liquid fish. Solubles are a byproduct of the manufacture of fish meal, whereas liquid fish is a product prepared directly from the raw fish by controlled enzymatic hydrolysis. Both products are relatively inexpensive, although neither can presently compete with other sources of nitrogen on a per unit basis. Price, however, is a relative term, and if these materials should prove effective, they will demand a price commensurate with their value in increased production and growth.

The reasons for including liquid fish in this program are these: 1: If and when the unknown growth factor has been isolated, it is quite possible that it can be synthesized or derived from some source cheaper than fish meal. Another use or another market would then have to be found for industrial fish. 2: Liquid fish is simple and inexpensive to produce. The high cost of firing dryers is reduced materially and the byproduct oil can still be removed. 3: In the event that research should prove liquid fish to be an effective fertilizer material, it is possible that fish meal producers may realize greater profits by converting to liquid fish production than by continuing in meal production.

It is the opinion of many that a balanced fertilizer mix using liquid fish or fish solubles as the base will provide bonus effects in plant nutrition and production and that such a fertilizer can be produced at a price that will be competitive with other high-grade fertilizers available on the market. Only comprehensive, unbiased, fully-controlled research will give us the once-and-for-all answer.

Effect of the 1960 Law of the Sea Conference on the High Seas Fisheries

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I LAST ADDRESSED THIS INSTITUTE on the subject of the Law of the Sea and High Seas Fisheries Management with a paper written in the late fall of 1955 (Chapman, 1955).

Nineteen fifty-five had been an eventful year for this subject. The General Assembly of the United Nations had ordered convened a Specialized Conference on the "Conservation of the Living Resources of the Sea" so that the International Law Commission and it would have the benefit of the advice of the fishery experts of the world on these technical aspects of the Law of the Sea, and it had instructed the Commission to have a final report on the whole subject of the Law of the Sea ready for the General Assembly at its 1956 fall session.

The specialized conference had taken place in Rome on schedule in April of 1955. Forty-five nations had been represented by voting delegations and another six had sent observers. All of the International Fisheries Commissions in the world and other such expert bodies had been represented by their top scientists. The Conference had been very successful and had presented a competent, agreed report on the subject to the International Law Commission, the General Assembly, and the member governments.

Working on the basis of this report from the Rome Conference the International Law Commission had, at its 1955 session in Geneva, compressed the principles of this report into a set of ten fishery articles and incorporated these articles into a comprehensive report on all aspects of the Law of the Sea which it had submitted to the member governments for their comments preparatory to the Commission's task of finalizing its report for the General Assembly at its 1956 session. Also in 1955 there had been a conference on fisheries among the United States, Chile, Ecuador and Peru. This latter conference had reached no agreement but it had succeeded in clearing the air a good deal in what had been a most vexing problem among these otherwise friendly powers.

At the end of 1955 it had appeared that the world was pretty well agreed as to what fishery conservation was, as to the principle that all nations were responsible for seeing that their nationals did not overfish any high seas resource, and as to the methods by which conservation of the living resources of the high seas could be obtained by peaceful means.

The two key questions which had not been solved at the end of 1955 were (1) what was the breadth of the territorial sea, and (2) what was the proper jurisdiction of the coastal state over fisheries lying in the high seas off its coast. Even on these two vexing problems considerable progress had been made.

It seemed obvious at the end of 1955 that the consensus of world opinion was that the proper breadth of the territorial sea lay between three and twelve marine miles and that the rest of the ocean was high seas.

On the other problem it appeared that the coastal state would be able to insure that the fishery resources off its coast would not be overfished by establishing its own regulations if necessary, but that any regulations it made to ensure this would not apply to fishermen of other countries except under carefully prescribed conditions that would not discriminate against the foreign fishermen, would have to be based upon appropriate scientific findings, and in the last analysis could be brought for compulsory arbitration before an impartial committee of experts chosen by the Secretary-General of the United Nations with expert advice as to their choice either from the head of the International Court of Justice or the Food and Agriculture Organization of the United Nations, or both.

Thus 1955 seemed to have produced a quite considerable progress on these problems of governing the sea which had been vexing mankind since the first sail was hoisted on the first mast, and which had been growing particularly more irritating to the body politic in the years since the end of World War II.

But all of these conclusions were tentative at the end of 1955. There were several key meetings to be held in 1956 which would perhaps determine whether these tentative conclusions would be incorporated in the body of practice governing the relations between sovereign nations, or whether they would be abandoned. There were four such meetings scheduled for 1956 when I last reported to the Institute: (1) The Inter-American Council of Jurists at Mexico City in January, (2) The specialized conference on the Conservation of the Living Resources of the Sea to be held under the auspices of the Organization of American States at Ciudad Trujillo in the early spring, (3) The eighth session of the International Law Commission to be held in Geneva in the late spring, and (4) The eleventh session of the General Assembly of the United Nations to be held in New York in the fall. Any or all of these could blow the progress made during 1955 to smithereens.

