OCS Report
MMS 2000-063

Estimated Oil and Gas Reserves
Pacific Outer Continental Shelf

(as of December 31, 1998)

MMS
U.S. Department of the Interior
Minerals Management Service
Pacific OCS Region

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by
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U.S. Department of the Interior
Minerals Management Service
Pacific OCS Region

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COVER PHOTO: Aera's Platforms Ellen and Elly, located in Beta Field in the offshore portion of the Los Angeles Basin. The platforms were installed in 1980 in approximately 260 feet of water. Wells drilled from the 80-slot Platform Ellen have been producing oil and gas through Platform Elly since January 1981. *Photograph by Ralph Vasquez, Minerals Management Service, Camarillo, CA.*

Contents

Figures

Page

Tables

Page

Abbreviations

ACT ..... Actively Drilling
APD ..... Application for Permit to Drill
API ..... American Petroleum Institute
°API ..... Oil Gravity
bbl ..... Barrel of Oil (42 US gallons)
Bcf ..... Billion Cubic Feet of Gas
BOE ..... Barrels of Oil Equivalent
bpd ..... Barrels per Day
cf ..... Cubic Feet
CFR ..... Code of Federal Regulations
COM ..... Completion
CRPNTR ..... Carpinteria Offshore Field
DPP ..... Development and Production Plan
DSCDRS ..... Dos Cuadras Field
DSI ..... Drilling Shut-In
°F ..... Degrees Fahrenheit
GIW ..... Gas Injection Well
GLO ..... Gas Lift Oil Well
GSI ..... Gas Well Shut-in
HUENEM ..... Hueneme Field
Mbbl ..... Thousand Barrels of Oil
Mcf ..... Thousand Cubic Feet of Gas
Mcfpd ..... Thousand Cubic Feet of Gas per Day
MMbbl ..... Million Barrels of Oil
MMcf ..... Million Cubic Feet of Gas
MMS ..... Minerals Management Service
OCS ..... Outer Continental Shelf
OFR ..... Open File Report
OSI ..... Oil Well Shut-in
PA ..... Plugged and Abandoned
PESCDO ..... Pescado Field
PGW ..... Producing Gas Well
PITSPT ..... Pitas Point Field
POW ..... Producing Oil Well
psia ..... Pounds per Square Inch Absolute
PTARGL ..... Point Arguello Field
PTPDNS ..... Point Pedernales Field
or PTP
RD ..... Redrill
SNTCLR ..... Santa Clara Field
SOCKEY ..... Sockeye Field
SPE ..... Society of Petroleum Engineers
ST ..... Side Track
TA ..... Temporarily Abandoned
TR ..... Tranquillon Ridge Unit
USGS ..... U.S. Geological Survey
WDW ..... Water Disposal Well
WIW ..... Water Injection Well
WSW ..... Water Source Well

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Abstract

Proved reserves of oil[1] and gas[2] in the Pacific Outer Continental Shelf (OCS), offshore California, are estimated to be 408 million barrels and 1,286 billion cubic feet, respectively, as of December 31, 1998. These reserves are attributed to 13 fields. Original recoverable oil and gas reserves for these fields are estimated to be 1,323 million barrels and 2,159 billion cubic feet, respectively. Unproved reserves are estimated to be 1,316 million barrels of oil and 922 billion cubic feet of gas, in 25 fields.

Reserve estimates for 31 of the 38 Pacific OCS fields were calculated using individual reservoir volumetric studies. Both decline-curve and volumetric analyses were used for the remaining 7 fields. Over three-fourths of all oil reserves and approximately two-thirds of all gas reserves are attributed to reservoirs in the Monterey Formation. Over three-fourths of the remaining oil reserves are contained within fields that have not yet been developed.

Twelve of the 38 fields were producing at yearend. Oil production during 1998 was approximately 46 million barrels. About 76 billion cubic feet of gas were produced during 1998: net gas production exceeded 53 billion cubic feet. To date, approximately 915 million barrels of oil and 873 billion cubic feet of gas have been produced from 12 fields.

[1] *Oil,* as used in this report, includes crude oil and condensate.
[2] *Gas,* as used in this report, includes associated and nonassociated dry gas.

Introduction

This report, which in part supersedes OCS Report MMS 99-0023 (Sorensen and others, 1999), presents estimates of original recoverable oil and gas reserves, cumulative production through 1998, and estimates of remaining reserves as of December 31, 1998, for the Pacific Outer Continental Shelf (OCS), offshore California. These estimates were completed in February 2000. Detailed reserves estimates are included in the annual update of this report as part of a Minerals Management Service (MMS) continuing program to provide a current inventory of oil and gas reserves for the Pacific OCS.

Begining in the 1995 report (MMS 96-0060) the Pacific OCS Region has modified the method of gas reserves computation. Volumes of gas that have been reinjected into the reservoir are now being subtracted from yearly production. This change affects gas reserves in the Beta, Carpinteria Offshore, Hondo, Point Pedernales, and Pescado fields. All gas volumes in this report are net figures as described above, unless specified otherwise.

The estimates presented here were prepared by petroleum engineers, geologists, geophysicists, and other personnel from the MMS Pacific OCS Regional Office, Camarillo, California. Previous reserves reports were used as a basis for parts of this update.

Definition of Resource and Reserve Terminology

The MMS has standardized its definitions of resources (*Estimates of Undiscovered Conventional Oil and Gas Resources in the United States—A Part of the Nation's Energy Endowment*, U.S. Geological Survey (USGS) and MMS, 1989). The Society of Petroleum Engineers (SPE) and World Petroleum Congresses (WPC) have also adopted a standardized set of reserve categories and definitions (SPE and WPC, 1997). The definitions used within this report conform with both these sources. Figure 1 shows how resource and reserve definitions are related.

Undiscovered Resources

Resources estimated from broad geologic knowledge or theory and existing outside of known fields or known accumulations are undiscovered resources. Undiscovered resources can exist in untested prospects on unleased acreage, or on undrilled leased acreage, or in known fields. In known fields, undiscovered resources occur in undiscovered pools that are controlled by distinctly separate structural features or stratigraphic conditions (USGS and MMS, 1989).

Discovered Resources

Once leased acreage is drilled and is determined to contain oil or gas under Code of Federal Regulations (CFR) Title 30, Part 250, Subpart A, Section 115, Determination of Well Producibility (hereinafter referred to as 30 CFR 250.115), the lease is considered to have discovered resources. Discovered resources are

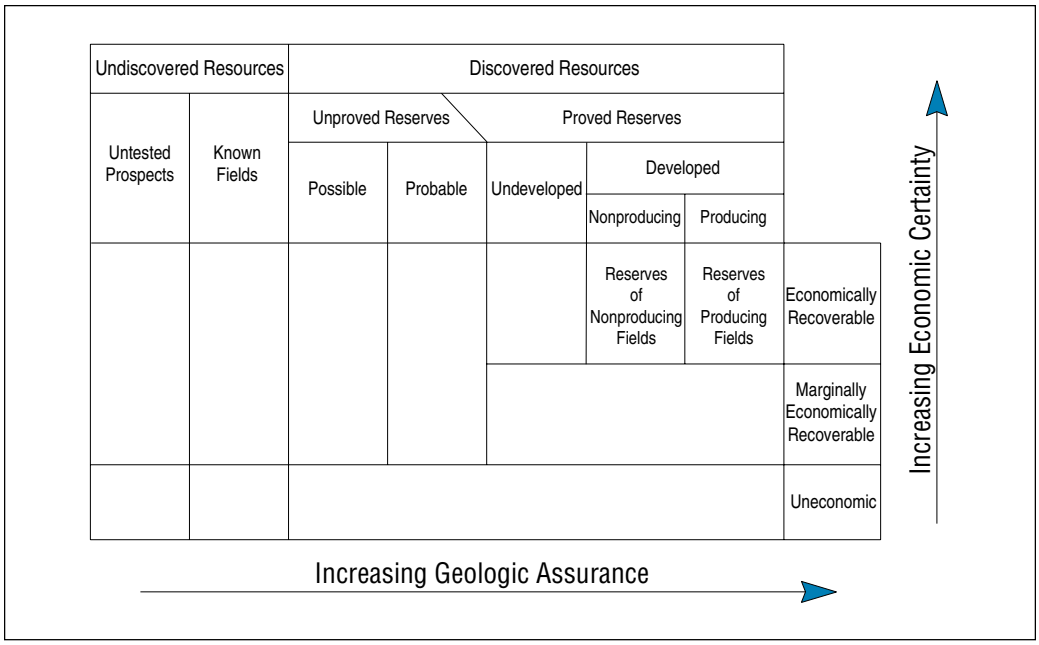


Figure 1. MMS petroleum reserves classification (modified from USGS and MMS, 1989; and SPE, 1987).

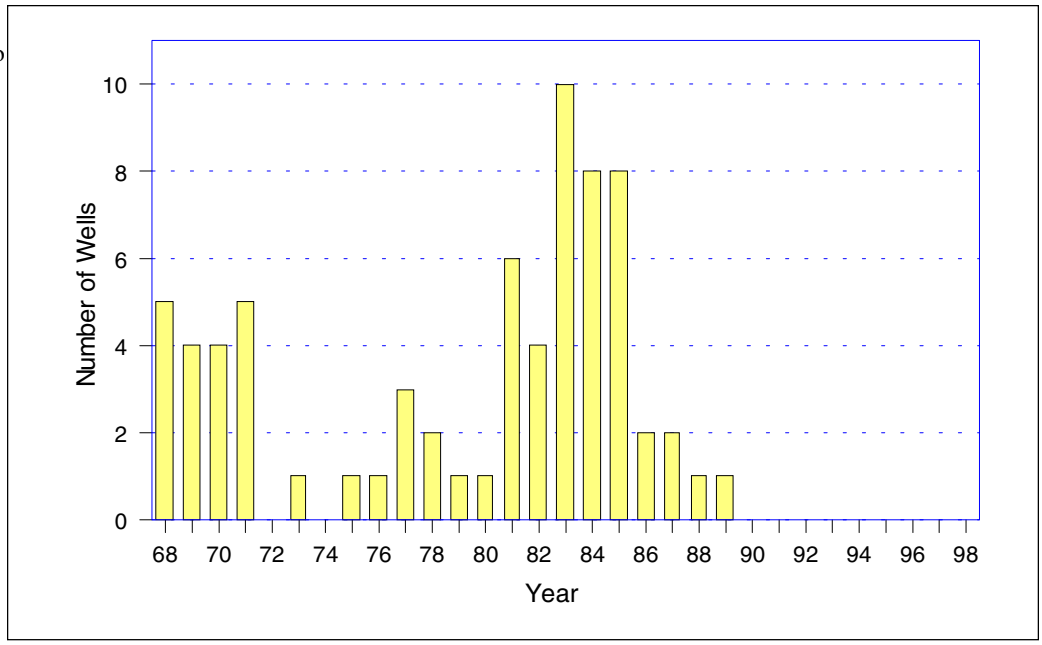
the equivalent of identified resources as reported by Dolton and others (1981). Identified resources are resources whose location and quantity are known or are estimated from specific geologic or engineering evidence and include economic, marginally economic, and subeconomic components. Discovered resources can be further characterized as unproved or proved reserves, depending upon evidence of economic and geologic viability. Changing economic conditions and new geologic data and interpretations can result in reclassification of resources. Figure 2 shows the number of Pacific OCS wells determined to be producible in accordance with 30 CFR 250.115.

Unproved Reserves

After a lease qualifies under 30 CFR 250.115, the MMS Field Naming Committee reviews the new producible lease to assign it to an existing field or, if the lease is not associated with an established geologic structure, to a new field. Regardless of where the lease is assigned, the reserves associated with the lease are initially considered to be unproved reserves. "Unproved reserves are based on geologic and/or engineering data similar to that used in estimates of proved reserves; but technical, contractual, economic, or regulatory uncertainties preclude such reserves being classified as proved. Unproved reserves may be further classified as probable reserves and possible reserves" (SPE and WPC, 1997).

