BUSINESS REVIEW

FEDERAL RESERVE BANK OF PHILADELPHIA

THE STATE OF CONFIDENCE: SHORT AND LONG RUN

PAYING THE POLLUTION BILL

CARVING UP THE SEAS: PROBLEMS OF OCEAN OWNERSHIP

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The State of Confidence: Short and Long Run*

by David P. Eastburn, President
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Since August 15, business analysts have been giving the public an especially concentrated treatment of psychoanalysis to ascertain how it will behave under the new economic program. That elusive state, "confidence," has become all-important. Today I should like to make my small contribution to this discussion. The essence of what I am going to say is that the state of confidence is reassuring in the short run, but disturbing in the longer run.

SHORT RUN

The first reaction to the new economic program was a strong resurgence of confidence. This was testimony not only to the appeal of the program, but also to the low ebb which confidence had reached before August 15.

The general feeling was that things were out of control. No one could take the decisive action necessary to deal with the cumulative spiral of inflation amid high unemployment. The Government seemed unable to deal effectively with inflation without making unemployment worse, or to deal with unemployment without making inflation worse. Business, with profit margins lower than any time in the past 25 years, had to pass higher wage costs along in the form of higher prices. Union leaders felt obliged to protect their members against the inroads of higher living costs. Consumers could do little but complain about prices and tighten their belts while watching friends and neighbors being laid off; unemployment had become more than a statistic or a social phenomenon, it was coming too close for comfort for too many people.

President Nixon's program reversed all this overnight. The question now is how long will confidence stay high. Some signs

*An address given at the Indiana Economic Forum, South Bend, Indiana, October 28, 1971.

suggest that it has already receded somewhat. The stock market, for example, seems to be pessimistic. On the other hand, the bond market has been quite strong recently. Different forces are probably at work in these markets, and it may be that the only clue to the state of confidence is telephone calls to business executives and conversations with taxi drivers. In both cases the prevailing mood seems to be one of watchful uncertainty.

There is good reason to believe, however, that confidence should be fairly high through at least the first half of next year. Our projections assume a substantial degree of success for Phase II. To a considerable extent, therefore, the projections are predetermined by the assumptions. Nevertheless, these assumptions seem the right ones to make, at least when looking at the first half of next year. If Phase II ultimately proves a big disappointment, it is not likely to become obvious before June 1972.

Consumer spending is virtually certain to rise fairly strongly and the savings rate to come down. Business should be building inventory more rapidly. Housing will continue to be strong. State and local governments will be spending heavily. Profits should be increasing rapidly. Productivity will be rising. And, despite some catch-up in wages and prices, the rate of increase should be markedly slower than before the freeze.

To attach some numbers to all this, we see GNP rising at an annual rate of around 10 per cent by midyear, with inflation accounting for only one-third of this. Unemployment may decline to around 5½ per cent. If this kind of forecast materializes, there will be good reason for sustained confidence.

What will happen in the second half of 1972 is, of course, much harder to predict. Whatever cracks develop in Phase II — and everybody is already busy looking for them — may be widening by then. If the public expects too much, confidence will deteriorate. But, if people can be persuaded that a moderate rate of price increase and unemployment in the 4-5 per cent range, although not ideal, nevertheless represents progress, their confidence may not suffer seriously. Economists have pointed out many times that other attempts with incomes policies are not reassuring. I believe the effort should be pursued aggressively, but I also think it is important not to be unrealistic about the degree of success to expect of it.

The short-run outlook for confidence, therefore, seems quite good. An improved economy should help to sustain confidence and a confident public should help to promote a better economy.

LONGER RUN

In the longer run—and by this I am thinking of the 1970's—there is some reason for concern. One reason is that both inflation and unemployment may be stubborn. Inflationary pressures seem likely to recur, basically because there are so many things society insists on doing with its limited resources. It wants further increases in material things for more people *plus* a cleaner environment, better health, education and welfare, more efficient transportation, and many other social goods and services. At the same time, with the economy becoming increasingly service oriented, it may be hard to maintain high productivity—perhaps the most potent single weapon against inflation. Finally, big business and big labor seem likely to be an institutional combination promoting continued cost-push pressure.

As for unemployment, it is unlikely that the hard core will be eliminated by the end of the decade. The problem of training and educating disadvantaged people to the point where they can become self-sufficient and productive members of society is too difficult and time-consuming to be completely solved by then. In addition, unemployment among middle-income, professional people may prove more than a temporary condition of the recent recession. There is a big surge of well-educated youth about to come

into the labor market. Many of them hope to find jobs in engineering, teaching, economics, and the sciences. Many of these may be frustrated. Others will put competitive pressure on middle-aged professionals already haunted by obsolescence.

The feeling of helplessness that prevailed before August 15, therefore, could recur and last for some time. The possibility would be enhanced if the current effort to deal with inflation and unemployment proves to be disappointing. And, if this were to happen, an even more serious sag in confidence could be nurtured from seeds that I think I can detect even now. I refer to a basic lack of confidence in the market-oriented, competitive economic system, which most of us have always thought to be typically American.

Before I give examples of what I mean, let me say two things. First, the attitude toward our economic system is only part of a mood which some expect to prevail in the 1970's. In international politics it may take the form of isolationism . . . in domestic politics a turn toward conservatism . . . in social matters a reaction to the upheavals of the sixties . . . and in economics a search for insulation and protection from competition.

