (GSAF 25). De Maddalena and Heim (2012) documented 55 white shark attacks in the Mediterranean Sea but emphasised that 13 were doubtful due to uncertainties regarding the exact species involved. The predominance of white sharks contrasts with the minor role of mako sharks (*Isurus* spp.), which account for only 47 (0.66%) of the total shark bites in the GSAF database (GSAF, 2025). Since mako-related bites are uncommon worldwide (GSAF, 2025) – representing a mere 0.11% of bites in the six global shark attack hotspots (Chapman & McPhee, 2016) – the statistically significant increase in provoked attacks involving this species (*Isurus oxyrinchus*) in the northern Levant (GSA 24) is noteworthy.

In recent decades, predatory pelagic sharks have been repeatedly recorded in the very shallow coastal waters of the northern Levant (GSA 24) and the Aegean Sea (GSA 22) (Kabasakal, 2015; Filiz, 2019; Kabasakal *et al*., 2022). In rare cases, large predators such as the blue shark, *Prionace glauca*, have intentionally stranded themselves in pursuit of prey, remaining out of water for several seconds before returning (Kabasakal *et al*., 2021). Although several large pelagic predators, including *C. carcharias*, *I. oxyrinchus*, and *C. plumbeus*, have been observed in the shallows, these coastal occurrences predominantly involved *I. oxyrinchus*. According to Ebert *et al*. (2021), *I. oxyrinchus* prefers coastal and oceanic waters warmer than 16°C, and a recent study also showed that it displays transiting behaviour at sea surface temperatures (SSTs) exceeding 26°C (Banks *et al.*, 2025). Climate change is currently considered one of the four major global threats to sharks (Dulvy *et al.*, 2021); thus, warming marine waters could affect the spatial distribution of *I. oxyrinchus* in the eastern Mediterranean, as has been observed elsewhere in its distribution range (Abascal *et al.*, 2011; Banks *et al.*, 2025). The Mediterranean Basin is a recognised hotspot for climate change, having experienced a consistent warming trend for almost 40 years, with the highest values recorded precisely in the eastern Mediterranean (GSAs 22–27; Pastor *et al.*, 2020). During the summer months – when the highest number of shark attacks occurred in the studied region – the monthly averaged SSTs ranged from 24°C in June to 30°C in August and September in the eastern Mediterranean, and from 18°C in June to 24°C in August and September in the Aegean Sea (GSA 22) (Pastor *et al.*, 2020). All three attacks on freediving spearfishers involving *I. oxyrinchus* occurred in the northern Levant (n = 2) and the northern Aegean Sea (n = 1). Records of *I. oxyrinchus* in the waters of the northern Levant in the winter months – when SSTs average around 16°C (Pastor *et al.*, 2020) – followed by a northward shift into the northern Aegean Sea in late spring and summer (Kabasakal, 2015), suggest a seasonal, SST-dependent coastal occurrence pattern for the shortfin mako shark along the coast of Türkiye. A similar SST-linked pattern has been observed for *C. plumbeus*, whose annual aggregations peaked during summer, when SSTs averaged 29.4°C (Filiz, 2019). In contrast, coastal occurrences of the blue shark (*P. glauca*) appear to be a year-round phenomenon (Kabasakal, 2010b; Kabasakal *et al.*, 2021). An SST of 20–21°C has been suggested as a 'critical temperature' threshold for shark attacks (Baldridge, 1988), and the summer occurrence of confirmed shark attacks in the eastern Mediterranean (peaking in August) aligns with this threshold. Therefore, as marine water use increases during the summer, the safety of beachgoers in the warming eastern Mediterranean Basin should be insured by monitoring sea surface temperatures and implementing protective measures, based on the knowledge of the SST-associated patterns of coastal occurrence of large pelagic predatory sharks.