"*Possible reserves* are those unproved reserves which analysis of geological and engineering data suggests are less likely to be recoverable than probable reserves...In general, possible reserves may include (1) reserves which, based on geological interpretations, could possibly exist beyond areas classified as probable, (2) reserves in formations that appear to be petroleum bearing based

Figure 2.
Wells determined to be producible in accordance with 30 CFR 250.115, Pacific OCS.



on log and core analysis but may not be productive at commercial rates, (3) incremental reserves attributed to infill drilling that are subject to technical uncertainty, (4) reserves attributed to improved recovery methods when (a) a project or pilot is planned but not in operation and (b) rock, fluid, and reservoir characteristics are such that a reasonable doubt exists that the project will be commercial, and (5) reserves in an area of the formation that appears to be separated from the proved area by faulting and geological interpretation indicates the subject area is structurally lower than the proved area" (SPE and WPC, 1997). After a lease qualifies under 30 CFR 250.115, the reserves associated with the lease are initially classified as unproved possible.

"*Probable reserves* are those unproved reserves which analysis of geological and engineering data suggests are more likely than not to be recoverable...In general, probable reserves may include (1) reserves anticipated to be proved by normal step-out drilling where sub-surface control is inadequate to classify these reserves as proved, (2) reserves in formations that appear to be productive based on well log characteristics but lack core data or definitive tests and which are not analogous to producing or proved reservoirs in the area, (3) incremental reserves attributable to infill drilling that could have been classified as proved if closer statutory spacing had been approved at the time of the estimate, (4) reserves attributable to improved recovery methods that have been established by repeated commercially successful applications when (a) a project or pilot is planned but not in operation and (b) rock, fluid, and reservoir characteristics appear favorable for commercial application, (5) reserves in an area of the formation that appears to be separated from the proved area by faulting and the geologic interpretation indicates the subject area is structurally

higher than the proved area, (6) reserves attributable to a future workover, treatment, retreatment, change of equipment, or other mechanical procedures, where such procedure has not been proved successful in wells which exhibit similar behavior in analogous reservoirs, and (7) incremental reserves in proved reservoirs where an alternative interpretation of performance or volumetric data indicates more reserves than can be classified as proved" (SPE and WPC, 1997). Reserves in fields for which a schedule leading to a Development and Production Plan (DPP) has been submitted to the MMS have been classified as unproved probable.

Proved Reserves

"*Proved reserves* are those quantities of petroleum which, by analysis of geological and engineering data, can be estimated with reasonable certainty to be commercially recoverable, from a given date forward, from known reservoirs and under current economic conditions, operating methods, and government regulations. Proved reserves can be categorized as developed or undeveloped." (SPE and WPC, 1997).

Reserves are classified as *proved undeveloped reserves* when a relatively large expenditure is required to install production/transportation facilities, a commitment by the operator is made, and a timeframe to begin production is established. "Undeveloped reserves are expected to be recovered: (1) from new wells on undrilled acreage, (2) from deepening existing wells to a different reservoir, or (3) where a relatively large expenditure is required to (a) recomplete an existing well or (b) install production or transportation facilities for primary or improved recovery projects" (SPE and WPC, 1997).

"*Developed reserves* are expected to be recovered from existing wells including reserves behind pipe. Improved recovery reserves are considered developed only after the necessary equipment has been installed, or when the costs to do so are relatively minor. Developed reserves may be sub-categorized as producing or non-producing" (SPE and WPC, 1997). This distinction is made at the reservoir level and not at the field level.

Once the first reservoir in a field begins production, the reservoir is considered to contain *proved developed producing reserves.* "Reserves subcategorized as producing are expected to be recovered from completion intervals which are open and producing at the time of the estimate. Improved recovery reserves are considered producing only after the improved recovery project is in operation" (SPE and WPC, 1997). If a reservoir had sustained production during the last year, it is considered to contain proved developed producing reserves.

Any developed reservoir in a developed field that has not produced or has not had sustained production during the past year is considered to contain *proved developed nonproducing reserves*. "Reserves subcategorized as non-producing include shut-in and behind-pipe reserves. Shut-in reserves are expected to be

recovered from (1) completion intervals which are open at the time of the estimate but which have not started producing, (2) wells which were shut-in for market conditions or pipeline connections, or (3) wells not capable of production for mechanical reasons. Behind-pipe reserves are expected to be recovered from zones in existing wells, which will require additional completion work or future recompletion prior to the start of production" (SPE and WPC, 1997). The reserves classification procedure is shown in figure 3.

Total reserves are the sum of proved and unproved reserves.

The amount of oil and gas expected to be recovered from the original oil in place or the amount equal to the sum of cumulative production and remaining reserves is considered to be the *original recoverable reserves*.

The term *production data* means the measured volumes of gross hydrocarbons reported to the MMS by Federal lessees and operators. Oil and gas volume measurements and reserves are corrected to reference standard conditions of 60 °F and 14.73 psia. Continuously measured volumes from production platforms or leases are allocated to individual wells and reservoirs on the basis of periodic well tests. These procedures introduce approximations in both production and reserves data by reservoirs and by fields.

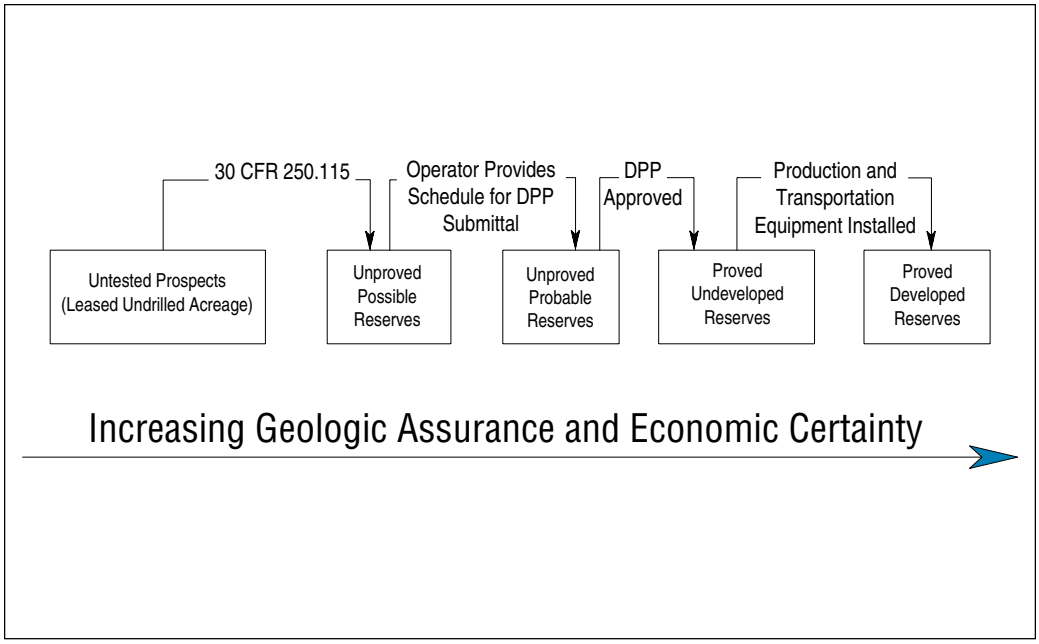


Figure 3.
MMS Pacific OCS reserves classification procedure.

Methods Used for Estimating Reserves

Volumetric Calculation

For the volumetric calculation of reserves, the amounts of original oil and gas in place are estimated from the bulk volume of the reservoir as mapped using data from boreholes and seismic profiles. Maps of net oil and gas sand thicknesses are generated with the aid of a computer mapping system, and the results are converted to bulk reservoir volume using the appropriate equations. Rock porosities and the amounts of water, oil, and gas in the pore space are derived from well log interpretations and core analyses. The estimated original amounts of oil and gas in place are converted to standard conditions through analyses of pressure, volume, and temperature relationships and by the use of standard correlations. The amounts of the original oil and gas in place that can be recovered are estimated from information about the reservoir drive mechanism, well spacing, analog field recovery factors, and American Petroleum Institute (API) recovery factor equations (Arps and others, 1967, p. 19-20).

Decline Curve Analysis

In the decline-curve analysis method, future production is estimated by extrapolating plots of production rates and fluid percentages versus time. The ultimate production is determined by adding cumulative past production to predicted future production.

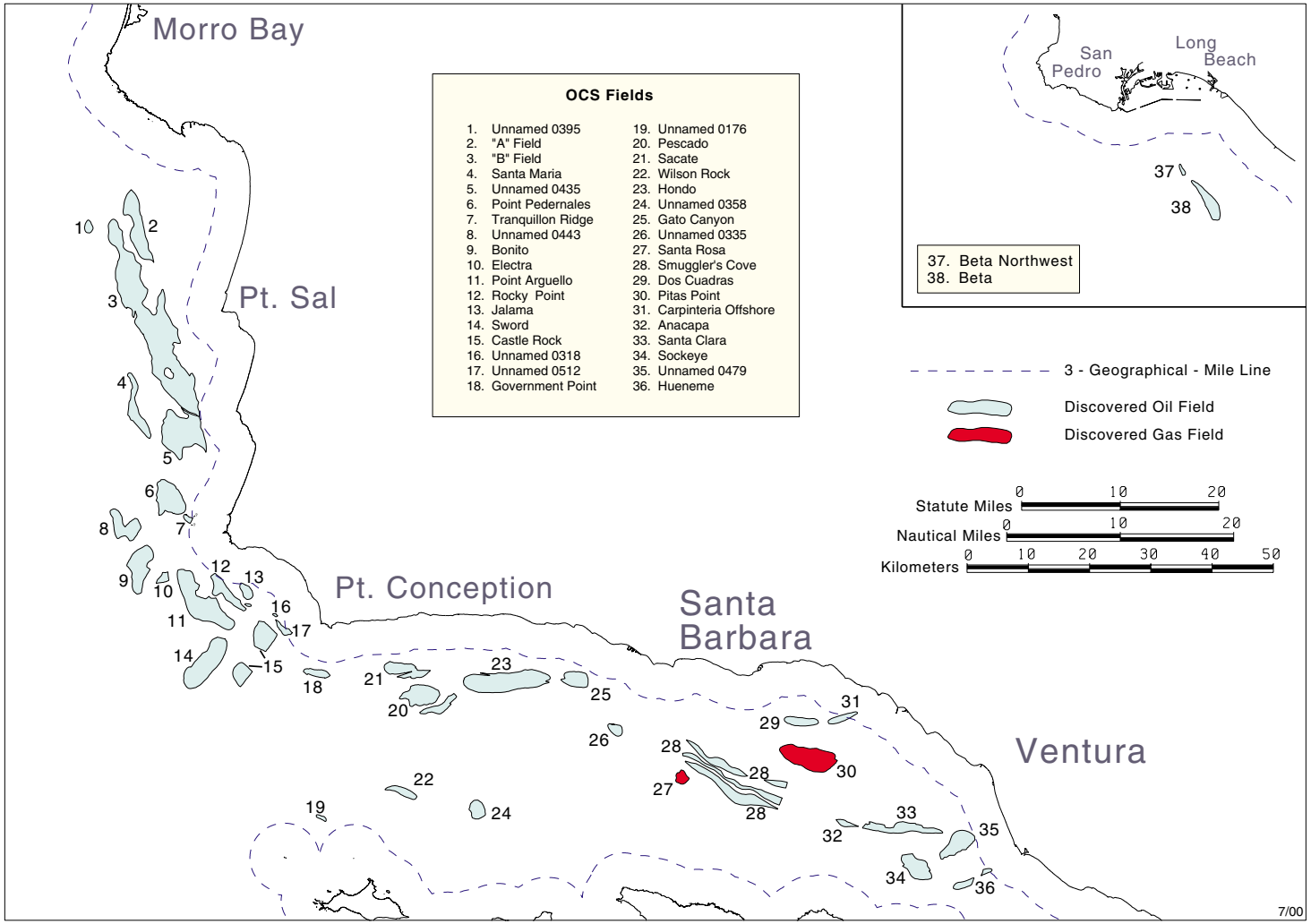
Fields Reported

As of December 31, 1998, there are 38 fields in the Pacific OCS that are recognized as containing reserves under the established criteria. Two of these fields are gas fields, 27 are oil fields, and 9 are combination oil and gas fields (fig. 4).