Secondly, I recognize that much of the economic history of this century consists of conscious effort to modify the harsh and extreme effects of a free, competitive system. The progressive income tax, social security, pure food and drug laws, the family assistance program — you name it — all are attempts on the part of society to achieve values which a free, competitive system seemed unable to provide. Also, I do not mean to give the impression that the system is untouchable; society should modify it to make it perform as desired; the economy is servant, not master.

Yet, if the great body of economics is at all correct, there is something in the way the market system works that produces desirable results. And, despite the many modifications made to it in the past, we still have essentially a market system. What I am concerned about in the longer run is a tendency to lose confidence in that system. Let me give two examples: protection against foreign competition and attempts to peg interest rates.

Economists differ notoriously on many things, but they are in solid agreement on the benefits of a system in which each nation concentrates on producing those things it can turn out most efficiently and trading them competitively with other nations. Unfortunately, the theory always comes up against some very difficult obstacles, one of the most formidable being that free competition can be uncomfortable. The history of foreign trade, therefore, is largely a record of various ingenious efforts to protect against competition, relieved by rare and brief periods of relaxation in barriers to trade. One of these rare intervals has just been completed, and we now may be in for a sustained period of protectionism.

The 10 per cent surcharge on imports is only the most prominent manifestation of a general protectionist movement. Hopefully, the surcharge will be removed as soon as it serves its purpose as a bargaining weapon in restructuring exchange rates. Perhaps the new structure of currencies will enable U.S. business to compete with greater confidence. It seems just as likely, however, that various forms of protection will proliferate. In this respect, the recent stagflation may prove to have had lasting effects. Inflation made it more difficult for business to compete abroad; unemployment made it more appealing to buy American. If a tendency toward inflation and unemployment is at all a plausible prediction for the 1970's, then the drive for protection seems likely to continue.

As for interest rates, history tells us that very influential people and groups have long wanted to keep them from fluctuating — at least on the upside. In recent years, Regulation Q has attempted to protect savings institutions and smaller banks against

interest rate competition. I think it is now widely recognized that Regulation Q did not succeed in channeling funds into mortgages, as intended. Ceilings on rates paid for specific kinds of liabilities or charged on specific kinds of assets simply divert the business into uncontrolled channels. I hope — but am not at all certain — that this lesson will be given some heed in both the immediate and longer-run future.

Most importantly, I think there is likely to be a lack of confidence in the role which interest rates play in the economy and a lack of willingness to let them play it. Interest rates are a price unlike other prices. Because money occupies a pivotal position in the economy, the price of money is also pivotal.

This is a lesson learned painfully in and after World War II. Although to a number of you this lesson is now only history (it is almost exactly twenty years ago that slow and difficult steps were taken to recover from it), it has special meaning as we look ahead. For that experience demonstrated the impossibility of pegging interest rates and at the same time maintaining a stable economy. When the Federal Reserve attempts to fight tendencies for rates to rise, it is obliged to pump in new funds. Eventually this creates inflation and the investing public tries to protect itself by demanding still higher interest rates, calling, in turn, for the injection of still more funds and leading to a self-defeating cycle.

If we are to have a healthy economy in the 1970's, we will need, at times, rising — and perhaps quite high — interest rates. If we lack the confidence to permit interest rates to do their job in allocating funds, if we lack confidence to let them respond to the exercise of monetary policy, we are not likely to be able to deal with the conditions likely to prevail in this decade.

CONCLUSION

The degree of confidence which prevails at the moment is based on hope that extraordinary measures will bring stability and growth back to the economy. But, this is a fragile kind of confidence because it is also based on doubts about whether the free, competitive economy can ever again do the job we once thought it could do. John Fischer writes, in the November *Harpers,* that "the character of our whole society has changed so drastically during the past decade or two that it no longer responds to the so-called laws of economics . . . the competitive free enterprise system apparently has gone dead on us."

The greatest danger we face is that each group will be trying to insulate itself—labor by featherbedding, business by monopoly and quotas against imports, and the public-at-large (through Government) by a network of controls. To coin one of those alliterative descriptions of decades, we may be entering the "Stifling Seventies."

It seems to me that the task of all those who claim some expertise in economics is to fight that tendency. This will take ingenuity and imagination because the economic system *is* changing; old solutions are *not* sufficient. But, the competitive market system has worked well for us in the past and we should not lose confidence in its potential for the future. ■

invoice

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QUANTITY	MODEL NO.	DESCRIPTION AND SIZE AND COLOR	AMOUNT

PAYING THE POLLUTION BILL
by Kathleen C. Holmes

SPECIAL INSTRUCTIONS		
	TOTAL MERCHANDISE	
	SALES TAX	
	DELIVERY CHARGE	
	SPECIAL PACKING CHARGE 8%	
	TOTAL	
DELIVERY CHARGE IS EXTRA. IMPORTANT: READ REVERSE SIDE	AMOUNT PAID	
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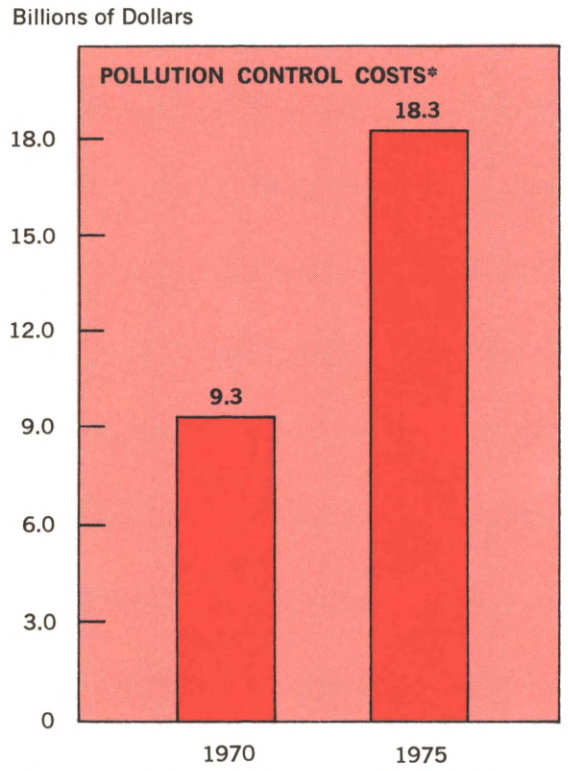
THE COST OF CONTROLLING POLLUTION WILL ALMOST DOUBLE BY 1975 . . .