During 1956 there also were to develop two additional crucially important forces bearing upon this already complex question of the Law of the Sea. Both had been latent but not much effective in 1955 and before; both came pretty well to full bloom before 1956 was over. These two factors were the world wide struggle between the Communists and the Free World (or, more properly speaking, between the Russian Empire and the rest of the world); and the struggle of the so-called Arab Nations to unite themselves into one working unit and to eradicate the new State of Israel.

The difference between three and twelve miles does not look very great when viewed from a deck at sea, but when viewed from a mahogany desk in the office of the Chief of Naval Operations either in the Pentagon or the Kremlin it is all the difference in the world. The task of the United States Navy, at the head of a federation of nations held together by the ocean and sea power, is to keep the lanes of communications among its elements as free as possible in peace as in war; the task of the Russian Navy, as the servant of a continental land power, is to hamper or even interdict sea travel among the elements of the naval confederation of the free world as much as possible not only in war, but also in peace if that is possible. Any broadening of the territorial sea would damage the defense potential of the free world and the ability of the United States to protect it; a broadening to twelve miles might favor the Russians to a critical degree. Both powers realized this.

During 1956 this essentially military argument was intruded into the Law of the Sea problem by both sides to a degree that was to make it the dominant factor in the coming years and prevent the complete solution of it. Furthermore this was to become a terrifying spectre to the United States fishermen. The military factor in the United States position on the Law of the Sea was to become so dominant that the United States would be prepared to trade away any or all of its fisheries rights in exchange for the requisite number of votes to nail down a narrow territorial sea.

The second factor—the controversy between Arab and Israeli—was for four years to give Russia an extra solid core of eleven or twelve votes for a 12 mile breadth of the territorial sea which, added to their own nine votes, would put them always within relatively easy reach of the necessary one-third of votes required to block the adoption of any substantive proposal.

Nineteen fifty-six started off badly by the adoption by a wide margin at the meeting of the Inter-American Council of Jurists in Mexico City of the so-called "Principles of Mexico" which, had it been adopted by the world community, would have led to complete chaos in the Law of the Sea by permitting each country to establish its own territorial sea, within very broad limits, and require the observance of it by other nations.

This victory by the broad territorial sea countries was very temporary, as is often the case when a motion is ram-rodded through an international meeting on emotional grounds. The very next motion at that meeting, in fact, was to refer this so-called "Principle of Mexico" as a background paper to the Specialized Conference on the Conservation of the Living Resources of the Sea to be held under the auspices of the Organization of American States at Ciudad Trujillo that spring. This was passed, the specialized conference only agreed that the nations of the Americas were disagreed on the Law of the Sea, and the so-called "Principle of Mexico" disappeared into the limbo of forgetfulness

where rest the mountains of background documents prepared for international conferences.

The International Law Commission met in Geneva in the spring of 1956. It amended its report of 1955 in many detailed respects in the light of comments it had received over the winter from the member governments. No major changes were made in it. If anything the Commission's final report to the General Assembly resulting from this 1956 session was a better, more polished, competent and satisfactory document than was its 1955 preliminary report.

But the ILC had been quite unable to reach agreement as between three and twelves miles for the breadth of the territorial sea. It quite properly viewed this as a political rather than a legal question and recommended that the General Assembly convene a Conference of Plenipotentiaries to act upon its whole report on the Law of the Sea and settle these political as well as legal and other questions in the proper way, by a Council of the Nations.

The General Assembly considered this subject extensively at its eleventh session that winter and finally on February 21, 1957 did what the ILC had recommended. It decided "in accordance with the recommendation contained in paragraph 28 of the report of the International Law Commission covering the work of its eighth session, that an international conference of plenipotentiaries should be convoked to examine the law of the sea, taking account not only of legal, but also of technical, biological, economic and political aspects of the problem, and to embody the results of its work in one or more international conventions or such other instruments as it may deem appropriate."

Thus the first Geneva Conference on the Law of the Sea came into being on February 24, 1958 and lasted until April 27, 1958. Eighty-six countries were represented by plenipotentiary delegates. Press accounts of this conference would lead one to think it was more or less a failure. In my humble opinion no conference so representative of all the peoples of the world had ever accomplished so much before or since. As a matter of fact there had never before been a conference of plenipotentiaries so fully representative of the peoples of the world. A full 30 per cent of the nations represented and voting had not existed as sovereign nations at the end of World War II.

The Conference was quickly divided for its work into five main committees: (1) Territorial Sea and Contiguous Zone; (2) High Seas: General Regime; (3) High Seas: Fishing, Conservation of Living Resources; (4) Continental Shelf; and (5) Question of Free Access to the Sea of Land-locked Countries. By the end of the conference each of the first four committees had adopted a report in the form of a convention to be opened for signature by the nations and the Conference had adopted all four conventions, an optional protocol and a series of pertinent resolutions. The four substantive Conventions comprehended all aspects of the complex Law of the Sea, upon which agreement was had on all except two points.