Thirteen fields were determined to have proved reserves of oil/gas. These 13 fields are Point Pedernales, Tranquillon Ridge, Point Arguello, Pescado, Sacate, Hondo, Dos Cuadras, Pitas Point, Carpinteria Offshore, Santa Clara, Sockeye, Hueneme, and Beta (fig. 4, fields 6, 7, 11, 20, 21, 23, 29, 30, 31, 33, 34, 36, and 38). All of these fields, with the exception of Sacate, were producing at yearend. The remaining 25 fields were determined to have unproved hydrocarbon reserves.

Reserve estimates for seven of the producing fields were obtained from volumetric calculations and decline-curve analyses: Hondo, Dos Cuadras, Pitas Point, Carpinteria Offshore, Santa Clara, Hueneme, and Beta (fig. 4, fields 23, 29, 30, 31, 33, 36, and 38). Individual reservoirs in each field were grouped for volumetric calculations, while decline-curve analyses were made on lease-by-lease and platform bases. The 31 remaining fields (5 producing and 26 nonproducing) were studied on a reservoir-by-reservoir basis, and the reserve estimates were determined solely by the volumetric calculation method.

Figure 4.
Recognized discoveries of federally controlled oil and gas fields in the Pacific OCS. (Dashed lines indicate 3-geographic mile boundary between State and Federal waters.)



Estimated Oil and Gas Reserves

As of December 31, 1998, total original recoverable oil and gas reserves in the Pacific OCS are estimated to be 2,639 million barrels (MMbbl) and 3,081 billion cubic feet (Bcf), respectively. Total remaining reserves are estimated to be 1,724 MMbbl of oil and 2,208 Bcf of gas.

The current aggregated estimates of Pacific OCS oil and gas reserves are shown in table 1, by SPE reserves category, for both original recoverable and remaining reserves. Estimates of the original recoverable and remaining reserves for the 12 producing oil and gas fields are presented in figures 5 and 6 and table 2. Changes in reported reserves and production in the Pacific OCS are displayed in table 3.

These estimates have been updated annually as additional information has become available. Past updates have caused both increases and decreases in estimates of original recoverable and remaining oil and gas reserves. Previous reserves estimates for the Pacific OCS are presented in appendix A.

The current estimate of original recoverable oil reserves has decreased, as compared with the most recent previous estimate.

The estimate of original recoverable gas reserves has also decreased slightly. In addition, remaining recoverable gas reserve estimates have been adjusted to reflect gas injection volumes for the region.

Distribution of Reserves

The field size distribution based on current estimated original recoverable reserves for 27 oil fields, 9 combination oil and gas fields, and 2 gas fields in the Pacific OCS is shown in figure 7. These 38 fields are located in three basins, offshore California. For comparison purposes, gas reserves are expressed in terms of barrels of oil equivalent on the basis of equivalent heating values (5,620 cubic feet of gas has the approximate heating value of 1 bbl of oil), hereinafter referred to as BOE. Producing fields are distinguished from nonproducing fields in this figure.

Approximately one-half of the original recoverable oil reserves and two-thirds of the original gas reserves in the Pacific OCS are attributable to the 12 proved developed fields. These 12 producing fields also contain about one-fifth of the remaining recoverable oil reserves and almost one-half of the remaining gas reserves.

Gas reserves in the Pacific OCS are located in both oil and gas reservoirs. Approximately one-sixth of the original recoverable and remaining gas reserves occurs as nonassociated gas contained in natural gas reservoirs. The other five-sixths are associated gas contained within oil reservoirs (fig. 8 and table 4).

Oil and gas reserves in the Pacific OCS are further categorized on the basis of the age of the reservoir rocks in which they exist (table 5). The three age groups of reservoir rocks are (1) Pre-Monterey, rocks older than the Monterey Formation (early Miocene age and older); (2) Monterey, rocks of the Monterey Formation (Miocene age); and (3) Post-Monterey, rocks younger than the Monterey Formation (late Miocene age and younger). The distribution of estimated original recoverable and remaining oil and gas reserves by reservoir age group is illustrated in figures 9 and 10.

Eight of the 12 producing fields in the Pacific OCS have substantial reserves attributed to the Monterey Formation, as do 21 of the 26 nonproducing fields. In 17 of the 26 nonproducing fields, all identified reserves are attributed to this formation. Over three-quarters of the original recoverable oil reserves and almost nine-tenths of the remaining oil reserves are in Monterey Formation reservoirs. The Monterey Formation also contains approximately two-thirds of all gas reserves in the Pacific OCS.

Table 1. Estimated reserves of oil and gas by SPE category, Pacific OCS, December 31, 1998.

Reserves Category	Number of Fields	Original Recoverable Reserves		Cumulative Production		1998 Annual Production		Remaining Reserves	
		Oil (MMbbl)	Gas (Bcf)	Oil (MMbbl)	Net Gas (Bcf)	Oil (MMbbl)	Net Gas (Bcf)	Oil (MMbbl)	Gas (Bcf)
Proved Developed	12	1,252	1,951	915	873	46	53*	337	1,078
Proved Undeveloped	1	71	208	0	0	0	0	71	208
Unproved Possible - Active Leases	13	1,178	571	0	0	0	0	1,178	571
Unproved Possible - Expired Leases	12	138	351	0	0	0	0	138	351
Total	38	2,639	3,081	915	873	46	53*	1,724	2,208

* Net gas volume (minus loss and reinjection); gross gas volume produced = 77 Bcf

Table 2. Production and estimated reserves of oil and gas for producing fields, Pacific OCS, December 31, 1998

Field	Original Recoverable Reserves		Cumulative Production		1998 Annual Production		Remaining Reserves	
	Oil (MMbbl)	Gas (Bcf)	Oil (MMbbl)	Net Gas (Bcf)	Oil (MMbbl)	Net Gas (Bcf)	Oil (MMbbl)	Gas (Bcf)
Beta	105.60	33.50	78.86	25.54	2.80	0.96	26.74	7.96
Carpinteria	66.30	55.00	63.08	52.93	0.82	0.64	3.22	2.07
Dos Cuadras	256.80	137.60	244.08	127.97	2.40	2.65	12.72	9.63
Hondo	278.90	834.02	200.72	231.36	13.60	27.33	78.18	602.66
Hueneme	10.57	5.30	9.91	4.32	0.22	0.36	0.66	0.98
Pescado	110.79	222.32	68.13	15.02	11.05	6.70	42.66	207.30
Pitas Point	0.27	239.22	0.20	204.26	0.01	3.70	0.07	34.96
Point Arguello	225.00	155.33	132.27	66.04	9.38	3.18	92.73	89.29
Point Pedernales/ Tranquillon Ridge	77.30	25.50	58.16	16.62	3.42	1.89	19.14	8.88
Santa Clara	49.76	80.13	35.62	61.42	1.13	0.85	14.14	18.71
Sockeye	70.83	163.45	24.01	67.78	1.52	4.75	46.82	95.67
Total	1,252.12	1,951.36	915.04	873.26	46.34	52.55*	337.08	1,078.11

* Net gas volume (minus loss and reinjection); gross gas volume produced = 77 Bcf

Table 3. Changes in reported reserves and production, Pacific OCS, December 31, 1998.

Production and Reserves	Oil (MMbbl)	Gas (Bcf)
Original Recoverable Reserves:		
Estimated as of 12/31/98 (This Report)	2,639	3,081
Estimated as of 12/31/97 (MMS 99-0023)	2,670	3,141
Change	-31	-60
Cumulative Production:		
Through 1998	915	873
Through 1997	869	819
Proved Reserves:		
Estimated as of 12/31/98 (This Report)	408	1,286
Estimated as of 12/31/97 (MMS 99-0023)	486	1,412
Change	-78	-126
Total Reserves:		
Estimated as of 12/31/98 (This Report)	1,724	2,208
Estimated as of 12/31/97 (MMS 99-0023)	1,801	2,322
Change	-77	-114

Figure 5.
Production and estimated reserves of oil for producing fields, Pacific OCS.

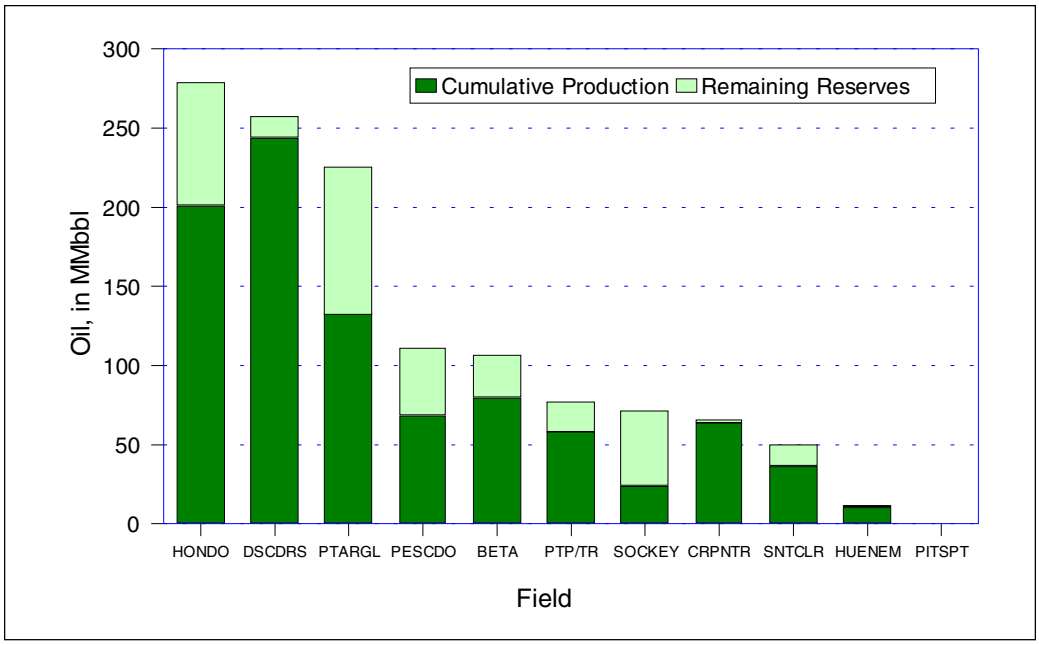


Figure 6.
Production and estimated reserves of gas for producing fields, Pacific OCS.