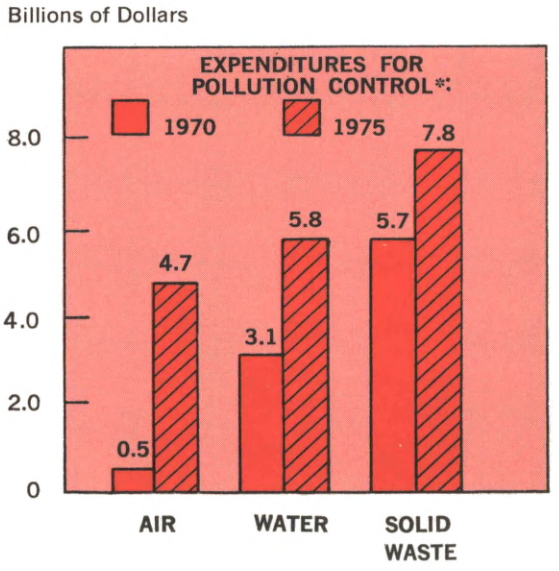
*Figures include annualized depreciation, interest, operation, and maintenance costs.

Source: Based on data from the Environmental Protection Agency.

All forms of pollution control are expensive. By 1975, for example, expenditures for cleaner air will reach nearly $4.7 billion, while the bill for water pollution control will amount to $5.8 billion. But, control and collection of solid waste materials will cost the most — an estimated $7.8 billion by 1975.

Society has become increasingly sensitive to the importance of preserving and protecting the environment. As a consequence, more and more resources are being committed to the fight against pollution. In 1970, total outlays for pollution control reached $9.3 billion. However, with ever-increasing industrialization and population growth, the amount of funds required to meet legal standards continues to mount. By 1975, the Environmental Protection Agency estimates that our commitment to pollution control will exceed $18 billion per year.

WITH SOLID WASTE CONTROL ACCOUNTING FOR THE MAJOR SHARE OF ALL EXPENDITURES.

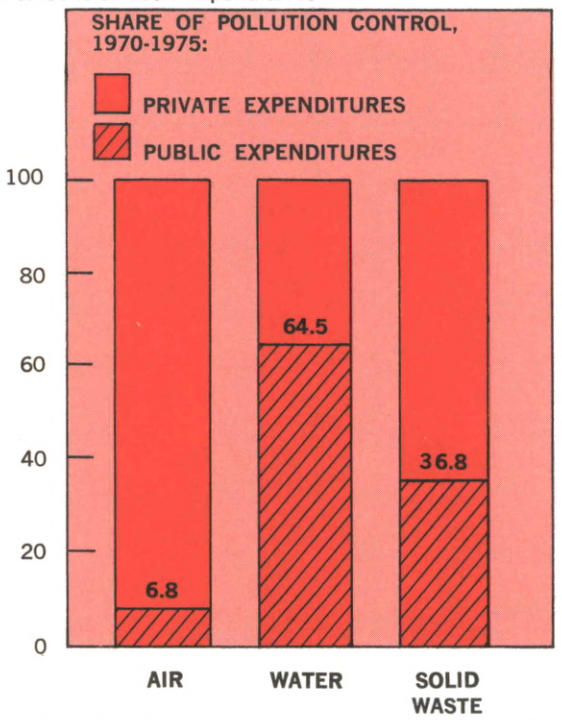


*Figures include annualized depreciation, interest, operation, and maintenance costs.

Source: Based on data from the Environmental Protection Agency.

BOTH THE PRIVATE AND PUBLIC SECTORS PAY . . .

Per Cent of Total Expenditures



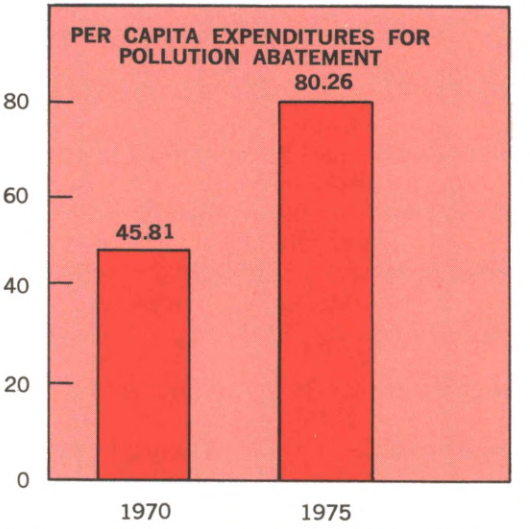
Source: Based on data from the Environmental Protection Agency.