As Neff (2014) observed, though, the public and policymakers often focus on the question, 'What can sharks do for humans?' This perspective can cause the sharks' critical role in maintaining balanced marine ecosystems to be overlooked or underestimated. Governing sharks near coastlines is a complex public policy endeavour, creating a 'predator policy paradox' (Neff, 2014), which makes the objective management of human perceptions through news media critically important. In the Western world, few phrases evoke fear as instantly as 'shark attack' (Neff & Hueter, 2013). Such powerful terminology has been nurtured by the '*Jaws* effect', a legacy seeded decades ago that continues to frame our contemporary understanding of human–shark interaction. The fear of sharks is significantly shaped by environment and culture, with the media exerting a tremendous influence on public perception (Kabasakal, 2010a; Ostrovski *et al.*, 2021). As noted by Peschak (2006), the media perpetuate this fear because shark stories, especially sensational shark bite stories, sell well. Such stories used to be published only after editorial review and fact-checking, but the 'citizen journalism' enabled by instant widespread sharing on social media can now amplify a single incident virally, often with significant exaggeration. This dynamic was also observed in the recent unprovoked fatal attack off the coast of Hadera (Abd Rabou *et al.*, 2025). However, since not all human–shark interactions result in attack, a more refined language for reporting these incidents is needed. To address this issue, Neff and Hueter (2013) proposed a new classification system to be used by scientists, the media, policymakers, and the public to describe human–shark incidents. Regardless of the incident's severity, the authors strongly recommend avoiding the term 'shark attack' unless the shark's motivation and intent have been clearly established by experts.

In conclusion, the shark fauna of the Mediterranean Sea comprises 48 species, including 20 large pelagic predatory species (Barone *et al.*, 2022). Among these are the great white shark (*Carcharodon carcharias*) and the tiger shark (*Galeocerdo cuvier*) (Tobuni *et al.*, 2016; Kovačić *et al.*, 2021; Barone *et al.*, 2022), both of which are known for their involvement in provoked or unprovoked attacks on humans and watercraft (Ebert *et al.*, 2021). As the large pelagic predatory sharks of the Mediterranean Sea are highly migratory, they can be encountered off any Mediterranean coast at any time. The white shark, which once migrated seasonally to the Sea of Marmara in pursuit of schools of Atlantic bluefin tuna (*Thunnus thynnus*) (Kabasakal, 2016), has, on rare occasions, attacked fishing boats and people in this region (Kabasakal & Gedikoğlu, 2015). However, due to environmental deterioration and overfishing, the Atlantic bluefin tuna population no longer migrates to the region. Consequently, the white shark has also withdrawn following the decline of its prey. While this may suggest that the Sea of Marmara is now shark safe, new anthropogenic stimuli – such as tuna transport cages, the rapid growth of aquaculture farms, and the continuous discharge of warm water from coastal facilities – are increasing the potential for encounters with large sharks in coastal waters. Furthermore, the extirpation of the white shark points to severe environmental degradation and a loss of biodiversity in the region. These large sharks play a crucial balancing role in marine ecosystems, yet they are critically endangered in the Mediterranean Sea (as of 2021, these species constitute the 32.6% of the 1,199 species assessed; Dulvy *et al*., 2021), where their regional populations have declined by at least 90 per cent (Ferretti *et al*., 2008). Since the essential role of predatory sharks in the marine ecosystems and the decline of their populations are often overlooked, there is an urgent need to implement adaptive, science-based management measures to mitigate the risks of unregulated human–shark proximity in coastal environments (Bigal *et al*., 2025). Such policies are necessary not only for public safety but also for the survival of sharks in the eastern Mediterranean.

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Appendix 1: Dataset of 59 shark attacks reported from the eastern Mediterranean Sea (GSAs 22–27) and the Sea of Marmara (GSA 28). Unshaded rows represent the final 'safe dataset' of 46 confirmed shark attacks. Grey-shaded rows indicate unconfirmed records (invalid, questionable attack or unconfirmed shark involvement), historical or undated incidents that were excluded from the analysis (N/A: not applicable, unpublished, or not in the GSAF; Prv: provoked, Unprv: unprovoked; Wcrt: watercraft; Sea dis: Sea disaster). Victim names are anonymised.