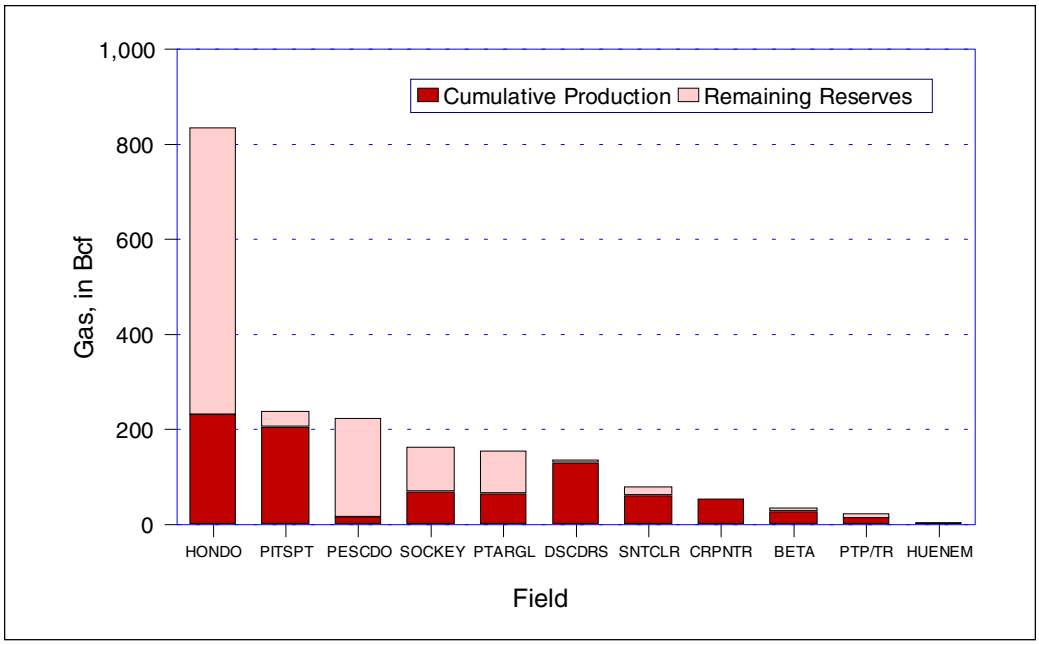


Figure 7.
Size distribution of Pacific OCS oil and gas fields.

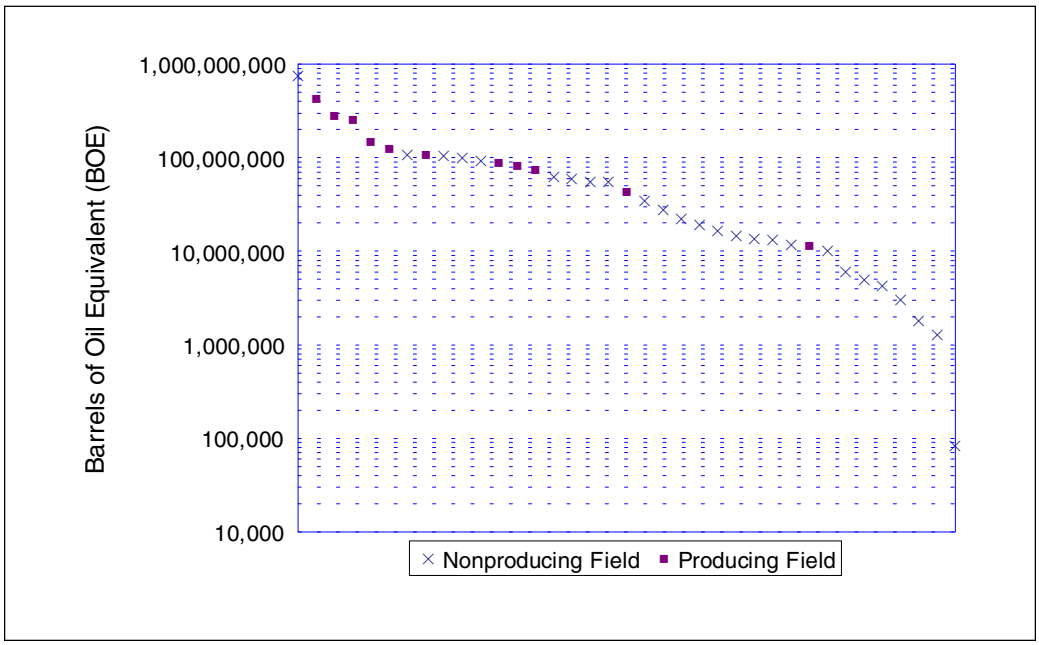


Figure 8.
Production and estimated reserves of gas by type of occurrence, Pacific OCS.

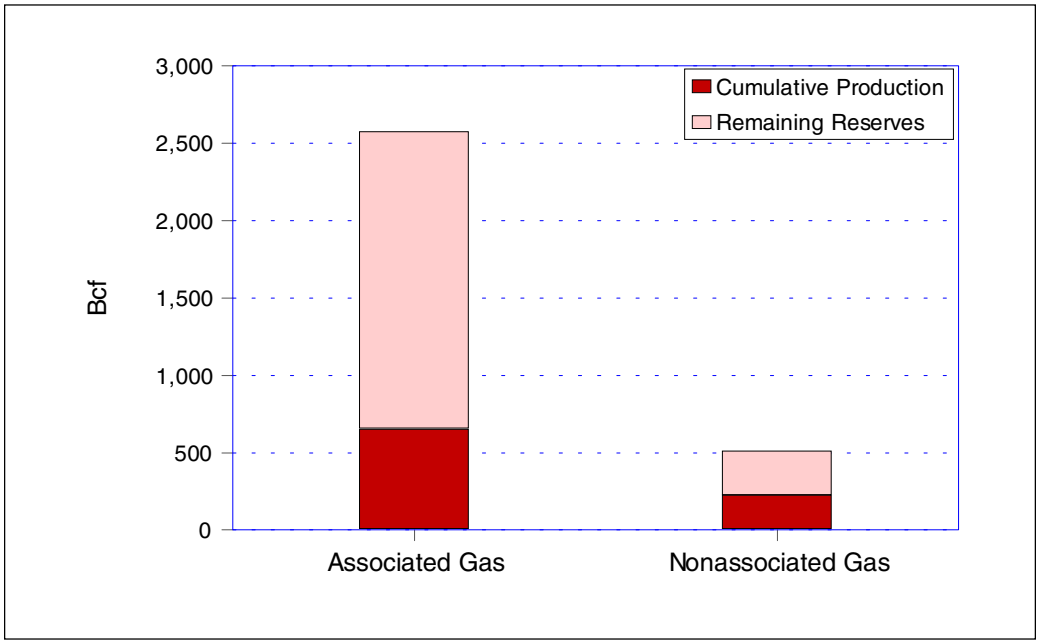


Figure 9.
Estimated original recoverable and remaining oil reserves by reservoir age group, Pacific OCS.

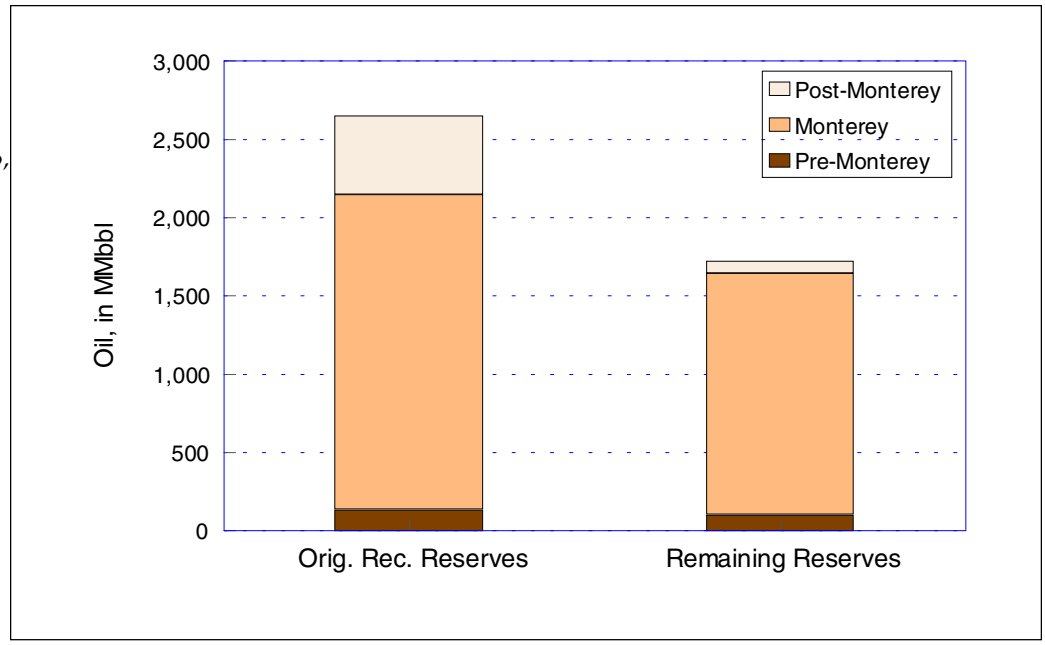


Figure 10.
Estimated original recoverable and remaining gas reserves by reservoir age group, Pacific OCS.

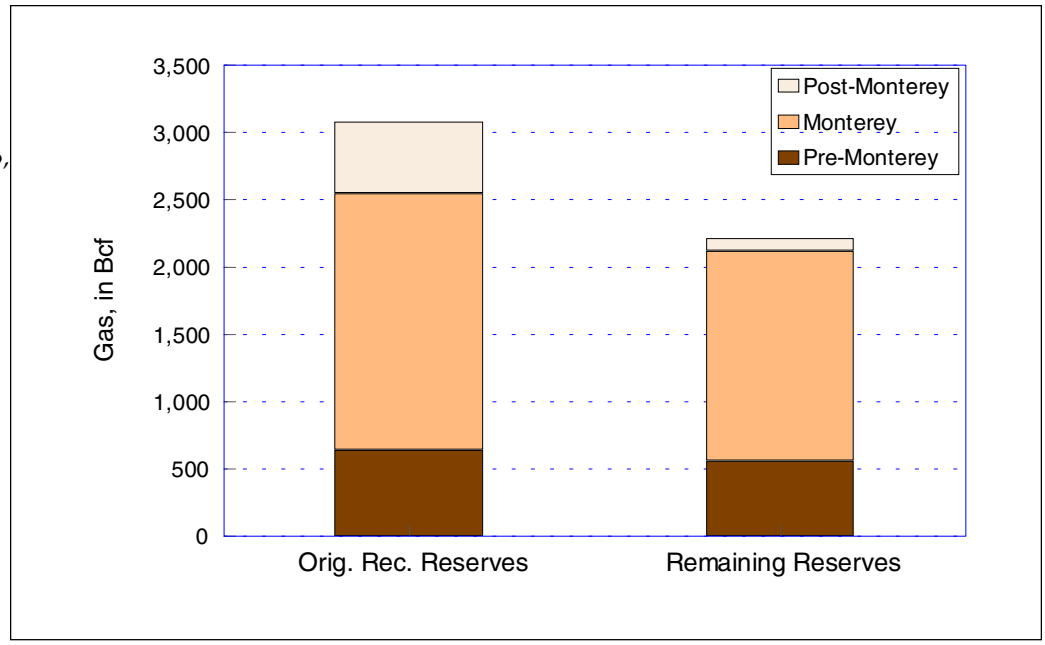


Table 4.
Production and estimated reserves of gas by type of occurrence, Pacific OCS, December 31, 1998.

Type of Occurrence	Original Recoverable Reserves (Bcf)	Cumulative Production (Bcf)	1998 Annual Net Production (Bcf)	Remaining Reserves (Bcf)
Associated	2,569	652	49	1,917
Nonassociated	512	221	4	291
Total	3,081	873	53	2,208

Table 5.
Estimated reserves of oil and gas by reservoir age group, Pacific OCS, December 31, 1998.