Who pays the cost of cleaning up the environment depends, to a large extent, on the type of pollution. Private industry and individuals will shoulder over 60 per cent of total solid waste expenditures; the smaller share will be borne by the public sector. Almost two-thirds of the cost of limiting water pollution will be paid by the public sector, but almost all of the costs of air pollution control will be a private responsibility.

But, no matter who pays directly, the individual ultimately pays for pollution control. If Government fights pollution, the individual foots the bill through higher taxes. If private interests control pollution, individuals again must bear the cost—either through higher prices, foregone products, or lower dividend payments. Consequently, pollution control will cost the average American at least $80 in 1975, nearly twice the amount in 1970. Of course, it is also the individual who benefits from fresher water and cleaner air. ■

BUT ULTIMATELY, THE INDIVIDUAL BEARS THE COSTS AND REAPS THE GAINS OF A CLEANER ENVIRONMENT.

Dollars



Source: Based on data from the Environmental Protection Agency.

Carving Up the Seas: Problems of Ocean Ownership

by W. Lee Hoskins

The world may be on the brink of a new outbreak of territorial expansion. Up for grabs is the wealth of the oceans. And some national contestants are already plunging in.

Unfortunately, a headlong rush by nations to appropriate the sea's wealth may lay waste to its resources and may also generate some serious international disagreements. Setting out a method for resolving these problems now — while most of the ocean's resources are still intact — may keep disputes between competing nations confined to the conference table and provide for a more efficient utilization of marine resources.

STAKING A CLAIM

Roughly five-sevenths of the earth's surface is ocean. Hidden in and beneath the sea are myriad resources ranging from valuable minerals and oil to drugs and food protein. Many of these resources are incredibly abundant. For example, about a fifth of the floor of the Pacific Ocean is covered by tons of valuable resources including manganese nodules which contain enough aluminum to meet the world's demand for the next 20,000 years and enough manganese to provide for the next 400 years.[1] In addition to these mineral deposits which lie on the ocean floor, even greater amounts of resources — gold, diamonds, oil, and gas — are believed to rest beneath the seabed. Sea water itself and the life in it are both sources of large quantities of resources — food, pure water, chemicals, and drugs (see box). Although estimates of the sea's abundance are incomplete, it is clear the magnitude of resources sequestered in the sea is tremendous. What is not clear, however, is who owns them.

Most of the resources on the bottom and beneath the floor of the sea are simply un-

[1] For estimates of the sea's mineral wealth, see John L. Mero, *The Mineral Resources of the Sea* (New York: Elsevier Publishing Co., 1965).

WEALTH IN THE SEA

Man has discovered many useful resources in the ocean, and advances in technology have turned them into realizable wealth. The result has been a great surge in the number of marine-resource-based industries. Some of these industries are not new and, like fishing, have been pursued by man for centuries; some are relatively new industries and are growing yearly; and finally some, still in infancy, lend promise for the future.

Aquaculture

Fish are, and always have been, a valuable product of the ocean water. With the increased interest in aquaculture, the cultivation or propagation of water-dwelling organisms, the production of fish is likely to expand. Aquaculture has been practiced extensively throughout the world, particularly in Asia. However, because of the increasing demand for seafood and increased technology, man has tried to extend his area of cultivation out farther and farther. In the future it is likely that we may be able to cultivate organisms even in the open sea, thereby greatly increasing the potential for fishing catches. For example, if the United States were able to dike 1,000 square miles of tidelands between California and Alaska for sea farms, a harvest of 3,000 pounds of fish per acre would be equivalent to 50 per cent of our total catch for 1967.

Desalination

Fresh water is a potentially valuable resource of the sea, particularly in a civilization characterized by pollution on one hand, and increasing population on the other. Although it is relatively expensive to desalinate sea water today, important inroads are being made. With the advent of newer technology and the increasing pressure to produce fresh water, the desalination of ocean water is a growing industry.

Drugs

People bordering the sea have traditionally used products from the sea for medicinal purposes. A small but rapidly growing quantity of research is now being devoted to the study of plant and animal products of the sea which have pharmaceutical possibilities.

Oil and Natural Gas

Because of its easy access, the continental shelf has been explored more extensively than the seabed. Large deposits of oil and natural gas have been discovered and have opened the door to thriving industries. Offshore oil drilling is valued at over $4 billion yearly. More recently, some oil and gas deposits have been uncovered in the seabed. This may indicate even greater sources of oil and gas than have been imagined. The growth prospects for these two industries indicate they will continue to expand.

(Continued on next page)

Mining

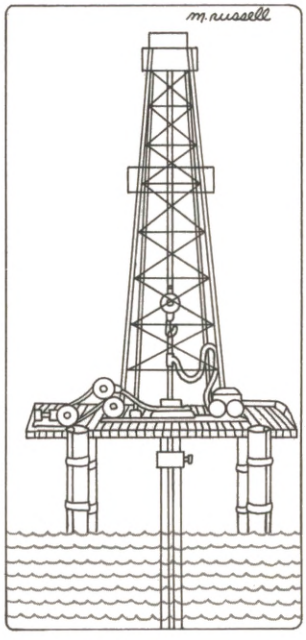
The minerals of the sea are found in many locations. Mining is already being done on the beaches where minerals such as columbite, magnetite, ilmenite, mica, and quartz are found. The ocean water contains over 60 minerals that are "mined"; however, only four — sodium, chlorine, magnesium, and bromine — are extracted in quantity. Just below the continental shelf and on the continental slope, a promising industry appears to be the mining of placer minerals. Gold is the predominant mineral found in placers, but platinum, chromite, phosphorite, ilmenite, and zircon are also likely finds.