As a matter of fact the degree of unanimity reached by the nations in adopting these Conventions was nothing short of remarkable. The Convention on the Territorial Sea and the Contiguous Zone was adopted by a vote of 61 to 0 with 2 abstentions. The Convention on the High Seas was adopted by a vote of 65 to 0 with 1 abstention. The Convention on Fishing and Conservation of the Living Resources of the High Seas was adopted by a vote of 45 to 1 with 18 abstentions. And, finally, the Convention on the Continental Shelf was adopted by a vote of 57 to 3 with 8 abstentions. It would be hard to "rack up" a better

score than this on four subjects all of which were so complex and all of which contained highly controversial elements.

While each of these four conventions contained elements that were important to us fishermen of the world it was the third, "Convention on Fishing and Conservation of the Living Resources of the High Seas," that was most important to us. This Convention was remarkable on at least two grounds: (1) that it contained so much that was not the codification of existing practice but was instead legislative in effect, and (2) that after these two months of the most bitter sort of wrangling and acrid discussion in Committee Three there was almost unanimous agreement upon the resultant convention. Among the eighteen abstaining nations were the nine captive Russian votes and the Russians very plainly stated that they were agreeable to the Convention but could not vote in favor of the compulsory arbitration phase of it, not because they were against arbitration of fishery disputes but because they were opposed to compulsory arbitration of anything on principle. The others who abstained presumably did so on grounds that would not bear public examination because they did not comment upon their action.

The Convention as it was worked out was a straightforward business deal between the largely non-fishing, so-called "coastal" states and the large fishing states, each group of which had enough votes to have blocked any action that the other side would have wanted to take that was against its interest.

In the first place conservation was defined as "the aggregate of the measures rendering possible the optimum sustainable yield from those resources so as to secure a maximum supply of food and other marine products."

This definition itself was a compromise and a momentous decision. For the first time, in essence, the world had agreed that underfishing was as wasteful and against public interest as was overfishing.

Having defined conservation the Convention then said that all States had the duty to ensure that its nationals did not overfish any high sea resource but that subject to this condition, and others which may have been agreed to, the nationals of all nations had a right to engage freely in fishing on the high seas.

The remainder of the 22 article Convention comprised the business deal. The so-called coastal States were given the power to force upon the fishing States adequate conservation in fisheries in the high seas off their coast, even to the extent of establishing regulations over the fishery unilaterally which would apply to all fishermen in the area. This was balanced by the necessary qualifications that such regulations would not be discriminatory against foreign fishermen, would be bonafidely necessary for conservation purposes, and would be based on appropriate scientific findings.

To keep everybody honest, and to make the deal palatable to both sides, everybody was given the right to challenge anybody else either on the point that they were overfishing or on the point that they were being unjustly regulated in fishing. Such a challenge, under well-restricted criteria cutting both ways, was ultimately referable to an impartial board of experts for their decision on the merits of the case if the parties to the dispute could not reach agreement by any other peaceful means. The findings of this board were final and had to be abided by by both disputants.

This Convention did not by any means provide machinery capable of resolving all of the fishery disputes in the world. It only said that it is in the interest of mankind generally that conditions will be established which will

permit the maximum sustainable production of food and other living products from the sea, and set out the rules under which this could be accomplished by preventing overfishing and by preventing interference by foreign governments of fishermen except those necessary to prevent overfishing.

Economic competition among nations for fisheries was not touched upon by this convention. A typical example of this sort of thing, which is the basis of several current fishery disputes in the world, is where one nation is not as competent fishery-wise as another and wishes to hamper the fishermen of the more efficient nation by regulation so as to give its own inefficient fishermen an advantage in the market place which might overcome their margin of inefficiency. Although these economic problems are not soluble by this convention the document does prevent the aggressor nation from moving against the efficient nation under the guise of conservation. It can be hauled into a competent court for doing that.

Although it is not the stated subject of my talk I have dwelt upon this 1958 convention at some length because it describes the current situation.

The two things upon which the 1958 Conference on the Law of the Sea was unable to agree were just what the Rome Conference and the International Law Commission had not been able to agree upon in 1955: (1) the breadth of the territorial sea, and (2) the extent of the jurisdiction by the coastal state over fisheries lying in the high seas contiguous to its territorial sea. These are, of course, the meat of the coconut. If you don't know what the breadth of the territorial sea is you don't know where the high seas begins that you are free to fish upon. Also if the coastal state does have some special rights, other than those needed to ensure conservation, over the high seas fishery close to its shore the foreign fisherman is liable to be subjected to a good deal of harassment unless he knows what those rights are and in what area of the sea they can be applied against him.

Not having been able to resolve these two key problems, and having run out of time as well as patience (and as the event turned out, having agreed upon as much on these subjects as the nations were capable of agreeing upon at this stage of history) the Conference, after adopting these four conventions, an optional protocol, and several pertinent resolutions, resolved at the end "to request the General Assembly of the United Nations to study, at its thirteenth session, the advisability of convening a second international conference of plenipotentiaries for the further consideration of the questions left unsettled by the present Conference."