Reservoir Age Group	Geologic Formations	Original Recoverable Reserves		Remaining Reserves	
		Oil (MMbbl)	Gas (Bcf)	Oil (MMbbl)	Gas (Bcf)
Post-Monterey	Pico, Puente, "Repetto," "Santa Margarita," Sisquoc	489	536	79	88
Monterey	Monterey	2,014	1,909	1,548	1,565
Pre-Monterey	Point Sal, Vaqueros, Topanga, Hueneme, Sespe/Alegria, Gaviota, Matilija, Sacate, Juncal (Camino Cielo), Jalama	136	635	97	554

Status of Field Development

As of December 31, 1998, 12 of the 38 recognized fields in the Pacific OCS were producing: Point Pedernales, Tranquillon Ridge, Point Arguello, Pescado, Hondo, Dos Cuadras, Pitas Point, Carpinteria Offshore, Santa Clara, Sockeye, Hueneme, and Beta (fig. 4, fields 6, 7, 11, 20, 23, 29, 30, 31, 33, 34, 36, and 38). Tranquillon Ridge Field became the twelfth producing field in the Pacific OCS when production began from Platform Irene in April 1997.

Development drilling occurred at 4 of the 12 producing fields during 1998: Point Arguello, Hondo, Carpinteria Offshore, and Santa Clara (fig. 4, fields 11, 23, 31, and 33). A summary of Pacific OCS development activities during 1998 is presented in appendix B.

Eight producing oil and gas fields in the Pacific OCS are undergoing fluid injection: Point Pedernales, Point Arguello, Pescado, Hondo, Dos Cuadras, Santa Clara, Sockeye, and Beta (fig. 4, fields 6, 11, 20, 23, 29, 33, 34, and 38). Recovery beyond primary production is occurring or can be anticipated. Four fields—Point Pedernales, Point Arguello, Pescado, and Hondo, (fig. 4, fields 6, 11, 20, and 23)—are undergoing gas injection for reservoir pressure maintenance or for relief of high pressure gas in emergency situations. Approximately one-fourth of the natural gas produced in the region is reinjected. Table 6 shows water and gas injection volumes and rates for each of the eight fields undergoing injection.

Table 6. Gas and water injection volumes and rates, 1998.

Field	Gas Injection Volume (Mcf)	Average Gas Injection Rate (Mcfpd)	Water Injection Volume (bbl)	Average Water Injection Rate (bpd)
Beta	0	0	8,661,200	23,729
Dos Cuadras	0	0	12,155,617	33,303
Hondo	13,601,400	37,264	0	0
Pescado	17,584,797	48,178	0	0
Pt. Arguello	1,025,586	7,718*	0	0
Pt. Pedernales	84,401	1,278	0	0
Santa Clara	0	0	722,368	1,979
Sockeye	0	0	1,150,115	3,151

*Represents testing from Jan. through Sept., and injection starting Oct. 1998.

Drilling History and Production Rates

There have been 329 exploratory wells and 866 development wells drilled as of December 31, 1998. For the ninth consecutive year, no exploratory wells were drilled in the Pacific OCS. Eighteen development wells and redrills were drilled during 1998, in four fields. Total footage drilled in these wells exceeded 70,000 feet. Drilled footage by year for all wells in the Pacific OCS is displayed in figure 11. Additional exploratory and delineation wells are anticipated in many of the Pacific OCS fields as the operators seek to define productive limits and optimize oil and gas recovery.

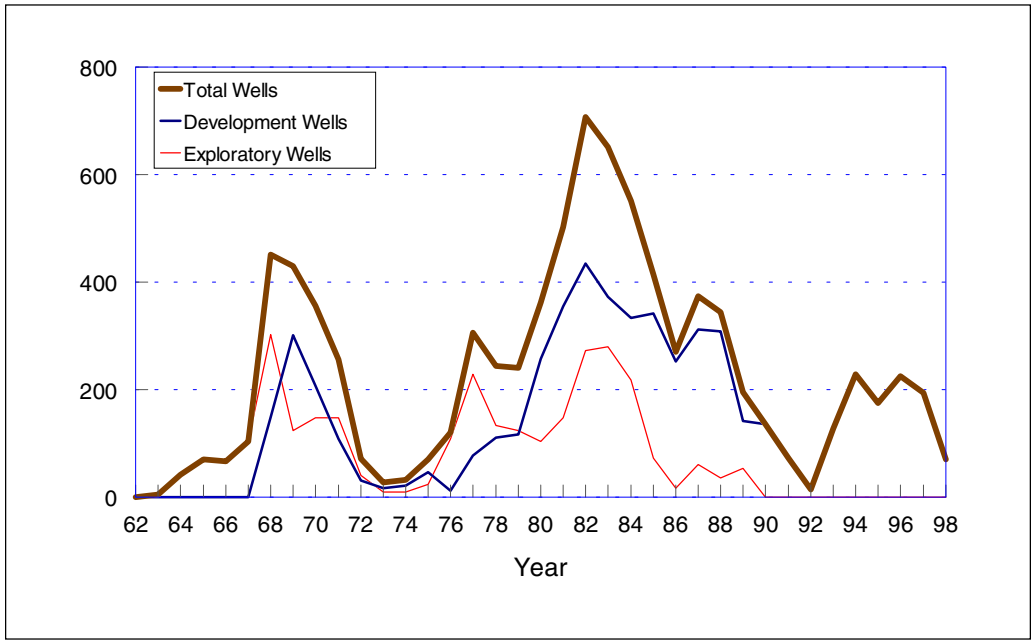
Annual oil production from the Pacific OCS decreased markedly during 1998, to approximately 46 MMbbl of oil. Over four-fifths of the oil was produced from Monterey Formation reservoirs. Most of the other oil production was

obtained from reservoirs in rocks younger than the Monterey Formation. Hondo, Pescado, and Point Arguello Fields together accounted for almost three-fourths of the region's oil production. Pacific OCS fields produced almost one-tenth of the national OCS total.

Net gas production from the 12 producing fields decreased slightly during 1998, to approximately 53 Bcf by yearend. Only one gas field was producing at yearend; approximately nine-tenths of the gas production was associated gas obtained from oil reservoirs. Over two-thirds of the gas was produced from Monterey Formation oil reservoirs.

Cumulative production reached approximately 915 MMbbl of oil and 873 Bcf of gas in 1998. About one-half of the oil and gas production in the Pacific OCS to date has been from Post-Monterey aged reservoirs. This proportion will decline, however, as production from Monterey Formation reservoirs continues. Additional oil and gas production volume and rate data for the Pacific OCS are presented in appendix C.

Figure 11.
Annual drilled footage for wells in the Pacific OCS.



Oil and Gas Sales Prices, Volumes, and Gravities

During 1998, 12 of the 38 fields in the Pacific OCS produced oil and gas. Sales volumes of oil and gas produced from these fields totaled 46.34 MMbbl and 53 Bcf, respectively. The weighted average sales prices of oil and natural gas during 1998 were $7.36 per barrel and $2.13 per thousand cubic feet, respectively.

Total sales of crude oil from Pacific OCS oil fields during 1998 are shown in table 7. Pescado Field is the largest field in terms of oil sales volumes. Hondo and Pescado Fields in the Santa Ynez Unit accounted for over one-half of all Pacific OCS crude oil sold.

Total sales of natural gas from each field during 1998 are shown in table 8. Differences between sales volumes and produced gas volumes are due primarily to lease use, flaring, and injection. Pitas Point Field is the only producing gas field in the Pacific OCS, but produced only about 11% of all Pacific OCS natural gas sold. Hondo Field produces more natural gas than any other single field in the region. Hondo , Sockeye, and Pitas Point Fields account for almost three-quarters of all Pacific OCS natural gas sold. Oil sales gravities range from 12 to 32 °API. Oil produced from some reservoirs also contains substantial quantities of sulfur and metals. These factors have produced average prices for Pacific OCS crudes that are generally lower attributed to reservoirs in the Monterey Formation.

Pacific OCS oil production declined during 1998, when approximately 46 MMbbl of oil were produced. Net gas production decreased slightly to about 53 Bcf. Over nine-tenths of the gas produced during the year was associated gas produced from oil reservoirs. Over two-thirds of the natural gas produced came from oil reservoirs in the Monterey Formation. Cumulative production from fields in the Pacific OCS has reached 915 MMbbl of oil and 873 Bcf of gas since production began in 1968.

Table 7.
Oil sales volumes, Pacific OCS, 1998.

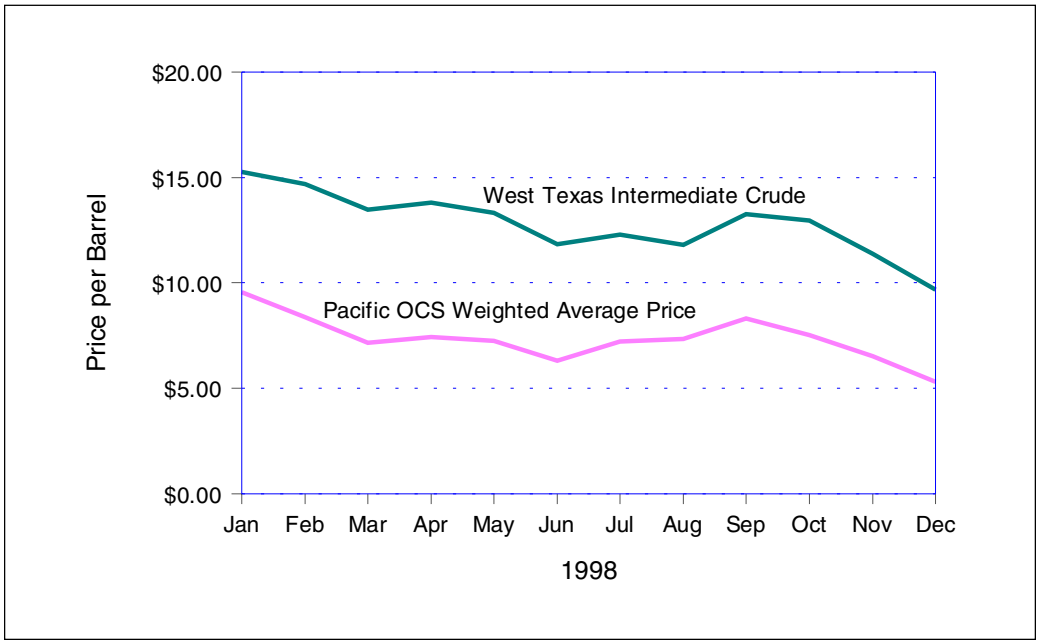
Field	Oil Sales Volume (MMbbl)	Percent of Total Sales
Pescado	12.78	27.56
Hondo	12.20	26.30
Point Arguello	9.37	20.20
Point Pedernales/ Tranquillon Ridge	3.15	6.79
Beta	2.87	6.19
Dos Cuadras	2.44	5.26
Sockeye	1.32	2.85
Santa Clara	1.15	2.48
Carpinteria Offshore	0.84	1.81
Hueneme	0.26	0.56
Total	46.38	100.00

Table 8.
Natural gas sales volumes, Pacific OCS, 1998.

Field	Natural Gas Sales Volume (Bcf)	Percent of Total Sales
Hondo	17.92	53.22
Pitas Point	3.57	10.60
Sockeye	3.11	9.24
Pescado	2.49	7.40
Dos Cuadras	2.08	6.18
Point Pedernales/ Tranquillon Ridge	1.49	4.42
Point Arguello	1.26	3.74
Santa Clara	0.79	2.35
Carpinteria Offshore	0.45	1.34
Hueneme	0.36	1.07
Beta	0.15	0.44
Total	33.67	100.00

Figure 12.
Average monthly crude oil price for Pacific OCS and Standard West Texas Intermediate Crude (U.S. Spot Market).