The seabed has not been mined to a large degree. Nonetheless, based on recent discoveries and scientific estimations, the seabed is likely brimming with valuable resources. Manganese nodules, roughly estimated to 10 trillion tons, indicate large deposits of aluminum, manganese, copper, zirconium, nickel, and cobalt. Sulfur, too, is believed to exist in large quantities below the seabed. Finally, diamond mining has also developed into a very lucrative industry. The seabed of Southwest Africa already produces gem-quality stones exceeding $4 million in value annually.

Power

Finally, as resource industries expand deeper into the ocean and farther from shore, the need for self-sustaining power supplies will become increasingly critical. This demand, however, may be met by leashing waves, currents, tides, and thermal differences to produce power. Realization of power from these sources is still a long time off, but it is a very real possibility.

owned. The nations of the world have developed a communal ownership in the sea itself (usually labelled "freedom of the seas" or "open access"). Each has the right to navigate and to stalk marine life. Although in the past whole oceans have been claimed, the actual acquisition of exclusive rights by nation-states has been limited to relatively small strips along contiguous coasts. However, in 1958, Iceland upped its limit from three to 12 miles, and the sea grab was on. Scores of nations have since followed suit, some claiming exclusive rights to everything in, on, above, and below the ocean for 200 miles from their coast.



WHY NOW?

The ocean's resources have been available for the taking since the first nation hoisted its colors on a sea-going vessel. But only in the last 400 years has a body of "rights" de-

veloped. Instrumental in the development of these rights have been changes in the economic value of resources, often induced by changes in technology. For example, world population growth, depletion of land-based resources, and desires for ever-higher standards of living all tend to make the ocean's resources more valuable. Meanwhile, changes in technology lower the cost of exploiting the sea and its resources. For instance, bigger and faster ships increase the sea's value as a highway linking nations; floating fish factories, capable of processing large volumes of fish, lower the cost of catching and getting fish to market. And expected advances in underwater technology are greatly enhancing the economic value of the seabed.

WORLD TENSION

There are but two ways for a nation to capitalize on the increasing value of sea resources. One is to claim exclusive rights to tracts of ocean or seabed and keep others from "poaching" in this area. The second is to intensify efforts in that portion of the ocean held in common by all nations. Changes in technology are important in determining success in each case. For example, the use of floating fish factories, which catch, clean, can, and ship directly from the fishing grounds, enables the owners to appropriate larger shares from the common pool. In addition, "advances" in technology now make it less costly to keep "poachers" off. Several hundred years ago a three-mile limit, the approximate range of a shore-based cannon, must have seemed appropriate. While a greater distance from shore could have been claimed, it would have been costly, if not impossible, to hold without a tremendous portion of a nation's wealth going to ships-of-the-line for enforcing and protecting the claim.

Today, radar and sonar devices provide a less costly means of detecting "poachers" or "claim jumpers," and modern weapons of war provide the range for enforcing extended claims. Hence, nations that lack the technical capability to go down and exploit the ocean's resources are encouraged to claim and hold larger and more distant tracts of ocean, shoring up the encompassed resources for future use or charging others a "fee" for them. Some South American two-hundred milers, for example, use their naval power to capture "poaching" fishing boats. The vessels are then returned when the "fee" (in the form of a fine) is paid.

Unfortunately, when nations have disputes over or compete for resources, who gets what has been determined, all too often, by violence or war. While this method frequently has been the way nations divide up resources among themselves, it also has been costly in terms of human lives and wasted resources. Extensions of ocean claims have already resulted in strained relations between a number of countries. The "tuna wars," which pitted U.S. fishermen against a few of the South American two-hundred milers, may be only a prelude to more serious incidents over the wealth of the seas as nations strive to extend their claims.

Thus, the seabed could pose a threat to world peace in the not so distant future. The sheer magnitude of potential wealth raises the stakes substantially. Because the booty is greater, nations will compete harder, and they may be willing to risk more in terms of confrontations.

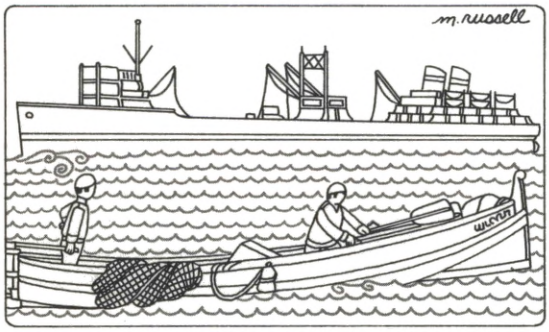
PERILS OF COMMON OWNERSHIP

Potential conflict is not the only problem entailed in making use of the sea's resources. The fact that most of the sea is commonly owned by all nations means that a few economically strong nations can control large shares of the ocean's wealth. Moreover, common ownership, which means each nation has the right to navigate and use the sea's resources, implies a poor utilization of marine resources.

Drowning Out the Poor. The U.S. and a few other world powers have the technical know-how and means for exploiting ocean

resources, particularly the seabed. These same nations also have the military capability to establish and enforce "ownership" over a huge portion of the sea. In a wide-open, no-holds-barred race for the seabed, the poorer nations of the world would be washed into shore. The wealth of the sea would flow to the strong — those able to hold claims against all comers or able to exploit resources at a faster rate than others. Of course, the use of raw power may be limited to some extent by world opinion. For example, the U.S. did not use physical force to free the tuna boats seized off the coast of South America.