The General Assembly did study this suggestion at its thirteenth session and after long debate adopted, on December 10, 1958, a new resolution calling for a Second Conference of Plenipotentiaries on the Law of the Sea to consider just two questions: (1) the breadth of the territorial sea, and (2) the extent of fishery limits. This conference convened on schedule in Geneva on March 17, 1960, and ran until April 27.

The issues at this conference were so simple and straightforward that there was no use in splitting the Conference up into separate Committees to consider them, as was done at the 1958 Conference. Instead the procedure was adopted of adjourning the Conference to a single "Committee of the Whole." The purpose of this device was to give flexibility to the Conference. Nothing of a substantive nature could be adopted by the Conference except by a two-thirds majority of those present and voting, but in the "Committee of the Whole"

proposals could be adopted by a simple majority provisionally. This would then have to pass the two-thirds test later in the plenary sessions of the Conference, but it would permit a greater variety of ideas and compromises to be tried out than if all the work of the Conference were conducted within the straight-jacket of the two-third rule.

It will not be my purpose to discuss the happenings during this exciting, almost frenetic, conference. The upshot of the Conference was that it did not adopt anything on the subjects it was called to consider. The only thing it adopted was an inconsequential resolution suggesting to the General Assembly that it consider recommending larger technical assistance programs in fisheries for the under developed countries. However, what did not happen at the Conference was almost as important to the fish business of the world as what did happen, so I will refer briefly to this and its causes.

One thing that needs to be kept in mind is that Russia, while working consistently for the twelve mile territorial sea on military grounds, has just as consistently worked against any controls outside twelve miles for fisheries except for bonafide conservation reasons. This dichotomy of purpose has been evidenced on every vote on this issue that has come up since the Rome Conference in 1955. Russia is undertaking a world-wide expansion of its high sea fisheries and does not want them impeded from going anywhere on the high seas to fish.

The second thing to be kept in mind was that the United States wanted a narrow territorial sea on military grounds and was determined to get this come what may. To it the fishing rights it had on the high seas were purely secondary to the military issue and were useful to it chiefly as bargaining material with which to win votes for the narrow territorial sea.

The third thing to keep in mind was that the United States could not give its fishing rights on the high seas away for votes without the concurrence of Western European votes. In Western Europe were 18 votes and these, despite the NATO military relationship, were in many cases more interested in the fishery argument than in the military argument.

The fourth thing to think about was the solid bloc of Arab votes which were just against Israel and had no interest of consequence in fish. They wished by a 12 mile limit to cut off access by Israel to the Red Sea and Indian Ocean through its southern port of Elat on the Gulf of Aqaba by closing the straits at Tirana.

The fifth thing to keep in mind was the driving urge in the United States and England to win a two-thirds majority for the narrow territorial sea. A number of the policy men in both countries had convinced themselves that if they did not win a two-thirds majority at this Conference for a narrow territorial sea the Russians would win the 12 mile territorial sea argument in a few years' time simply because all of the new countries coming into being would be 12 mile countries and enough others would join them to make the 12 mile limit the rule of law in the long run.

I may say that this same argument determined United States actions at the 1958 Conference as well as at the 1960 Conference, and in neither instance has this dread of a stampede to the 12 mile limit eventuated. But nevertheless this urgent fear in the United States and English views led to an almost complete subordination of the fishing interests of both in the ensuing actions.

One final thing needs to be kept in mind. In their driving urge to get a two-

thirds vote in favor of a narrow territorial sea toward the end of the 1958 Conference the United States and England had made a tactical error that was to have strategic, and perhaps tragic, consequences. They backed a compromise which would have given six miles of territorial sea to all countries plus six miles of special jurisdiction over fisheries additionally except where a country already had fishing rights in that outer six miles. This compromise became humorously referred to as the six plus six minus six formula. It lost in 1958.

While it lost, and the United States and England reverted to their pristine 3 mile position; they felt it quite impossible and unrealistic to go into the 1960 Conference with any position less than this. Accordingly they had weakened their military argument by agreeing to extend the territorial sea and thus voluntarily giving up the 3 mile limit *de facto,* while not gaining any votes by doing so. Then, and now, countries who would vote for a 6 mile limit, for the most part, would vote for a 3 mile limit with even greater ease.

Secondly by adopting this compromise in 1958 the two leading countries on the freedom of the seas had introduced, or admitted, the concept that exclusive fisheries jurisdiction and the territorial sea were not necessarily coterminous.

Eighty-eight voting countries showed up at Geneva in 1960. There are three ways to vote in United Nations matters — yes, no or abstain (or just not show up). The majorities are calculated just on the basis of the yeses and noes. Thus if all 88 countries vote either yes or no 30 votes would be a blocking third. If 1, 2, or 3 countries abstained 29 votes would be a blocking third. If 4 or 5 countries abstained 28 votes would be a blocking third.

