U.S. Department of the Interior
U.S. Geological Survey

Open-File Report 2019–1072
Sheet 2 of 2

Bathymetry shaded relief from U.S. Geological Survey's The National Map, available at https://viewer.nationalmap.gov/basic/ and from the National Oceanic and Atmospheric Administration (NOAA) National Ocean Service Office of Coast Survey, Zoxy 1999.

NOT INTENDED FOR NAVIGATIONAL USE

SCALE 1:200,000

Structure, depth, and thickness mapping by Jeffrey W. Beeson, Samuel Y. Johnson, and Ryan S. Crumpton
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Figure 20. USGS high-resolution minisparker profile MS-88 (collected in 2010 on survey C–1–10-NC), which crosses shelf west of Mendocino; see Map D for location. Dashed red lines show faults, including San Andreas Fault Zone. Blue shading shows inferred uppermost Pleistocene and Holocene strata, deposited since last sea-level lowstand about 21,000 years ago. TKJu, Jurassic, Cretaceous, and Tertiary "basement" rocks, undivided. Dashed green lines highlight continuous reflections (not intended to show correlations across faults). Dashed yellow lines are seafloor multiples (echoes of seafloor reflector). Purple triangle shows approximate location of California's State Waters limit (yellow line on Maps D, E, F).

Figure 21. USGS high-resolution minisparker profile MS-90 (collected in 2010 on survey C–1–10-NC), which crosses shelf southeast of Mendocino; see Map D for location. Dashed red lines show faults, including San Andreas Fault. Blue shading shows inferred uppermost Pleistocene and Holocene strata, deposited since last sea-level lowstand about 21,000 years ago. TKJu, Jurassic, Cretaceous, and Tertiary "basement" rocks, undivided. Dashed green lines highlight continuous reflections (not intended to show correlations across faults). Dashed yellow lines are seafloor multiples (echoes of seafloor reflector). Purple triangle shows approximate location of California's State Waters limit (yellow line on Maps D, E, F).

Figure 22. USGS high-resolution minisparker profile MS-38 (collected in 2010 on survey C–1–10-NC), which crosses shelf west of mouth of Navarro River; see Map E for location. Dashed red lines show San Andreas Fault Zone. Blue shading shows inferred uppermost Pleistocene and Holocene strata, deposited since last sea-level lowstand about 21,000 years ago. TKJu, Jurassic, Cretaceous, and Tertiary "basement" rocks, undivided. Dashed green lines highlight continuous reflections (not intended to show correlations across faults). Dashed yellow lines are seafloor multiples (echoes of seafloor reflector). Purple triangle shows approximate location of California's State Waters limit (yellow line on Maps D, E, F).

Figure 23. USGS high-resolution minisparker profile MS-36 (collected in 2010 on survey C–1–10-NC), which crosses shelf south of mouth of Navarro River; see Map E for location. Dashed red lines show San Andreas Fault Zone. Blue shading shows inferred uppermost Pleistocene and Holocene strata, deposited since last sea-level lowstand about 21,000 years ago. TKJu, Jurassic, Cretaceous, and Tertiary "basement" rocks, undivided. Dashed green lines highlight continuous reflections (not intended to show correlations across faults). Dashed yellow lines are seafloor multiples (echoes of seafloor reflector). Purple triangle shows approximate location of California's State Waters limit (yellow line on Maps D, E, F).

Figure 19. USGS–OSU high-resolution minisparker seismic-reflection profile NSAF–084 (collected in 2010 on survey B–5–10-NC), which crosses Toto bank south of Shelter Cove; see Map D for location. Dashed red lines show faults, including San Andreas Fault Zone. Blue shading shows inferred uppermost Pleistocene and Holocene strata, deposited since last sea-level lowstand about 21,000 years ago. Green shading shows prograding Quaternary slope deposits. Pink shading shows interval pre–Last Glacial Maximum Quaternary paleochannel. TKJu, Jurassic, Cretaceous, and Tertiary "basement" rocks, undivided. Dashed green lines highlight continuous reflections (not intended to show correlations across faults). Dashed purple line is erosional unconformity. Dashed yellow lines are seafloor multiples (echoes of seafloor reflector). Purple triangle shows approximate location of California's State Waters limit (yellow line on Maps D, E, F).