Over three years ago, the United Nations General Assembly formalized the notion that the oceans are a "common heritage." But this laudable concept, to "benefit all mankind," continues to allow the economically strong nations to appropriate for themselves larger shares of the ocean's wealth. And perhaps a more serious problem is that the continuation of common rights spells misuse of resources, whichever nations — large or small — exploit the sea.



Conservation. A wasting of resources can occur in several ways. First, "freedom of the seas" can and does encourage "overproduction" or too rapid depletion of certain ocean resources. For example, some species of fish or marine life may be decimated and may face extinction because there is no incentive to conserve them. Under a system of common ownership, the only way to realize their value is to catch or harvest them before a rival does. No one has an incentive to leave a brood stock, for someone else may harvest it. If an individual had private rights to a fishing ground, he would have an incentive to maintain a stock of fish, for he would be sure that he alone would capture the value of the fishing ground year after year. He would be saving, in a sense, in the form of fish rather than in dollars.[2] Under the current common ownership arrangement, a fisherman has no incentive to "save" in the form of fish, for others can, and will, capture them since that is the only way to realize their value.

It is not the fact that a marine resource has economic value that leads to its demise, but rather the way it is owned. For example, whale blubber and beefsteak both have economic value, but whales face extinction while cattle prosper. Whales are owned by "everyone," while cattle are owned by individuals (or agents of individuals) who have the right to keep others from slaughtering them and, hence, can capture their value at some time in the future. Under common ownership, the future value of a resource receives no consideration.

International treaties that attempt to slow the rate of depletion or "conserve" marine life often appear to be ineffectual under "open access" when the marine life has economic value. For example, attempts to "conserve" tuna resulted in a drop in the fishing season from nine to four months. The outcome, however, was a more frenzied effort (bigger and faster ships) during the four-month period and an increase in the allowable catch.

[2] As long as the rate of growth in value of a fish is greater than the interest rate, the fish is worth more alive than dead. For under these conditions, if the fisherman catches a fish, sells it, and puts the money in the bank at the existing rate of interest for a year, he will have less money than if he waits a year and then catches the fish and sells it.

Common ownership of the sea also can leave some resources unexploited when it is economical to exploit them, thus depriving the current generation of mankind of realizable wealth. Mining the deep seabed for minerals or engaging in aquaculture (propagation or cultivation of aqueous organisms) may be thwarted because they require heavy long-term investment. Unless a country (or firm) has assurance that it has rights to the area or resource for a period long enough to recoup its investment, it may hesitate to undertake an operation that entails a number of years of production before paying off. Common ownership offers no such guarantee.

Pollution. To some, the most worrisome aspect of a continuation of "open access" is the potential for destroying life in the ocean. First, the ocean has been, and still is, everyone's garbage dump. And one country's "national garbage" — nuclear waste, mercury, and plain old sludge and sewage, for example — can be another's poison. These items may destroy marine life that is of economic value to another country or result in injury to people who come across them during mining operations. Dredging or deep-sea mining itself is a source of potential pollution. "Dust" from the operation could drift thousands of miles, clouding water and destroying marine life.

While this problem now appears quite small because of the vastness of the sea and the limited scope of current ocean operations, it is likely to become increasingly troublesome as nations pick up the pace of their efforts to tap the sea's wealth.

SOLE OWNER: A SNUG HARBOR?

At the root of both conservation and pollution problems associated with common ownership of the sea is the fact that many important costs of using ocean resources are not brought to bear on the nation (or agent of a nation) making use of an ocean resource. What a nation pays to exploit the sea may be small compared with the total cost to all countries.[3] For example, dumping toxic material may kill off a major fishing ground another country relies on or may injure people from still another nation who later work in the area. If the country using the ocean as a dumping ground were charged the *full* cost, including reparations for those damages it imposes on others by such dumping, it would likely dump less.

But because of the mobile characteristics of some marine resources and the physical nature of the ocean, the costs of getting nations to agree on who has the rights to what, of detecting a violation, and of making the violator pay up may be greater than the expected gain. Hence, common ownership and the attendant divergence between one nation's cost and the total bill continue. Now, because of the heightened potential for international disagreements over the seabed, the possibility of greater depredation of marine life, and the threat of pollution, the United Nations and a number of countries have expressed an interest in setting up some ground rules for seabed exploitation and an agency to administer them (see box). But two considerations must be

[3] This divergence between the cost to one nation and the cost to all nations is analogous to the divergence between private cost and social cost more commonly discussed by economists. For a more complete analysis of this dichotomy applied to the pollution problem, see "An Economic Solution to Pollution," *Business Review*, Federal Reserve Bank of Philadelphia, September, 1970.

PROPOSALS FOR DEALING WITH SEABED EXPLORATION*

United States Position:

In May 1970 the Administration proposed a treaty under which all nations would claim only those resources within a 200 meter (656 feet) depth. An international regime for exploiting seabed resources would be established to control depths beyond 200 meters.

The regime would collect royalties to be used for international benefit, particularly for aid to developing countries. The regime would control the efficient and beneficial uses of the seabed and protect it from pollution and unnecessary exploitation.

Two types of structure for the administration of the treaty have been proposed: (1) A zone encompassing the area between the continental shelf limit and the deep ocean floor would be established. International revenues would be assessed in each zone, with each coastal nation receiving a share of the revenues of the zone for which it acted as trustee. (2) Beyond this zone, an international structure of regulation of exploitation would be established.