It was generally conceded by all hands at the beginning of the 1960 Conference that Russia had 24 certain votes in favor of a 12 mile limit that she could hold against any compromise. These were the nine Russian plus satellite votes, plus the Arab bloc (which was not interested in fisheries), and plus a few Latin American votes. To this hard nut the Russians would only require to add 4, 5, or at most six votes to get a blocking third, and this did not look hard for them to do because there were at least a dozen other countries besides those who already had 12 miles or more of territorial sea incorporated in their domestic legislation or, for one reason or another, wanted a 12 mile limit.

In the final show down vote things did not work out exactly like this because of some exceedingly skillful and hard driving diplomatic activity by United States diplomats both in Geneva and at far flung points all over the world in the last few days of the Conference. But right up to the finish wire it looked like the United States had a more than Herculean job on its hands. Forty-five or fifty votes (a clear simple majority) it could get for a narrow territorial sea easily (even for a 3 mile limit). But to stretch this to a winning 58, 59, or 60 votes for two-thirds majority (depending on the number of absentions) looked to be beyond expectation.

While the military objective was taken as being the overwhelmingly most important goal, perhaps 40 votes at the Conference were strongly affected by the fishery issue and had relatively slight interest in the military issue. One of the key tasks was to give enough fish away to bring in the needed Latin American, African and Asian votes without estranging the European and Japanese fishery vote by giving too much fish away, as had been done in 1958. Seeking this compromise was the prime activity of the last days at the Conference.

This was finally done very nearly successfully by a compromise whose result, had it been put into practice, would have been directly contrary to the policies adopted by the nations in Rome and Geneva that had led to the nearly unanimous adoption of the Convention on Fishing in 1958. It would have been very damaging to all long-range fishermen in the world, had it been adopted, and contrary to the public interest of the world.

The United States and Canada had brought forward a compromise proposal in Committee (which finally ended up as L.11 in Plenary) which entitled a State to a six mile territorial sea plus a 6 mile zone of exclusive fishery jurisdiction. In the outer 6 mile zone countries who had fished there for the preceding five years could continue to do so for the next ten years. All substantive amendments to it had been voted down in Committee and it had won by a handsome simple majority of 43 in favor, 33 against, with 12 abstentions. The Russian 12 mile proposal, buttered up as favorably as possible, had lost in Committee by 36 in favor, 39 against and 13 abstentions. It would certainly not appear again in Plenary because it would lose votes instead of gain more. It did not appear again in the Conference.

The task now was to contrive another compromise to be added to the Canada-U. S. proposal which would pick up the necessary additional votes to win it a two-thirds majority in Plenary. This was done in a proposal (L.12) introduced finally by Brazil-Cuba-Uruguay as an amendment to the Canada-United States proposal. The key features of this amendment were paragraphs 6 and 8, which read as follow:

> "6. Notwithstanding the provisions of the preceding paragraphs but subject to the paragraphs below, the coastal State has the faculty of claiming preferential fishing rights in any area of the high seas adjacent to its exclusive fishing zone when it is scientifically established that a special situation or condition makes the exploitation of the living resources of the high seas in that area of fundamental importance to the economic development of the coastal State or the feeding of its population."
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> "8. A special situation or condition may be deemed to exist when both (a) the fisheries and the economic development of the coastal State or the feeding of its population are so manifestly interrelated that, in consequence, that State is greatly dependent on the living resources of the high seas in the area in respect of which preferential fishing is being claimed; and (b) it becomes necessary to limit the total catch of a stock or stocks of fish in such area in accordance with the provisions of the Convention referred to in paragraph 2 above."

In the post war period in particular, and increasingly in the most recent years, the big development in fish production in the world has been in big, efficient, long range vessels—the stern trawler, the Japanese long-liner, the American tuna clipper, the mother ship, etc. It has been said with some authority that 90 per cent of the fishery resources of the world are underfished and many very large resources are not fished at all. It is also widely stated that mankind badly needs, and will in the future increasingly need, these ocean produced proteins for its diet and its sustenance.

Well, the only way mankind is going to get (or ever has got) proteins to eat out of the high sea is to pay the fisherman more for going to sea and catching them than he can make by working ashore where he can live in comfort with his family.

The way to increase the yield of protein from the sea is to increase the margin of the fishermen's earnings. By and large this cannot be done by raising the price of the catch because of the competition of land-produced proteins which put a lid on fish prices. The other way to do this is by lowering the fisherman's

cost per ton of production. This the fishermen have been doing increasingly in recent years by building larger, more efficient, longer range vessels so that instead of waiting for the fish to come to them they can go to where the fish are.

This results in so much saving in cost per ton of production that a Japanese long-liner working out of Misaki, Japan (for instance) can catch tuna off the Congo, take it Japan to can and get the canned tuna shipped back to the Congo at a cheaper price than the Congo canoe fisherman can catch the tuna off his coast, get it canned and put it on the Leopoldsville store shelf.

