Zone Management Act, the OCS Lands Act Amendments, the Marine Sanctuaries Act, and the Alaskan (D-2) land withdrawals, brings the magnitude of these attacks on our resource base into sharp focus.

Potential federal land and sea withdrawals, currently under consideration, total over 600 million acres (240 million ha.), an area larger than the states of Arizona, California, Colorado, Idaho, New Mexico, North Dakota, Utah, and Wyoming combined. This is equal to about one quarter of the entire land mass of the lower 48 states.

As earth scientists we have an obligation to alert the public to this threat and the very serious consequences it poses for our nation. In addition, we should make a concerted effort to increase our elected representatives' and agency administrators' awareness of this acute problem.

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Regional Hydrocarbon Source Rock and Thermal Maturity Evaluation of Ogaden Basin, Ethiopia

Maturity-level analyses utilizing vitrinite reflectance techniques on samples from several wildcat wells drilled in the Ogaden basin of Ethiopia showed a well-defined oil floor roughly coincident with the top of the Pliensbachian stage of the Lower Jurassic. Reflectance values obtained above and below this horizon show a marked increase. The sedimentary section within the proper thermal maturity range for oil has a thickness of 11,900 ft (3,570 m) in the Tenneco 1 Bodle wildcat in the southwestern part of the basin.

The best oil source rocks are within the Upper Jurassic Uarandab shales and Upper to Lower Jurassic Hamanlei carbonate rocks and evaporites. Oil source rocks occur locally in a clastic section near the base of the Lower Cretaceous.

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Source Rocks in Gulf Coast Area—Their Identification and Exploration Significance

No abstract available.

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Dolomite Nonstoichiometry; Its Relation to Carbonate-Rock Fabric

Nearly 300 samples of carbonate rocks representing all pre-Tertiary periods (except Cambrian) were analyzed for their dolomite stoichiometry by X-ray peak displacement. These samples represent a wide variety of fabric types (0 to 100% micrite, and boundstone), and a wide variety of depositional environments (shelf edge, subtidal shelf interior, shore zone, and deep marine). The percent calcium carbonate in the dolomite lattice ranged from 48.67 to 57.93, and was fairly uniformly distributed over the range 50.0 to 56.0%. There does not appear to be any clear relation through time and over wide geographic areas between the percent calcium carbonate in the dolomite lattice and (1) facies; (2) total percent dolomite; (3) degree of recrystallization; (4) spar-crystal size; (5) total fossil content; (6) percentages of gastropods, brachiopods, bryozoans, and echinoids; (7) percent insoluble residue; and (8) percent visible porosity (in thin section). There does appear to be a trend to more nearly stoichiometric dolomite (50% calcium carbonate) with increasing age, but this generalization has many exceptions. Results from samples of geologically related suites do show systematic facies-related patterns, but the trends vary and even reverse from suite to suite. We conclude that dolomite nonstoichiometry may be a useful parameter in facies analysis of geologically related (time and space) sets of samples, but it shows no unambiguous facies-related trends over the geologic record.

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Mississippian Non-Supratidal Dolomite, Ste. Genevieve Formation, Illinois Basin

In a subsurface area of 140 sq km along the La Salle anticline, southeastern Illinois, a 5 to 12-m sequence of shallow-marine, subtidal carbonate mudstone and wackestone in the upper Ste. Genevieve Limestone (Meramecian) has been altered in patches to porous (25 to 40%), oil-productive, microcrystalline dolomite. Information from about 150 wells (46 cored) shows the dolomite to occur in lens-shaped bodies up to 12 m (38 ft) thick, 0.5 to 2.5 km across, by 1 to >5 km long, in places probably interconnected, and markedly oriented east-west to northeast-southwest. The dolomite interfingers with carbonate mudstone/wackestone, which it closely resembles in primary and bioturbate structures, preserved and inferred megafossils, and clay and detrital silt content (<7%). Muddy calcareous sediments were the precursors. There is no direct evidence of either deposition or dolomitization under supratidal conditions.

Typical dolomite consists of sharply terminated, clear, 5 to 20-μm rhombs. In cathodoluminescence these have roundish, dully luminescing cores with successive dark and bright, rhomb-shaped overgrowth zones which clearly indicate fabric evolution and progressive reduction of porosity. Bulk isotopic compositions are relatively heavy (mean δC^{13} and δO^{18} are +2.3 and +2.4 parts per thousand versus PDB); Sr^{++} is 100 to 350 ppm. A later generation of coarse, iron-rich dolomite has similar δC^{13} but much lower δO^{18} (mean −6.0 parts per thousand) and locally filled molds, fractures, and veins.

Dolomite and carbonate mudstone/wackestone underlie a swarm of elongate lenses of ooid grainstone and sandy ooid-pellet packstone/grainstone that have similar orientations and areal dimensions. Many dolomite lenses directly underlie carbonate-sand bodies. Muddy parts of carbonate sands are commonly altered to microcrystalline dolomite with similar fabrics, isotopic and Sr^{++} compositions, and cathodoluminescence.

These observations suggest that dolomitization may have begun in marine pore water, but continued in a hydrologic system of partly meteoric origin. Dolomiti-