National Lake Regime:

This approach proposes the extension of each coastal nation's jurisdiction across the ocean bottom until a midpoint is reached between nations. The regime, therefore, protects the rights of each nation to its own resources, and allows the nation to do what it wishes with its area. The nation is then free to develop its seabed at its own pace or to lease it out to developers from other nations and obtain rent. However, it is likely that jurisdiction over the seabed may extend up through all the waters of the sea and thereby encourage the development of territorial seas.

Flag Nation Regime:

The flag nation scheme is midway between a regime and no regime. Until there is sufficient competition between nations to warrant an extensive regime, this approach proposes that jurisdiction of the seabed be determined by the flag that is flown by the exploiting vessel. Therefore, all resources recovered by each vessel are under the jurisdiction and protection of the nation whose flag is being flown on that vessel. This approach, however, discriminates in favor of the more developed nations since they have the resources to undertake immediate exploration.

*The pros and cons of some of these schemes are detailed in Francis T. Christy, "Alternative Regimes for the Minerals of the Sea Floor," in *The United Nations and the Issue of Deep Ocean Resources*, House of Representatives, 90th Congress, 1st Session (December 7, 1967), pp. 235-242.

heeded if conflict and poor use of sea resources are to be avoided. First, any scheme must be acceptable to most of the world's states. Second, it must alter common ownership in a fashion that encourages the efficient utilization of ocean resources.

Reaching Agreement. Nations can be divided into two groups. The first group consists of nations too poor and too weak to appropriate a share of the ocean's wealth, yet who feel they are entitled to a portion of this world resource. The second group is comprised of a handful of nations capable of holding and exploiting large portions of the sea. What type of arrangement might satisfy both?

A "corporate owner," with all countries holding "shares," might be amenable to poor and wealthy nations alike. The corporate owner, or agency, could then lease, license, or grant exclusive rights to particular resources to nations capable of exploiting them. To avoid a stalemate on national defense issues, coastal states could retain exclusive rights to some generally acceptable distance from shore (possibly the continental shelf up to some depth limit). In the case of migratory marine life or fish that travel great distances, the rights will have to be associated with the fish rather than to specific areas of ocean. Mining or seabed rights can be for specific tracts of the sea floor. Countries desirous of developing a resource would bid for the rights, with the agency accepting the highest bid. The bids, or royalties, received by the agency would be dispensed as yearly dividends. The agency would be responsible for enforcing rights and settling disputes. Hence, stronger countries would gain in two ways — from the royalty dividends on their shares and from the profits generated from ocean operations — thus providing them with a dual incentive to support such an arrangement. Poor nations would receive only the royalty dividends. But if the body of nations wishes to assure a more equitable distribution, it might shell out more shares to a poorer country. For example, the allocation of shares could be inversely related to a country's per capita G.N.P. In addition, trading in ocean shares could be instituted to allow nations to sell their shares to others in order to generate income now, rather than waiting for yearly "dividend" checks and assuming the risks of ocean exploitation.[4]

This method could also reduce possible ideological differences between socialist and capitalist nations. Once socialist nations obtained the rights to a resource, they could exploit it directly through a state-run enterprise. Capitalist states could sell the rights to private firms, much as the U.S. currently sells offshore oil rights.

Better Use of the Sea. The efficient utilization of ocean resources would be enhanced by sole international management. If a nation purchased exclusive rights to harvest a particular form of marine life, it would have incentive to maintain that life so that it would yield an annual harvest. Some experts estimate that fish production could be raised four- or five-fold under such conditions. As a safeguard against uneconomical exploitation, the agency could stipulate a quota or limit at the time of granting the license. Failure to comply would result in revocation of the rights.[5]

Granting of exclusive rights would also encourage exploitation of the seabed when it is economical to do so. Nations or large corporations, hesitant to undertake long-term investments in areas where the ownership is uncertain, would no longer face this

[4] The U.S. position on seabed development is for creation of an international agency with powers similar to the scheme presented here, but the agency would differ in organization and scope. See box for a more complete description of the U.S. proposal.

[5] Putting the seabed under the jurisdiction of an international agency may prove to be easier than bringing fishing activities under such control. The large number of nations involved in fishing, some of which depend on it as a mainstay of their economy, and entrenched practices and "rights" pose substantial obstacles to a sole owner concept.

problem. The removal of this risk would lower the expected return necessary to encourage development of the resource.

NO MORE FLOUNDERING

The creation of a sole owner through an international agency allows for the beneficial effects on resource utilization of exclusive rights, while at the same time offering a means for easing international tensions. It is doubtful that a strong international agency,[6] with extensive powers of ownership in all aspects of the sea, could emerge without severe birth pangs. However, willingness to talk about such an agency having jurisdiction over the seabed is a foot in the door. And success here could lead to a greater range of powers for a sole-owner agency over the use of the sea. One last impetus to the formation of such an agency is a growing recognition that a continuation of a "do-nothing policy" could leave the sea a dying and wasted resource. Such floundering could threaten man's very survival. ■

[6] The United Nations is the agency that first comes to mind as a possible administrator of the sea. Yet, it is so closely tied with the ups and downs of international politics that the economics of ocean ownership surely would be swamped. Hence, a separate agency to focus on the economics of using sea resources might stand a better chance for success.