Source: Energy Information Administration *Petroleum Marketing Monthly, July 1998.*



Conclusions

As of December 31, 1998, the total original recoverable reserves in 38 fields in the Pacific OCS, offshore California, are estimated to be 2,639 MMbbl of oil and 3,081 Bcf of gas. The remaining proved reserves in 13 oil and gas fields are estimated to be 408 MMbbl of oil and 1,286 Bcf of gas. Unproved reserves in 25 oil and gas fields in the Pacific OCS are estimated to be 1,316 MMbbl of oil and 922 Bcf of gas. Total remaining oil reserves have decreased by 77 MMbbl, and gas reserves have decreased by 114 Bcf, as compared with previously published estimates.

Oil and gas were being produced from 22 platforms in 12 fields at yearend. Original recoverable gas reserves for the single producing gas field are estimated to be 239 Bcf, and remaining reserves are estimated to be about 35 Bcf of gas. Estimated original recoverable reserves for the other 11 producing fields total 1,283 MMbbl of oil and 1,712 Bcf of gas. Estimated remaining reserves for these 11 fields are 337 MMbbl of oil and 1,043 Bcf of gas. Less than one-quarter of the remaining oil reserves and about one-half of the remaining gas reserves in the Pacific OCS are contained within producing fields, and approximately three-fourths of the remaining oil and gas reserves are attributed to reservoirs in the Monterey Formation.

Pacific OCS oil production declined during 1998, when approximately 46 MMbbl of oil were produced. Net gas production increased slightly to about 53 Bcf. Over nine-tenths of the gas produced during the year was associated gas produced from oil reservoirs. Over two-thirds of the natural gas produced came from oil reservoirs in the Monterey Formation. Cumulative production from fields in the Pacific OCS has reached 915 MMbbl of oil and 873 Bcf of gas since production began in 1968.

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Appendixes: Reserves, Production, and Development Summaries

The following appendixes provide information on estimated oil and gas reserves, oil and gas production volumes and rates, and annual development activities in the Pacific OCS. This information, obtained primarily from MMS interpretations of geophysical, geological, and other data, form the basis of MMS resource and reserve estimates in the Pacific OCS.

Appendixes

Appendix A - Annual Estimates of Oil and Gas Reserves

The first oil field extending into Federal waters in the Pacific OCS was discovered in 1965. The discovery well was drilled in the State portion of the Carpinteria Offshore Field. Estimates of original recoverable oil and gas reserves in the region have increased since that time, largely due to the discovery of new oil and gas fields and often due to the reevaluation of known fields. Estimates of remaining reserves have generally increased as well, for the same reasons. The continued production of oil and gas, however, following the cessation of leasing and exploratory drilling, has initiated a downward trend in estimates of remaining reserves.

Estimates of Original Recoverable Reserves

Since the discovery of Carpinteria Offshore Field in 1965, estimates of original recoverable oil and gas reserves in the Pacific OCS have increased substantially (fig. A-1 and table A-1). The primary cause for this increase has been the discovery of additional oil and gas fields, many of which are of significant size. Other factors that can increase estimates of original recoverable reserves are the analysis of new data from known fields and the reevaluation of old data in combination with new technology. Past reevaluations of known fields have caused significant increases in estimates of original recoverable reserves.

It should be noted, however, that such studies may result in decreased reserves estimates as well. Some annual estimates of original recoverable oil and gas reserves in the Pacific OCS have decreased, as compared with estimates published in previous years (fig. A-1). The cessation of both leasing and exploratory drilling in the Pacific OCS has made the reevaluation of known fields the only factor that continues to change estimates of original recoverable oil and gas reserves.

Estimates of Remaining Reserves

Two of the 38 known fields in the region have been ranked among the top 100 U.S. oil fields in terms of remaining proved reserves; both were ranked among the top 50 fields, and 1 of the 2 was in the top 20. One of these fields is also ranked among the 100 largest U.S. gas fields. These 2 fields contain nearly one-third of the remaining proved oil reserves and about two-thirds of the remaining proved gas reserves in the region. Other Pacific OCS fields may eventually prove to be sufficiently large to be included in the nation's top 100.

Historically, the average volumes of oil and gas produced annually in the Pacific OCS have been about 1 percent of current estimated original recover-

able oil and gas reserves. Such production rates have not caused extreme annual variations between estimated original recoverable reserves and remaining reserves. As a result, annual estimates of remaining oil and gas reserves have generally increased or decreased in step with the annual estimates of original recoverable reserves (figs. A-1 and A-2). The divergence between original recoverable reserves and remaining reserves increased in recent years, however, as production rates in the Pacific OCS reached record-setting levels.

Table A-1. Annual estimates of original recoverable reserves with source publication numbers.

Original Recoverable Reserves			
Year	Publication	Oil (MMbbl)	Gas (Bcf)
1976	OFR 78-384	829	1530
1977	OFR 79-345	843	1546
1978	OFR 80-477	875	1665
1979	OFR 80-1042	920	1845
1980	OFR 81-623	988	1853
1981	OFR 82-37	1082	1847
1982	OFR 83-559	1217	1983
1983	MMS 84-0024	1433	2298
1984	MMS 85-0041	1515	2400
1985	MMS 86-0066	1599	2334
1986	MMS 87-0045	1670	2461
1987	MMS 88-0047	1727	2501
1988	MMS 89-0085	1729	2467
1989	MMS 90-0086	1987	2723
1990	MMS 91-0087	1988	2684
1991	MMS 92-0073	1990	2762
1992	MMS 94-0008	2055	3121
1993	MMS 94-0059	2050	3129
1994	MMS 95-0062	2053	3132
1995	MMS 96-0060	2055	3136
1996	MMS 98-0001	2055	3136
1997	MMS 99-0023	2670	3141
1998	MMS 2000-063	2639	3081

Figure A-1.
Annual estimates of original recoverable reserves from known fields.

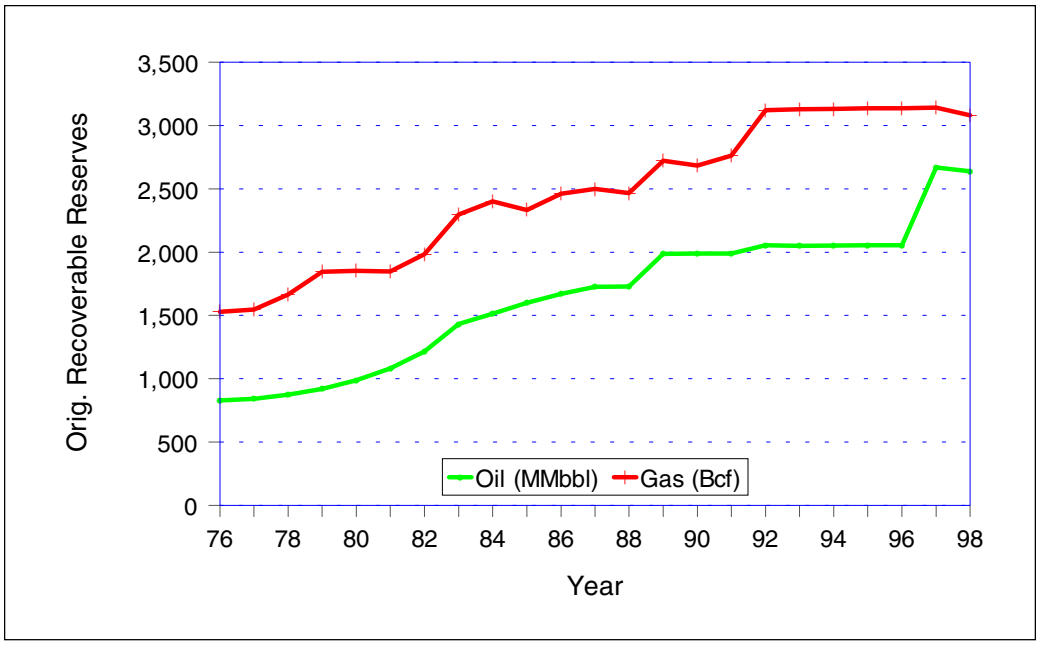
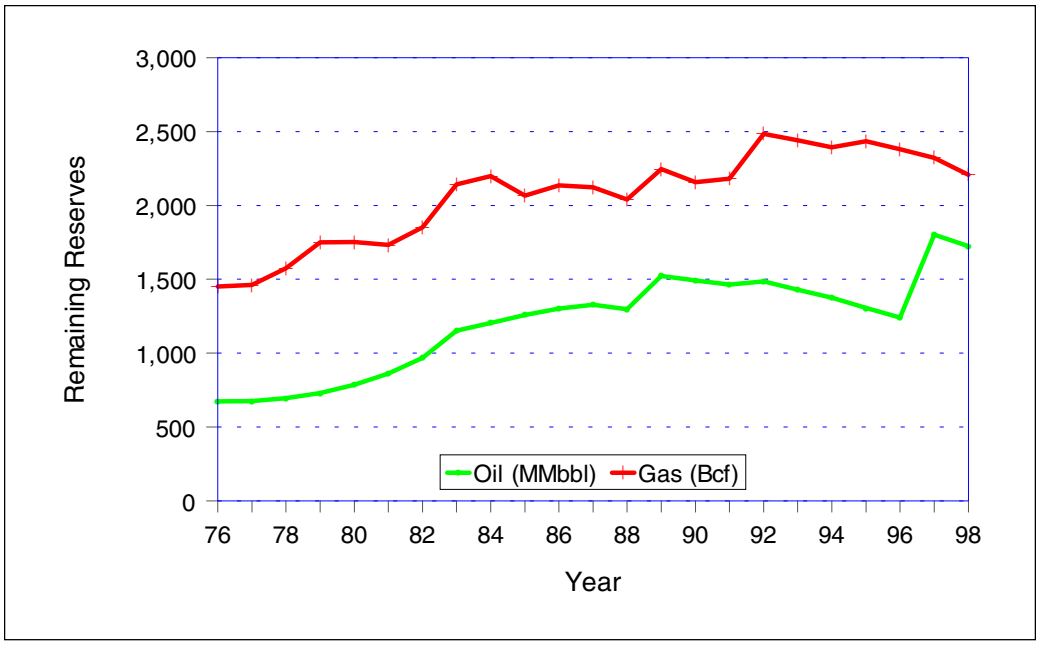


Figure A-2.
Annual estimates of remaining recoverable reserves from known fields.



Appendix B - Annual Development Activities

The pace of development activities in the Pacific OCS decreased significantly during 1998. A total of 29 new wells and redrills reached total depth by the end of 1997, but only 1 new well and 16 redrills were drilled in 1998 (tables B-1 and B-2). Additional work was also completed at each of the 11 producing fields.

Field Activities

Beta Field Beta Field is the only producing Pacific OCS field in the Los Angeles Basin. No new development wells were drilled in the field during 1998. There were 36 electric submersible pump changes. Waterflood operations continued in Leases OCS-P 0300 and 0301. Maximum monthly oil production for the year occurred in January, when the field produced 259,645 bbl. Monthly gas production peaked in August with 86.212 Mcf. Annual oil production decreased to 2,802,014 bbl, while gas production decreased to 956,929 Mcf.

Carpinteria Offshore Field Seven redrills were completed at Carpinteria Offshore Field during 1998. Other work was also performed in an effort to increase production rates. Monthly oil and gas production totals declined slightly from a high in January, when 79,064 bbl and 63,893 Mcf were produced, to 74,201 bbl and 58,201 Mcf in December 1998. Oil and gas production for the year totaled 818,506 bbl and 638,043 Mcf, respectively, representing a significant increase over 1997 figures.

Dos Cuadras Field Nuevo Energy Company replaced Unocal as the operator of Dos Cuadras Field in 1996. No new wells were drilled in 1998. Monthly oil and gas production rates for the year peaked in May, when 222,810 bbl and 255,062 Mcf were produced. Annual production amounted to approximately 2.4 MMbbl and 2.7 Bcf, respectively.