Priloga 1: Nabor podatkov o 59 napadih morskih psov, zabeleženih v vzhodnem Sredozemskem morju (GSA 22–27) in Marmarskem morju (GSA 28). Ne osenčene vrstice predstavljajo končni „varen nabor podatkov" o 46 potrjenih napadih morskih psov. Sivo osenčene vrstice označujejo nepotrjene zapise (neveljaven, vprašljiv napad ali nepotrjena vpletenost morskih psov), zgodovinske ali nedatirane primere, ki so bili izključeni iz analize (N/A: ni relevantno, neobjavljeno ali ni v GSAF; Prv: izzvano, Unprv: neizzvano; Wcrt: plovilo; Sea dis: morska nesreča). Imena žrtev so anonimizirana.

GSAF Case No	Country	Date	Year	Type	Location	Activity	Sex	Age	Injury	Fatal Y/N	Time	Species
N/A	TURKEY	Reported 30-Jun-2025	2025	Prv	Mersin Taşucu Dana Island	Spearfishing	M		Not injuried	N	Early hours of the day	*Isurus oxyrinchus*
N/A	TURKEY	4-Jul-2023	2023	Prv	Antakya İskenderun	Spearfishing	M	>30	Non severe bruises on hands	N		*Isurus oxyrinchus*; *ca.* 2 m TL
N/A	TURKEY	21-Sep-2020	2020	Prv	Çanakkale Gulf of Saros, Three Islands; 40º34'23.8"N 26º47'38.8"E	Spearfishing	M	40	Severly hits the diver, grasp the fish on the weight belt	N	Early hours of the day	Probably *Isurus oxyrinchus*; ca. 1,8 m TL
N/A	TURKEY	26-Aug-2019	2019	Prv	Mersin Taşucu Dana Island	Aquaculture net contol	M		Non severe injuries on feet and ankles; lacerations on dive fins	N		*Carcharhinus plumbeus*; 7 to 8 specimens, ca. 2 m TL
2793	TURKEY	05-Jul-1967	1967	Unprv	İstanbul Off Tuzla coast	Spearfishing	M	36	Fatal	Y	13h40	
2520	TURKEY	30-Aug-1962	1962	Wcrt	Antalya Üçağız		M		No injury	N		
2427	TURKEY	16-Jul-1961	1961	Unprv	İzmir İnciralti Beach	Swimming	M	16	Left leg injured	N		
2226	TURKEY	Reported 26-Jun-1959	1959	Unprv	Mersin Off Mezitli		M		Leg injured	N		
2188	TURKEY	28-Dec-1958	1958	Wcrt	İstanbul Ahirkapi coast	Fishing			Boat damaged	N		White shark
N/A	TURKEY	1958	1958	Wcrt	İstanbul Ahırkapı	Fishing			Boat damaged	N		White shark
1773	TURKEY	Reported 17-Sep-1948	1948	Unprv	Adana Yumurtalik	Swimming	M		Fatal	Y		
1500	TURKEY	Reported 17-Jul-1938	1938	Prv	İstanbul	Fishing	M		Injured by harpooned shark	N		
1469	TURKEY	16-Aug-1937	1937	Invalid	İstanbul	Swimming	M		No injury, no attack			Invalid
1363	TURKEY	Reported 08-Feb-1934	1934	Wcrt	İstanbul Haydarpasa jetty	Fishing	M		No injury	N		
1290	TURKEY	16-Mar-1931	1931	Wcrt	İstanbul Bakırköy coast	Fishing			No injury to occupants, shark crushed boat	N		
1268	TURKEY	Reported 11-May-1930	1930	Wcrt	İstanbul Yeşilköy	Fishing	M		No injury but shark damaged boat	N		
1225	TURKEY	06-Jan-1929	1929	Wcrt	İstanbul Yeşilköy	Fishing boat	M		Fatal	Y		

