

## 1 Supplementary Data captions

**Table S1.** Elasmobranchii paleodiversity of the Cocinetas Basin and their record and total number of specimens per localities. The Patsúa assemblage (localities 290468 and 290472) are not referred in Figure 2b.

5 **Table S2.** Elasmobranchii paleodiversity of the Cocinetas Basin and their number of specimens per geological unit, jaw position and tooth measurements. Abbreviations: total number of specimens (N° T) and indeterminate (indet.). (\*): For a detailed taxonomic discussion and description of this taxon see Reinecke et al. (2011, p. 63).

**Table S3.** Feeding preferences of the Cocinetas Basin elasmobranch taxa, based on the biology of their extant relatives. The gray shadow indicates the feeding preferences. Abbreviation: Formation (Fm).

**File S4.** Referred fossil elasmobranch specimens from the Cocinetas Basin and their collection numbers.

10 **Figure S5.** Elasmobranch paleodiversity (families) of the Cocinetas Basin by geological units.

**Figure S6.** Early Neogene chondrichthyan diversity in the Americas. Tropical America: Barbados (Ba), Brazil (Br), Colombia (Co), Costa Rica (Cs), Cuba (Cu), The Grenadines (Gr), Panamá (Pa), Perú (Pu), Trinidad (Tr) and Venezuela (Ve). North America: United States of America (US). Southern South America: Argentina (Ar) and Chile (Ch). Aquitanian (Anq), Burdigalian (Brd), Langhian (Lngh); early Miocene without differentiation (EM), early–middle Miocene (EMM). Formation(Fm.), early (E). Modified after Carrillo–Briceño et al. (2016). Note: For references see Carrillo–Briceño et al. (2016, fig. 32).

15 **Figure S7.** Marine bony fish assemblage from the Patsúa Valley (locality 290468). **(a)** *Naso* sp. (MUN–STRI–43895). **(b)** *Balistes* sp. (MUN–STRI–43894). **(c)** *Chilomycterus* sp. (MUN–STRI–41506). **(d)** *Sphyræna* sp. (MUN–STRI–43892). **(e)** Acanthuridae indet. (MUN–STRI–43896). **(f)** Scaridae indet. (MUN–STRI–43897). **(g)** Sparidae indet. (MUN–STRI–43891). **(h)** *Diplodus* sp. (MUN–STRI–43898). **(i)** Labridae indet. (MUN–STRI–43893).

20 **Figure S8.** The majority of the bull shark (*Carcharhinus leucas*) specimens investigated (All in labial view): **(a)** CL.1; **(b)** CL.3; **(c)** CL.4; **(d)** CL.5; **(e)** CL.6; **(f)** CL.7; **(g)** CL.10; **(h)** CL.8; **(i)** CL.9; **(j)** CL.12.

## References

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- Reinecke, T., Louwye, S., Havekost, U., and Moths, H.: The elasmobranch fauna of the late Burdigalian, Miocene, at Werder–Uesen, Lower Saxony, Germany, and its relationships with early Miocene faunas in the North Atlantic, Central Paratethys and Mediterranean, *Palaeontos*, 20, 1–170, 2011.