Hondo Field The development of Hondo Field continued in 1998 with the drilling of one new well and two redrills. Other work was also performed. Maximum monthly oil production for 1998 occurred in January, when 1,318,501 bbl were produced: peak gas production was attained 7 months later, with 3,391,434 Mcf. Annual oil and gas production from Hondo Field approached 13.6 MMbbl and 36.9 Bcf, respectively, during 1998.

Hueneme Field Nuevo Energy Company became the new operator of Hueneme Field in 1996. No new wells were drilled during 1998. Monthly oil production from the field declined from 25,806 bbl in January to 19,427 bbl in December. Gas production for the year reached a maximum of 49,171 Mcf in October. Annual oil production declined again, to approximately 217,947 bbl, while gas production for the year increased to 361,716 Mcf.

Pescado Field Pescado Field became the eleventh producing field in the Pacific OCS in December 1993. No new development wells or sidetracks were drilled from Platform Heritage during 1998. Maximum monthly production rates for the year were achieved in January, when 1,053,186 bbl of oil and 1,700,749 Mcf of gas were produced. Annual oil production declined to about 11.1 MMbbl. Gross gas production for the year exceeded 19 Bcf, while net gas production totaled approximately 6.7 Bcf.

Pitas Point Field Pitas Point Field is the only producing gas field in the Pacific OCS. No new wells or redrills were drilled in the field during 1998. Peak gas production during the year occurred in December, when 452,411 Mcf were produced. Total gas production for 1998 approached 3.7 BCF, while condensate production reached 2,792 bbl.

Point Arguello Field Five redrills were spudded in Point Arguello Field during 1998. Perforation jobs were performed in 10 wells, 19 wells received acid stimulations, and 16 wells were plugged back. Production logs were run in 17 wells and 6 wells were converted to gas injection. Monthly gas production peaked in June, when 402,763 Mcf were produced. Maximum monthly oil production rates were achieved in December, with the production of 829,272 bbl. Annual oil and gas production from the field declined to approximately 9.4 MMbbl and 3.9 Bcf, respectively.

Point Pedernales Field / Tranquillon Ridge Field No new development wells or redrills were drilled in Point Pedernales Field during 1998. The Tranquillon Ridge Unit was formed in April 1997, consisting of portions of leases OCS-P 0441 and 0444. One of the two wells drilled from Platform Irene during 1997 initiated production from the new unit. Gas production from the field reached 244,304 Mcf in March 1998, while maximum monthly oil production was achieved 5 months later, when 319,198 bbl were produced. Annual oil production from Point Pedernales Field and Tranquillon Ridge Field increased to over 3.4 MMbbl, of which some 50,635 bbls were produced from the Tranquillon Ridge Field. Net gas production for the year increased also, to approximately 1.9 Bcf; 78,162 Mcf were contributed by the Tranquillon Ridge Field

Santa Clara Field Only one redrill was finished in Santa Clara Field during 1998. The well was drilled from Platform Gilda in lease OCS-P 0216. Maximum monthly oil and gas production rates for the year were reached in August, with the production of 100,669 bbl and 84,382 Mcf, respectively. Annual production from the field continued to decline, to approximately 1.1 MMbbl oil and 847 MMcf gas.

Sockeye Field

No wells were drilled from Platform Gail in Sockeye Field during 1998. January proved to be the most productive month of the year: 168,461 bbl of oil and 458,269 Mcf were recovered. Monthly oil and gas production rates declined to 126,173 bbl and 397,840 Mcf, respectively, in December. Annual oil production totaled over 1.5 MMbbl, with gas production during 1998 exceeding 4.7 Bcf.

Table B-1. Summary of development well borehole status at yearend, 1998.

Platform Name	APD	ACT	DSI	COM	PA	ST	TA	**Total**
A				50		15		65
B				54	1	20		75
C				35				35
Edith				18		1	2	21
Ellen				61	5	8		74
Eureka				50	1	3		54
Gail				21	1			22
Gilda				61	3	15	2	81
Gina				12		2		14
Grace				1	2	7	25	35
Habitat				18	1		2	21
Harmony				24		4		28
Harvest				14	2	5	1	22
Henry				23	1	1		25
Heritage				28		7	1	36
Hermosa				12		9	1	22
Hidalgo				9	2			11
Hillhouse				48		4		52
Hogan				35	4	19		58
Hondo		1		25	1	15		42
Houchin				32	3	7	1	43
Irene				23	2	4	1	30
Total		1		654	29	146	36	866

Table B-2. Summary of development well completion status at yearend, 1998.

Platform Name	POW	GLO	PGW	OSI	GSI	GIW	WIW	WDW	WSW	**Total**
A	36			10			6	1		53
B	36			8			13			57
C	24			4			12			40
Edith	15			3						18
Ellen	27			6	1		23		3	60
Eureka	33		1				15	1		50
Gail	2	20	3				1	1		27
Gilda	39			5	3		15	1		63
Gina	3			4			5			12
Grace								1		1
Habitat			10		9		1			20
Harmony	7	15		2		1				25
Harvest	6	8		3		1				18
Henry	18			5						23
Heritage	8	16		1		2		1		28
Hermosa	3	9								12
Hidalgo		10								10
Hillhouse	33	1		13			1	1		49
Hogan	16	4		12		1		3		36
Hondo	4	20		1		1	1	1		28
Houchin	14	5		11						30
Irene	2	21								23
Total	326	129	14	88	13	6	93	11	3	683

Appendix C - Annual and Cumulative Oil and Gas Production

Oil and gas production from the Pacific OCS began in June 1968 from Carpinteria Offshore Field. By December 31, 1998, 11 additional fields were producing oil and gas. Peak gas production in the region occurred in 1985, when nearly 64 Bcf of gas were produced. The most oil produced from the Pacific OCS in a single year was over 72 MMbbl, in 1995. To date, approximately 915 MMbbl of oil and 873 Bcf of gas have been produced from 12 fields. Cumulative production equals about one-third of the original recoverable oil reserves and one-fifth of the original recoverable gas reserves.

Annual Production

Oil production from the Pacific OCS reached a peak during 1995, when approximately 72 MMbbl of oil were produced. Production declined to about 46 MMbbl by yearend 1998 (table C-1, and figs. C-1 and C-2). This amount, produced from 22 platforms in 12 fields, represents almost one-tenth of the Nation's OCS oil production for the year.

Net gas production from the Pacific OCS had also decreased slightly by yearend, to approximately 53 Bcf. Gas production from Pitas Point Field, the only producing gas field in the region, continued to decline during 1998, as did gas production from Point Arguello and Sockeye Fields. Hondo and Pescado Fields produced significantly more gas during 1998. Production from these five fields exceeded 45 Bcf, accounting for almost nine-tenths of the gas produced in the Pacific OCS.

During 1998, about four-fifths of the oil and three-fourths of the gas were produced from reservoirs in the Monterey Formation (fig. C-3). Reservoirs in younger rocks were the source of most of the remaining production. The proportion of produced oil and gas obtained from Monterey Formation reservoirs will increase as production from Point Arguello, Hondo, and Pescado Fields continues.

Cumulative Production

Cumulative production exceeded 915 MMbbl of oil and 873 Bcf of gas in 1998 (table C-1 and fig. C-4). The amount of oil produced to date exceeds two-thirds of the proved original recoverable reserves and one-third of the total original recoverable reserves. The cumulative gas production estimate has been adjusted to reflect gas reinjection in the region; net gas production to date exceeds

one-third of the proved original recoverable reserves and one-fourth of the total original recoverable reserves.

Dos Cuadras Field has produced more oil than any other field in the Pacific OCS. Over one-fourth of the region's cumulative oil production can be attributed to Dos Cuadras Field. Almost one-half of the cumulative oil production can be attributed to just two fields, Dos Cuadras and Hondo. Dos Cuadras, Hondo, Point Arguello, and Beta Fields have contributed about three-fourths of the oil produced to date.

Net gas production from Hondo Field exceeds that from any other field in the region. Pitas Point Field, the only producing gas field in the Pacific OCS, currently ranks second in terms of cumulative gas production. The combined total gas production from the two fields amounts to approximately one-half of the cumulative gas production from the region. Hondo, Pitas Point, and Dos Cuadras Fields have produced about two-thirds of the natural gas obtained from Pacific OCS fields.

Almost one-half of the oil and gas produced to date can be attributed to Post-Monterey reservoirs (fig. C-5). Production from Monterey Formation reservoirs continues to increase, however, and over one-half of the oil and almost one-half of the gas produced by December 31, 1998, has been obtained from reservoirs in the Monterey Formation.

Table C-1. Annual and cumulative production for the Pacific OCS.

*** Note:** Begining in 1995 gas volumes have been adjusted to account for reinjected gas. Unless noted otherwise, all tables and figures in this appendix reflect this adjustment.

Year	Annual Oil (bbl)	Cumulative Oil (bbl)	Annual Gas (Mcf)*	Cumulative Gas (Mcf)*
1968	2,074,135	2,074,135	1,232,537	1,232,537
1969	9,942,733	12,016,868	6,016,485	7,249,022
1970	25,034,377	37,051,245	13,756,711	21,005,733
1971	31,103,681	68,154,926	17,853,055	38,858,788
1972	22,562,566	90,717,492	12,546,915	51,405,703
1973	18,818,026	109,535,518	9,157,714	60,563,417
1974	16,784,100	126,319,618	7,234,937	67,798,354
1975	15,434,507	141,754,125	5,978,959	73,777,313
1976	13,977,436	155,731,561	5,533,258	79,310,571
1977	12,258,013	167,989,574	5,366,181	84,676,752
1978	11,979,674	179,969,248	5,193,985	89,870,737
1979	10,971,013	190,940,261	5,430,689	95,301,426
1980	10,118,614	201,058,875	5,771,792	101,073,218
1981	19,616,136	220,675,011	12,769,019	113,842,237
1982	28,445,384	249,120,395	17,778,999	131,621,236
1983	30,549,917	279,670,312	23,886,062	155,507,298
1984	30,483,149	310,153,461	45,906,548	201,413,846
1985	29,623,406	339,776,867	63,521,850	264,935,696
1986	28,778,827	368,555,694	57,992,586	322,924,678
1987	31,044,785	399,600,479	54,792,586	377,717,264
1988	31,528,928	431,129,407	49,068,853	426,786,117
1989	33,078,374	464,207,781	50,896,259	477,682,376
1990	29,844,598	494,052,376	49,962,004	527,644,380
1991	31,663,526	525,715,902	52,497,516	580,141,896
1992	42,706,697	568,422,599	55,323,296	635,465,192
1993	50,576,597	618,999,196	51,781,188	687,246,380
1994	58,244,866	677,244,062	53,525,891	740,772,271
1995	72,436,919	749,680,981	51,064,173	702,577,637
1996	64,291,087	813,972,068	50,637,201	756,114,009
1997	54,506,865	868,478,933	54,160,238	818,628,750
1998	46,340,477	914,819,410	53,001,281	873,285,636

Figure C-1.
Annual production for the Pacific OCS.