N/A	TURKEY	Reported 2-Feb-1926	1926	Prv	İstanbul Prince Islands	Fishing	N/A		Fatal	Y		*Carcharodon carcharias*; ca. 5 m TL
92	GREECE	Before 2003	0000	Unprv	Dodecanese Islands near Symi Island	Free diving for sponges	M		Fatal	Y		
3414	GREECE	30-Dec-1983	1983	Invalid	Andikira Fokithes	Spearfishing	M	36	Coroner determined the man was killed by a boat propeller, not a tiger shark		02h45	Invalid
3274	GREECE	Summer of 1981	1981	Unprv	Pagasitikos Gulf	Free diving / spearfishing,	M		Minor injury	N		
3240	GREECE	1980s	1980	Invalid	Island of Kos	Surfing	M		Knee bitten			Said to involve a white shark but shark involvement not confirmed
72	GREECE	No date, Before 8-May-1965	0000	Unprv	Island of Volos	Swimming	F		Fatal	Y		
2567	GREECE	01-Jun-1963	1963	Unprv	Thessaly	Swimming	F	42	Fatal	Y	16h30	White shark, 3 m
2505	GREECE	Reported 03-Jul-1962	1962	Invalid	Cyclades				No injury			Questionable incident
1819	GREECE	Summer 1950	1950	Unprv		Swimming			Fatal	Y		
1776	GREECE	22-Sep-1948	1948	Unprv	Attica	Swimming	M	17	Fatal	Y	16h00	Said to be 6.4 m [21′] shark
1738	GREECE	Jul-1947	1947	Invalid	Carpathian Sea	Jumped overboard	M		Shark involvement unconfirmed			Questionable
1465	GREECE	Reported 28-Jun-1937	1937	Unprv	Salonika				Fatal	Y		
444	GREECE	Reported 07-Sep-1876	1876	Unprv	Cyclades archipelago between the islands of Tenos and Andros	Diving for sponges	M		Fatal	Y		
129	GREECE	Ca. 336.B.C..	0000	Unprv	Piraeus	Washing his pig in preparation for a religious ceremony	M		Fatal, shark "bit off all lower parts of him up to the belly"	Y		
128	GREECE	Ca. 493 B.C.	0000	Sea dis.	Off Thessaly	Shipwrecked Persian Fleet	M		Herodotus tells of sharks attacking men in the water	Y		
28	GREECE	No date	0000	Unprv	Dodecanese Islands Symi Island	Sponge diving	M		Head bitten	N		
	ISRAEL	21-Apr-2025	2025	Unprv	Hadera	Diving	M	45	Remains recovered several days after the attcks	Y	15h00	Dusky sharks
6501	ISRAEL	22-Nov-2019	2019	Unprv	Haifa	Snorkeling	M		No injury, swim fin bitten	N		
5710	ISRAEL	29-Sep-2013	2013	Unprv	Ashdod	Diving	M	27	Hand bitten	N	11h30	
2521	ISRAEL	Reported 31-Aug-1962	1962	Prv	Sharon	Fishing	M		Details unknown	?		2.5 m [8.25′] shark
1718	ISRAEL	24-Aug-1946	1946	Unprv	Gaza	Fishing	M	15	Laceration to back	N		