Figure 18. USGS–OSU high-resolution minisparker seismic-reflection profile NSAF–085 (collected in 2010 on survey B–5–10-NC), which crosses Toto bank south of Shelter Cove; see Map D for location. Dashed red lines show faults, including San Andreas Fault. Blue shading shows inferred uppermost Pleistocene and Holocene strata, deposited since last sea-level lowstand about 21,000 years ago. TKJu, Jurassic, Cretaceous, and Tertiary "basement" rocks, undivided. Dashed green lines highlight continuous reflections (not intended to show correlations across faults). Dashed purple line is erosional unconformity. Dashed yellow lines are seafloor multiples (echoes of seafloor reflector). Purple triangle shows approximate location of California's State Waters limit (yellow line on Maps D, E, F).

Figure 17. USGS–OSU high-resolution minisparker seismic-reflection profiles NSAF–40 and NSAF–40A (collected in 2010 on survey B–5–10-NC), both of which cross Toto bank south of Shelter Cove; see Map D for location. Dashed red lines show faults, including San Andreas Fault. Blue shading shows inferred uppermost Pleistocene and Holocene strata, deposited since last sea-level lowstand about 21,000 years ago. Green shading shows prograding Quaternary slope deposits. TKJu, Jurassic, Cretaceous, and Tertiary "basement" rocks, undivided. Dashed green lines highlight continuous reflections (not intended to show correlations across faults). Dashed yellow lines are seafloor multiples (echoes of seafloor reflector). Purple triangle shows approximate location of California's State Waters limit (yellow line on Maps D, E, F).

Figure 16. USGS–OSU high-resolution minisparker seismic-reflection profiles NSAF–00 (collected in 2010 on survey C–1–10-NC) and NSAF–17D (collected in 2012 on B–5–12-NC), both of which cross shelf offshore of mouth of Usal Creek; see Map D for location. Dashed red lines show faults, including San Andreas Fault Zone. Blue shading shows inferred uppermost Pleistocene and Holocene strata, deposited since last sea-level lowstand about 21,000 years ago. TKJu, Jurassic, Cretaceous, and Tertiary "basement" rocks, undivided. Dashed green lines highlight continuous reflections (not intended to show correlations across faults). Dashed yellow lines are seafloor multiples (echoes of seafloor reflector). Purple triangle shows approximate location of California's State Waters limit (yellow line on Maps D, E, F).

Figure 15. USGS–OSU high-resolution minisparker seismic-reflection profiles NSAF–17 and NSAF–17S (collected in 2012 on survey B–4–12–NC), both of which cross shelf and Noyo Basin, southeast of Usal Creek; see Map D for location. Dashed red lines show faults, including San Andreas Fault Zone. Blue shading shows inferred uppermost Pleistocene and Holocene strata, deposited since last sea-level lowstand about 21,000 years ago. TKJu, Jurassic, Cretaceous, and Tertiary "basement" rocks, undivided. Dashed green lines highlight continuous reflections (not intended to show correlations across faults). Dashed purple line is erosional unconformity. Dashed yellow lines are seafloor multiples (echoes of seafloor reflector). Purple triangle shows approximate location of California's State Waters limit (yellow line on Maps D, E, F).

Figure 14. USGS–OSU high-resolution minisparker seismic-reflection profiles NSAF–17 (collected in 2010 on survey B–5–10-NC) and NSAF–18D (collected in 2012 on survey B–4–12-NC), both of which cross shelf and Noyo Basin, between mouths of Ten Mile River and Usal Creek; see Map D for location. Dashed red lines show faults, including San Andreas Fault. Blue shading shows inferred uppermost Pleistocene and Holocene strata, deposited since last sea-level lowstand about 21,000 years ago. TKJu, Jurassic, Cretaceous, and Tertiary "basement" rocks, undivided. Dashed green lines highlight continuous reflections (not intended to show correlations across faults). Dashed purple line is erosional unconformity at base of Noyo Basin. Dashed yellow lines are seafloor multiples (echoes of seafloor reflector). Purple triangle shows approximate location of California's State Waters limit (yellow line on Maps D, E, F).