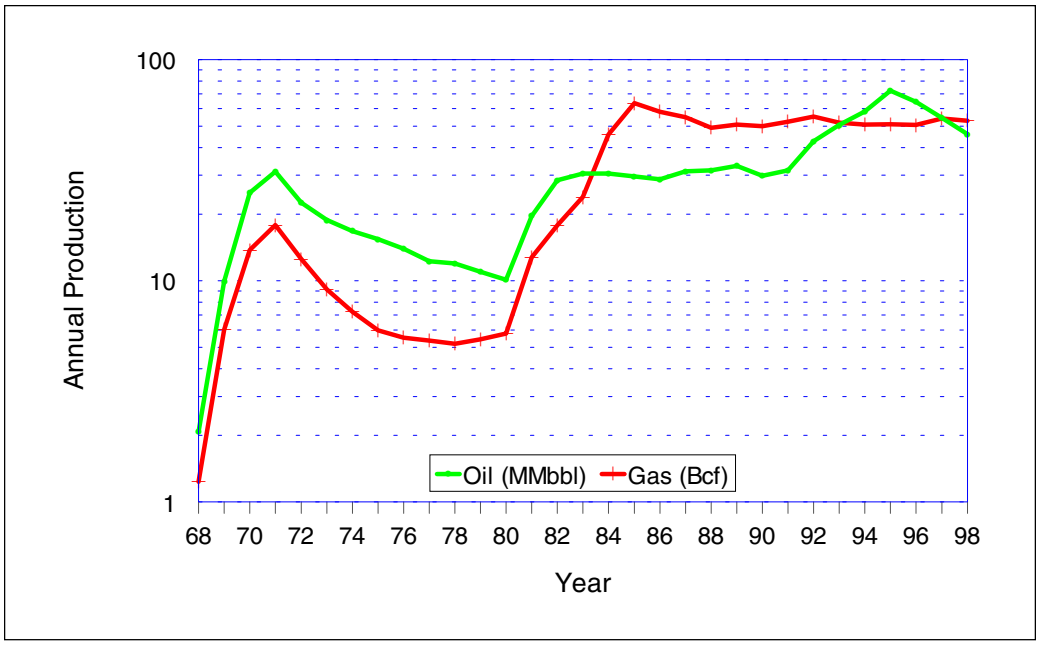


Figure C-2.
Average daily production for the Pacific OCS.

Gas figures in this chart reflect gross gas production.

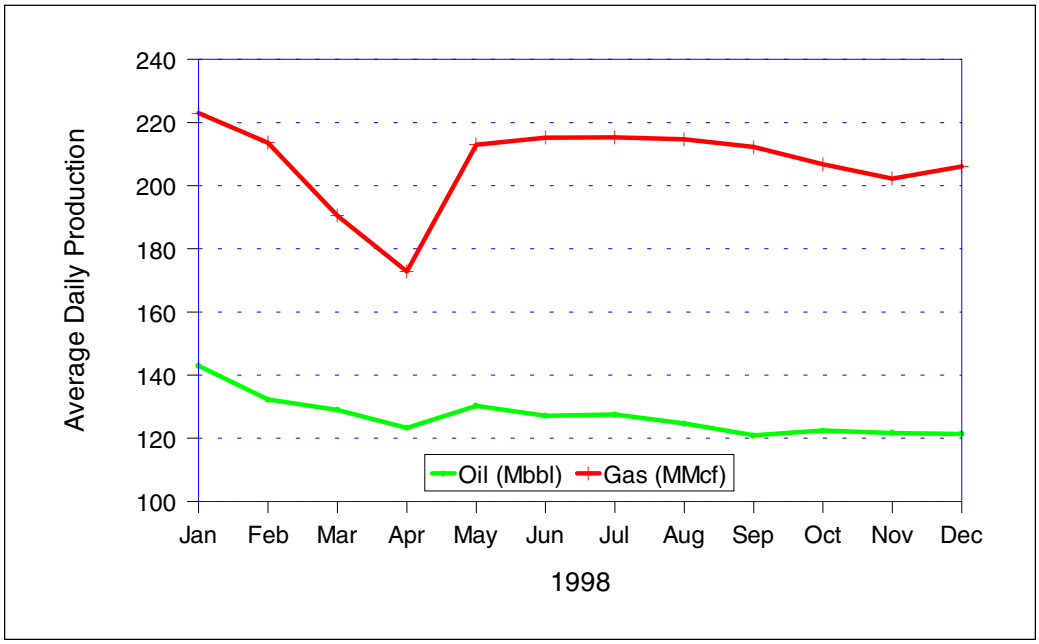


Figure C-3.
Annual production of oil and gas by reservoir age group, Pacific OCS, December 31, 1998.

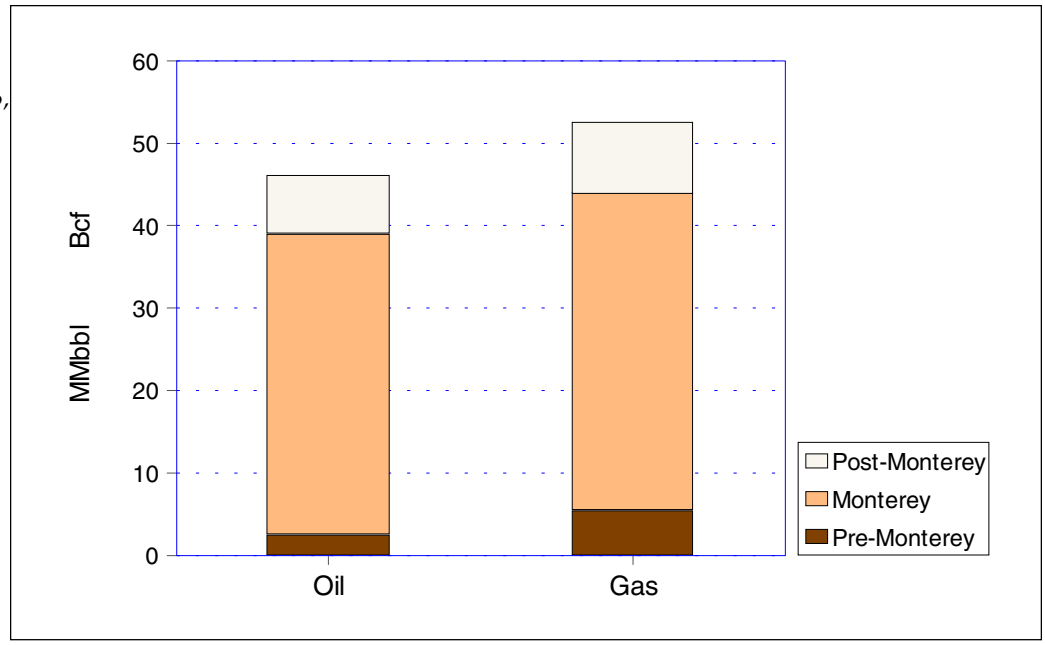


Figure C-4.
Cumulative production for the Pacific OCS.

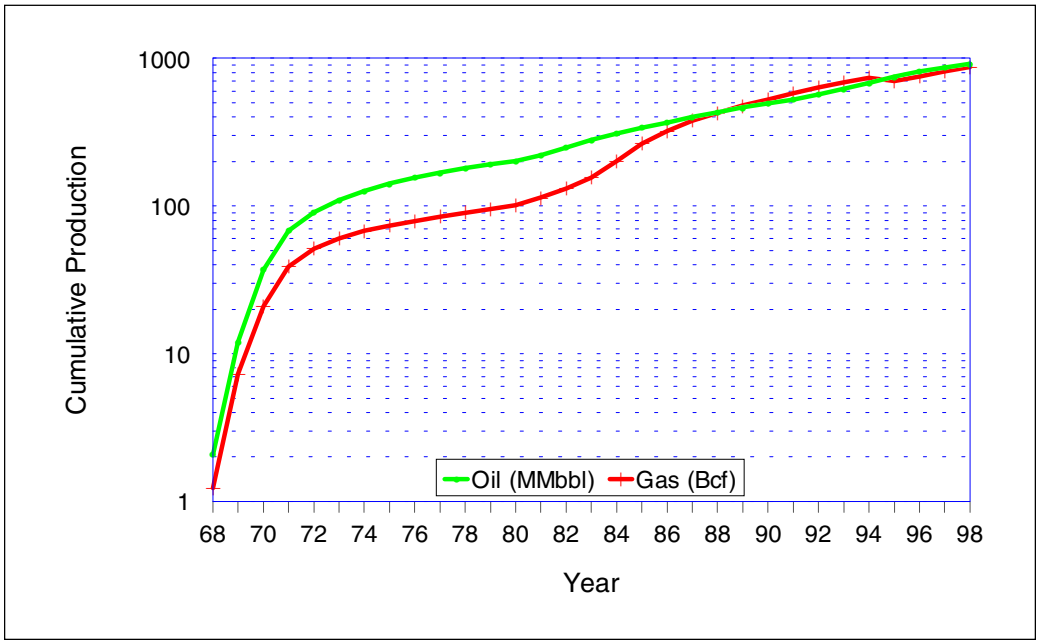
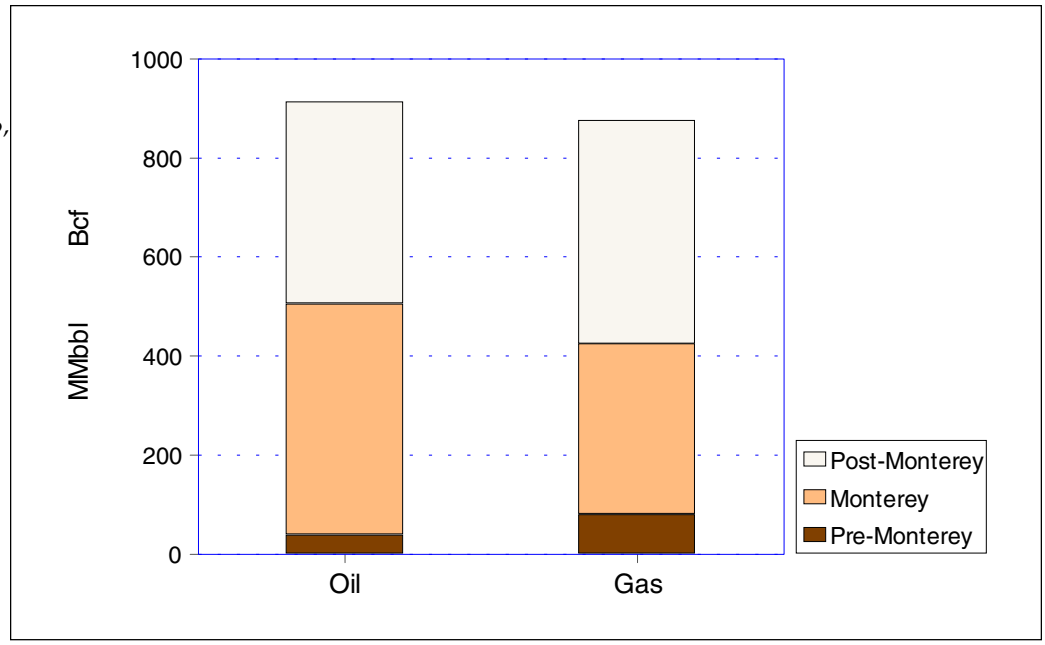


Figure C-5.
Cumulative production of oil and gas by reservoir age group, Pacific OCS, December 31, 1998.



The Department of the Interior Mission

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

The Minerals Management Service Mission

As a bureau of the Department of the Interior, the Minerals Management Service's (MMS) primary responsibilities are to manage the mineral resources located on the Nation's Outer Continental Shelf (OCS), collect revenue from the Federal OCS and onshore Federal and Indian lands, and distribute those revenues.

Moreover, in working to meet its responsibilities, the **Offshore Minerals Management Program** administers the OCS competitive leasing program and oversees the safe and environmentally sound exploration and production of our Nation's offshore natural gas, oil and other mineral resources. The MMS **Royalty Management Program** meets its responsibilities by ensuring the efficient, timely and accurate collection and disbursement of revenue from mineral leasing and production due to Indian tribes and allottees, States and the U.S. Treasury.

The MMS strives to fulfill its responsibilities through the general guiding principles of: (1) being responsive to the public's concerns and interests by maintaining a dialogue with all potentially affected parties and (2) carrying out its programs with an emphasis on working to enhance the quality of life for all Americans by lending MMS assistance and expertise to economic development and environmental protection.