The Brazil-Cuba-Uruguay amendment to the Canada-United States proposal would have set back this rapid improvement in efficiency of the high seas fisheries of the world by a generation through putting in the hands of the canoe fisherman and his government the political ability to decrease the efficiency of the long-range, big-boat fishermen so that the inefficient canoe fisherman could compete with him economically. This would have had the general effect of either raising the cost of fish in the world or keeping the production of food from the sea at its present low level.

The effect of this whole amended proposal, had it passed, upon the high seas fisheries of the United States would have been simply devastating. But it was damn the torpedos and fire when ready Gridley. The six mile limit had to be saved no matter what the cost in fish so the full weight of United States diplomacy was put behind this proposal not only in Geneva but in every nook and cranny of the world. The Russian delegate found out from his diplomatic missions all over the world what was going on, thought he was licked, and complained bitterly at what he called the unfair and immoral tactics being used —as did the delegate of Saudi Arabia. And United States diplomacy clicked as it seldom has before. Every manjack around the world put his shoulder to the wheel magnificently and the results were surprising to behold. The Europeans gave in despite the presumptive fishery loss. All allies everywhere joined in. Even the Arab bloc cracked wide open. Just before the voting started the proposal looked so much like a shoo-in that the Russian and Arab both made speeches that practically conceded defeat and rationalized it.

But in the very last minute something came loose. Two Latin American votes that had been promised were not delivered. In consequence the vote on the proposal failed of adoption by the narrowest margin possible. The vote was 54 in favor, 28 against and 5 abstaining. Had one of the 28 *against* votes merely abstained the proposal would have won.

Peculiarly, the two votes that defected at the last moment were countries who would have had the most to gain by the adoption of the Brazil-Cuba-Uruguay amendment into international practice.

This tri-partite proposal had won a nice two-thirds vote in the voting just ahead of this. It got 58 in favor, 19 against, and 10 abstaining. The only countries voting against it were the Russian bloc, the Arab bloc (less a few) and Japan. But with the narrow failure of the Canada-United States proposal to which it was an amendment, this victory of the so called "coastal" States on this fishery issue failed too. The amendment failed when the proposal it was to amend failed.

The defeat of this proposal did not clear the slate, however. International law is made up not only of treaties and the actual practice of nations but also is much influenced by their intent. If this big two-thirds vote which the Brazil-

Cuba-Uruguay proposal got stayed on the record the broad territorial sea States could claim that the *principle* of a preferential right of the Coastal State to the fisheries in the adjacent high seas had been abundantly established by this vote on the Brazil-Cuba-Uruguay amendment. As a matter of fact the delegate of one of these countries rose at once, declared this, and withdrew his proposal to this same effect because he said it was no longer needed.

He knew, as did everyone present, that the vote for the Brazil-Cuba-Uruguay proposal had been mainly the result of United States diplomacy trying to win agreement on the 6 mile territorial sea, and if the proposal of these three countries had been put to a vote on its own merits it could not have won a simple majority, much less a crashing two-thirds majority. Accordingly he was very wise, and quick-witted, to withdraw his proposal and thus prevent a vote on this principle without the support of the six-mile limit attached to it.

However, fortunately for the distant-water fishing community of the world, there was still a Cuban proposal before the house to be voted on which contained this principle in a mild form and did not contain anything about a narrow territorial sea. This was not withdrawn and it came to vote. It lost 22 in favor, 33 against, and 24 abstentions, thus removing that "principle," one hopes, from the world scene.

Eight months has passed since the crashing crescendo of that last day of the Second Conference on the Law of the Sea at Geneva and one can look around and begin to see what effects it had, or will have, on the high seas fisheries of the world. My personal estimation of these effects is that they are, and will be, nil.

This was a peculiar conference. Everybody who was trying to put something across lost. Even though the Russians had dressed up their 12 mile limit in the most palatable form possible and had added much to it to attract votes here and there, it got less votes than it did in 1958 and short of a simple majority. The radical wing of the Arab bloc, which simply wished to harm Israel, played their hand too strongly and their Arab bloc at the last broke up rather badly. Those countries who wanted in the worst way to extend their jurisdiction far out to sea over foreign fishermen overplayed their hand in the last minute of play and lost everything. The United States military and diplomatic people who were prepared to trade all fish away for a narrow territorial sea had barely lost and perhaps they won more by losing so narrowly than they would have won by winning by a narrow margin. Iceland, who has led the fight in favor of extending fishery jurisdiction on the basis of its special case, lost its special case in the welter of other special cases that sprang up like weeds at this conference. Our good friend Canada who had worked so hard in 1958 and 1960 to take only a little fish away from American fishermen had lost even that modest effort.

In the first flush of defeat there was some thought that: (a) the fifty-four nations who had voted in favor of the Canada-United States proposal in plenary might be asked to sign a treaty to that effect among themselves alone, or (b) there might be called a Third Conference on the Law of the Sea.