1686	ISRAEL	05-Feb-1945	1945	Unprv	Tel Aviv	Swimming	M		Survived. R.A.F. pilot, seeing commotion in the water, dived his plane to investigate and scared off shark	N		
1389	ISRAEL	Reported 21-Jan-1935	1935	Invalid	Herzliyah				human remains washed ahore			Shark involvement prior to death unconfirmed
1357	ISRAEL	Reported 27-Sep-1933	1933	Wcrt	Nabi Rubin	Fishing	M		One man bitten on thigh, another on arm	N		3 sharks
6708	EGYPT	10-Sep-2021	2021		Sidi Abdel Rahmen	Swimming	M		Laceration to arm caused by metal object			No shark invovlement
1486	EGYPT	Reported 1938	1938	Unprv	Mersa Matruh	Sponge diving	M		Fatal	Y		
987	EGYPT	Reported 15-May-1915	1915	Invalid	Alexandria	Fell overboard	M		Shark involvement not confirmed			Shark involvement prior to death unconfirmed
822	EGYPT	24-Aug-1905	1905	Invalid	Suez Canal Port Said	Human head found in shark caught by British steamer *Syria*	M		Probable drowning and scavenging.			Tiger shark, 3.9 m
775	EGYPT	Jun-1902	1902	Unprv	Tzortzou Reef, Marsa Matruh	Sponge diving	M		Bitten on hand and thigh	N		
739	EGYPT	08-Aug-1899	1899	Unprv	Port Said	Floating on his back	M	9	Back muscles torn away	N	11h30	
738	EGYPT	08-Aug-1899	1899	Unprv	Port Said	Bathing	M	19	Forearm, wrist and hand bitten	N	09h30	
737	EGYPT	08-Aug-1899	1899	Unprv	Port Said	Bathing	M	13	Left leg bitten	N	08h30	
695	EGYPT	1897	1897	Unprv	Port Said				No details	?		
636	EGYPT	1893	1893	Unprv	Port Said				No details	?		
607	EGYPT	Reported 02-Jun-1890	1890	Unprv	Port Said	Swimming	M		Fatal	Y		
382	EGYPT	Reported 22-Aug-1867	1867	Unprv	Port Said	Swimming	M		Fatal	Y		
209	EGYPT	1827	1827	Unprv	Alexandria		M		Remains of the men were recovered from a +17-foot shark	Y		
767	CYPRUS	Reported 23-Sep-1901	1901	Unprv	Southern Cyprus Larnaca	Swimming	M	Teen	Fatal, bitten on arms, chest and legs	Y		2 m shark
484	SYRIA	1880?	1880	Invalid		Diving for sponges	M		Fatal	Y		Shark involvement prior to death unconfirmed
644	LEBANON	22-Jun-1893	1893	Unprv	Off Tripoli	*HMS Victoria* collided with the *HMS Camperdown*	M		Fatal	Y		
440	LEBANON	1876	1876	Unprv	Batroun	Sponge diving	M		Fatal	Y		
107	LEBANON	Before 1876	0000	Unprv		Collecting fish	M		Posterior thigh bitten	N		

ANALIZA POTRJENIH NAPADOV MORSKIH PSOV V VZHODNEM SREDOZEMSKEM MORJU IN MARMARSKEM MORJU (1827–2025)

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POVZETEK

Avtor poroča o rezultatih analize podatkov o 46 potrjenih napadih morskih psov v geografskih podobmočjih vzhodnega Sredozemskega morja (GSAs 22–27) in Marmarskega morja (GSA 28) v obdobju med 1827 in 2025. Nedavna porazdelitev napadov kaže na največjo gostoto primerov v turških vodah, sledijo jim sredozemske vode Egipta in Grčije. Podatki po podobmočjih kažejo, da je bilo največ incidentov v Egejskem morju (GSA 22) in južnem Levantu (GSA 26). Časovna analiza kaže na splošno naraščajoč trend letnih napadov morskih psov v celotnem obdobju študije. Ker so veliki pelagični plenilski morski psi Sredozemskega morja selivci, jih je mogoče srečati ob kateri koli sredozemski obali kadar koli. Glede na ključno vlogo plenilskih morskih psov v morskih ekosistemih pomeni vzhodno Sredozemlje, varno pred morskimi psi, ustvarjanje varnih okoljskih pogojev tako za ljudi kot za morske pse.

Ključne besede: Elasmobranchii, agresivnost, človek, ohranjanje, GSA22-28, napadi morskih psov

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