Figure 27. Figure 27. USGS–OSU high-resolution minisparker seismic-reflection profiles NSAF–12 (collected in 2010 on survey B–5–10-NC) and NSAF–15B (collected in 2012 on survey B–4–12–NC), both of which cross shelf and Noyo Basin, between mouths of Ten Mile River and Usal Creek; see Map D for location. Dashed red lines show faults, including San Andreas Fault Zone. Blue shading shows inferred uppermost Pleistocene and Holocene strata, deposited since last sea-level lowstand about 21,000 years ago. TKJu, Jurassic, Cretaceous, and Tertiary "basement" rocks, undivided. Dashed green lines highlight continuous reflections (not intended to show correlations across faults). Dashed purple line is erosional unconformity at base of Noyo Basin. Dashed yellow lines are seafloor multiples (echoes of seafloor reflector). Purple triangle shows approximate location of California's State Waters limit (yellow line on Maps D, E, F).

Figure 22. High-resolution minisparker seismic-reflection profiles MS–96 (collected by USGS in 2010 on survey C–1–10-NC) and NSAF–14B (collected by USGS–OSU in 2012 on survey B–4–12–NC), both of which cross shelf and southern part of Noyo Basin, northwest of Fort Bragg; see Map D for location. Dashed red lines show faults, including San Andreas Fault. Blue shading shows inferred uppermost Pleistocene and Holocene strata, deposited since last sea-level lowstand about 21,000 years ago. Green shading shows prograding Quaternary slope deposits. TKJu, Jurassic, Cretaceous, and Tertiary "basement" rocks, undivided. Dashed green lines highlight continuous reflections (not intended to show correlations across faults). Dashed purple lines are erosional unconformities. Dashed yellow lines are seafloor multiples (echoes of seafloor reflector). Purple triangle shows approximate location of California's State Waters limit (yellow line on Maps D, E, F).

Figure 25 (left). USGS high-resolution minisparker seismic-reflection profile MS–89 (collected in 2010 on survey C–1–10-NC), which crosses shelf west of Fort Bragg; see Map D for location. Dashed red lines show faults, including San Andreas Fault Zone. Blue shading shows inferred uppermost Pleistocene and Holocene strata, deposited since last sea-level lowstand about 21,000 years ago. TKJu, Jurassic, Cretaceous, and Tertiary "basement" rocks, undivided. Dashed green lines highlight continuous reflections (not intended to show correlations across faults). Dashed purple lines are erosional unconformities. Dashed yellow lines are seafloor multiples (echoes of seafloor reflector). Purple triangle shows approximate location of California's State Waters limit (yellow line on Maps D, E, F).

Figure 26 (right). USGS high-resolution minisparker profile MS–73 (collected in 2010 on survey C–1–10-NC), which crosses shelf southeast of Fort Bragg; see Map D for location. Dashed red lines show faults, including San Andreas Fault Zone. Blue shading shows inferred uppermost Pleistocene and Holocene strata, deposited since last sea-level lowstand about 21,000 years ago. TKJu, Jurassic, Cretaceous, and Tertiary "basement" rocks, undivided. Dashed green lines highlight continuous reflections (not intended to show correlations across faults). Dashed purple lines are erosional unconformities. Dashed yellow lines are seafloor multiples (echoes of seafloor reflector). Purple triangle shows approximate location of California's State Waters limit (yellow line on Maps D, E, F).

Colored shaded-relief index map of part of northern California, showing locations of selected geographic features and place names. Red lines show the locations of Maps B, D, and C (on sheet 1 and Maps D, E, and F on this sheet (sheet 2) based). Black line shows the limit of the 2-nautical-mile-wide State Waters, showing offshore oil/gas exploration lease blocks (OGL), Naval Basin (PAB), Point Arena Basin). Other abbreviations: DC, Delgada Canyon; PC, Pioneer Canyon; PD, Point Delgada; SC, Spanish Canyon; TB, Toto bank.

Tropic USA Marine, Inc.
U.S. Geological Survey

Offshore Shallow Structure and Sediment Distribution, Punta Gorda to Point Arena, Northern California

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