Soberer thought scotched the first idea soon. With every hour that passed after the narrow defeat of the Canada-United States proposal, enthusiasm for this 54 nation treaty waned. If it were put up for signature and ratification among nations it is doubtful if twenty-five ratifications would come in. Its chief supporters were really straight three mile limit countries both for territorial sea and fisheries jurisdiction and had never liked this compromise. They had only

accepted it as the means toward broad international agreement. If that broad agreement could not be had they wanted no part of the compromise. The Russians with a little effort could get almost that many countries to sign and ratify a twelve mile treaty. So that is a standoff and so it is likely to remain.

The passage of time and the moving of world political thought has made increasingly less likely the calling of a Third World Conference on the Law of the Sea in our generation. The United Nations now has 99 members and before a new conference could be called there will be over 100. These new nations were former colonies. The first thought of a new nation after independence has normally been that the Law of the Sea and narrow territorial seas was the creation of colonial powers and for that reason alone should be voted against. On the record of those colonies that became independent countries directly after World War II, it takes some years of seasoning in international affairs before they begin to see that the freedom of the seas is the protection of the small new country from either economic or military duress. Accordingly it is less likely now than in 1958 or in 1960 that a two-thirds majority could be had in a Conference of Plenipotentiaries on a narrow territorial sea or reasonable fishery limits.

So where does this leave us? In chaos? In a rash of sovereign states claiming a 12 mile territorial sea? In wholesale seizure of foreign fishing boats by "coastal" States? I think not. At least none of these things have happened in the past eight months and none of them appear likely to happen at this moment of writing. I think, to the contrary, that we are thrown back upon the four solid, constructive treaties which resulted from the 1958 Conference on the Law of the Sea, and I think this is good.

The military element in this problem has been solved because it cannot be solved by voting. It is my personal opinion that this is an integral part of the power struggle going on between the Russian Empire and the Free World and that this part of that power struggle is such an important facet of the whole that it cannot be solved prior to a general solution of that problem. Accordingly the military men of neither side will seek another conference on those grounds because it is now abundantly clear that neither side can get a clear two-thirds majority for its position. With them out of the way and not muddying up the waters I believe the fishery people of the world can continue the excellent progress they were making toward solving the fishery problems of the high seas before the military men, international lawyers and top drawer diplomats cut themselves in to the game.

With the military aspect of the problem cancelling itself out of the action this takes us back pretty clearly to the fishery part of the problem. This is composed of two important segments: (a) measures which are needed to ensure that no living resource of the sea is overfished, and (b) measures which are wanted by this State or that State, at this time or that time, to give its less efficient fishermen a preferential position on the fishing ground or in the market so that they can compete on a basis of equality with more efficient fishermen of other countries or even drive them out of the fishery or market.

The Rome Conference, the 1955 and 1956 sessions of the International Law Commission, the Specialized Conference on the Conservation of the Living Resources of the Sea at Ciudad Trujillo, the debates in the General Assembly in 1954, 1956, 1957, and 1958, the First Conference on the Law of the Sea, and the Second, all abundantly show that the nations of the world are not

prepared or able to adopt a general rule which would govern this second point of economic preference which each State should have in respect of the fish of the sea.

As an example, in 1958 and before that, there was very strong sentiment in favor of granting Iceland special rights because of her special needs which had been forcefully and ably presented over the years. The only reason Iceland was not given special rights in 1958 over all other nations was that no formula could be found with which to do this that the Icelanders could accept and that the other nations felt would not damage their fishery situation with their neighbors in another section of the world. The will to do this for Iceland alone, however, was at that Conference.

In 1960 Iceland's economic dependence upon her fisheries had not decreased from what it was in 1958, in 1956, or even in 1946. But Iceland's special case came to vote and lost because in the meantime every other nation who wanted special economic rights at sea had also developed and pleaded its case. There was no general formula which could be devised to fit all of these special cases, several of which (including that of Japan on the opposite side of the fence) were generally thought to have considerable merit.

Perhaps the reason for this inability to develop a formula to handle this economic problem is really two reasons: (a) the economies of the nations of the world at the present stage of history cover too wide a spectrum to be comprehended under a general formula, and (b) the economic status of individual nations changes so rapidly in respect of its neighbors that a static general rule would give a needed advantage at one time which would be grossly unfair at a later time.

Whatever the reason the nations were not able to agree upon any general rule, or even special rule, to give any State a special economic privilege over the fisheries of the high seas in the long series of conferences and meetings on this subject over the past five years.

On the subject of conservation the situation is diametrically different. The nations were able to agree almost unanimously on what conservation was, how it was to be obtained and ensured, and that it was in the entire public interest to see to it that conditions were available which would permit the maximum sustainable production from each of the living resources of the sea—that underfishing and overfishing were equally against the public interest. These matters are well set out in the "Convention on Fishing and the Conservation of the Living Resources of the High Seas" adopted by the 1958 Conference and now undergoing the process of ratification prior to coming into force. I predict that under this document most of the fishery problems now existing between nations can be, and will be, solved.