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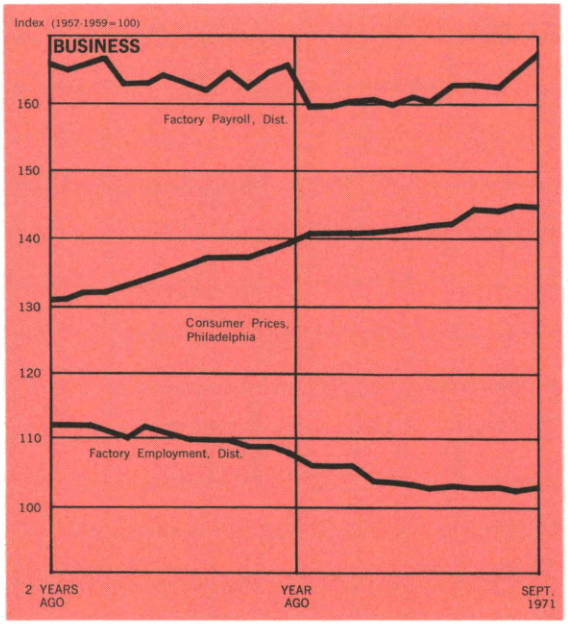
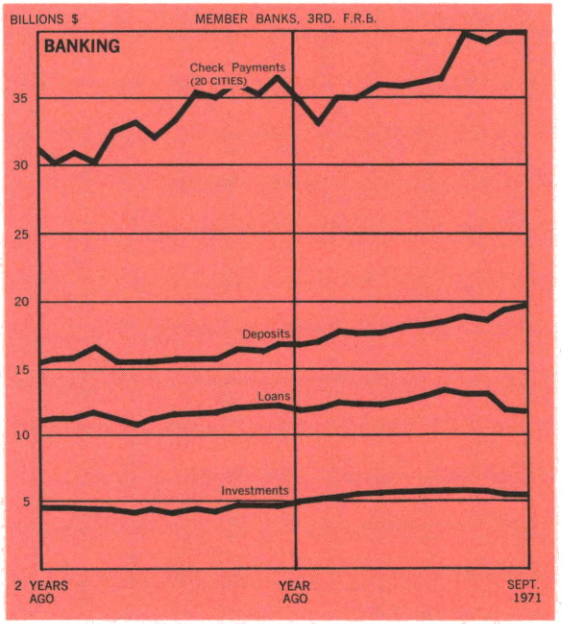
FOR THE RECORD...





SUMMARY

	Third Federal Reserve District			United States		
	Per cent change			Per cent change		
	Sept. 1971 from		9 mos. 1971 from	Sept. 1971 from		9 mos. 1971 from
	mo. ago	year ago	year ago	mo. ago	year ago	year ago
MANUFACTURING						
Production	....	....	....	+ 4	− 1	N/A
Electric power consumed	+ 5	0	0	....	....	....
Man-hours, total*	+ 1	− 4	− 7	....	....	....
Employment, total	0	− 5	− 6	....	....	....
Wage income*	+ 2	+ 2	0	....	....	....
CONSTRUCTION**	−20	+30	+18	−12	+26	+17
COAL PRODUCTION	− 2	− 3	+ 4	− 3	− 4	N/A
BANKING (All member banks)						
Deposits	0	+11	+15	+ 1	+10	+15
Loans	+ 1	+ 8	+ 9	+ 2	+ 9	+ 7
Investments	+ 1	+26	+27	+ 1	+17	+21
U.S. Govt. securities	0	+ 8	+11	0	+ 4	+13
Other	+ 2	+39	+37	+ 2	+25	+27
Check payments***	+ 3†	+17†	+ 6†	0	+17	+15
PRICES						
Wholesale	....	....	....	0	+ 3	+ 3
Consumer	+ 1‡	+ 4‡	+ 5‡	0	+ 4	+ 5

*Production workers only
**Value of contracts
***Adjusted for seasonal variation

†15 SMSA's
‡Philadelphia

LOCAL CHANGES

Standard Metropolitan Statistical Areas*	Manufacturing				Banking			
	Employment		Payrolls		Check Payments**		Total Deposits***	
	Per cent change Sept. 1971 from		Per cent change Sept. 1971 from		Per cent change Sept. 1971 from		Per cent change Sept. 1971 from	
	month ago	year ago	month ago	year ago	month ago	year ago	month ago	year ago
Wilmington	+ 4	− 2	+15	+ 2	− 7	+ 1	+ 4	+11
Atlantic City	− 6	+ 1	− 6	+ 3	− 2	+10	0	+21
Trenton	− 3	−10	− 2	− 2	− 7	+ 8	+ 3	+ 6
Altoona	− 1	− 4	− 3	+ 1	+ 4	+ 8	+ 1	+11
Harrisburg	0	− 3	+ 1	+ 4	+ 4	+12	− 1	+10
Johnstown	+ 7	−14	+21	− 9	+ 6	+24	0	+15
Lancaster	− 1	− 5	− 1	+ 2	+ 1	− 8	0	+84
Lehigh Valley	+ 1	− 5	+10	+ 6	− 3	+ 4	− 1	+12
Philadelphia	+ 1	− 4	+ 1	+ 4	+ 2	+ 8	+ 1	+ 8
Reading	− 1	− 4	+ 1	0	− 5	+ 8	+ 2	+ 8
Scranton	− 1	− 1	− 1	+ 8	+ 5	+ 4	0	+17
Wilkes-Barre	− 2	− 2	− 2	+ 8	+ 8	+25	+ 8	+21
York	0	− 4	+ 2	+ 7	+ 5	+ 1	+ 1	−39

*Not restricted to corporate limits of cities but covers areas of one or more counties.
**All commercial banks. Adjusted for seasonal variation.
***Member banks only. Last Wednesday of the month.