All of this by no means prevents two, three or more nations who are involved in a fishery making an agreement among themselves as to how the yield of the fishery is to be divided among themselves. There are numerous examples already in existence as to how this can be done. Russia, Japan, Canada and the United States manage the fur seal herds of the North Pacific and divide up their yield among themselves under treaty. Canada and the United States do this in respect of the red salmon and pink salmon of the Frazer River, and manage many other joint fisheries without the necessity of dividing the yield among their fishermen to keep the peace. Russia, Japan, The Netherlands, England and Norway are currently working out a scheme to divide among their

fishermen the sustainable catch of whales in the Antarctic. Despite her avid claim to a 12 mile territorial sea Russia has signed a treaty with England permitting British vessels to fish up to within 3 miles of large stretches of her northern coast. Despite her adherence to a three mile limit England has signed a treaty with Denmark under which British vessels will not fish within 6 miles of the Faroe Islands, and is currently working on a treaty with Norway which will govern the British fisheries off the northern Norway coast in a manner that will be advantageous to the Norwegian fishermen.

The list could go on and include the special agreement between Japan and Australia respecting the fishery for pearl shell in the high seas off northern Australia, the special treaty between Japan, Canada and the United States under which Japan has agreed not to fish for certain types of fish over large areas of the North Pacific. Such special arrangements go back in history, too, as is noted by the special treaty rights United States fishermen have on the Newfoundland coast. They have solved many fishery economic and political problems among nations.

All of these economic treaties and arrangements on fisheries have these things in common: They are an agreement only among those nations directly involved. They do not affect others. Each seeks to solve a specific fishery problem between those nations, and not all fishery problems in the world that are alike or similar, or even all the fishery problems between those particular nations. Each has a definite time limit after which either party may freely cancel and strike for a new bargain. None involve the negation of rights either of that nation or generally.

On top of this there are perhaps a dozen international conservation commissions around the world that are working well and some of them have a history of thirty years and more of good work behind them. All of these commissions have one thing in common. They all hire top scientists who investigate the real world of the ocean and the fish. As their understanding of the ocean and the fish improves the violent arguments among the fishermen, the fish trade and the nations over that particular fishery subside and often evaporate entirely. It is a very difficult task to mount a first class emotional argument against cold, hard scientific facts. Accordingly as the scientific facts accumulate the arguments tend to subside.

Over and above this there is a vast movement in the world for enhancing and building up the scientific investigation of the ocean as a whole on a world wide basis. It seems certain, for instance, that the United States alone will spend one billion dollars more investigating the ocean in this decade than it did in the last. This effort is being joined actively by European countries, Russia and Japan. Competent ocean research establishments are being founded for the first time in Latin American countries and even in newly awakened Africa.

As I have sat through all of these international conferences over the past twelve years I could not help but observe that most of the controversy was based on opposite conclusions drawn by the two sides to a problem, both of which had quite insufficient evidence to base conclusions upon. Also during this period of years I have seen one violent argument after another arise, disturb the diplomatic scene for a time, and then quietly disappear as the scientific facts were accumulated with which to dispel the ignorance upon which the acrid debate had been based.

Accordingly I can not help but be optimistic that the great effort in ocean

research which is now going forward in the world is going to result, as time goes forward, in a lessening of fishery tensions in the world at least as fast as increased fishing effort on the high seas of the world brings new problems.

But perhaps the primary cause for my optimism for the future is the fish people themselves. During the past fifteen years I have had the privilege of sitting down and working with fishermen, fishery experts, and ocean scientists quite literally all over the world, of every color of skin and background, from every continent, both in their home offices and places of business and in international conferences one after the other. These are tough, hard men to deal with, but despite the variety of racial background it has seemed to me that they are more like each other in their thinking than each group is like his own countrymen who are land bound and sea-ignorant. That harsh mistress, the sea, appears to pick about the same type of men out of whatever race goes upon it and these men have common bonds, view points and aspirations which enable them to work together with more facility than landsmen appear to be able to do.

When the eleven nations gathered in Washington to discuss the Northwest Atlantic fisheries in 1949 nobody really thought that an agreement could be had among these diverse interests for the governing of these great fisheries. But in the end they hammered out a treaty that was in several aspects precedent setting and for eleven years it has worked well, with the Russians now even joining in it. But there were no political, military or legal people in that conference. The delegates were the harsh, hard, tough ocean fish people and after a week or ten days of sparring to find weaknesses, and finding none, they sat down and knocked together a treaty.

The Rome Conference was much more difficult than this because not only were there 45 nations actively represented and voting, but about half were represented by diplomats and lawyers who knew little or nothing about the sea or fish or fishermen. But the leaven of tough, bull-headed men from the sea was enough in the end to not only overwhelm the lawyers and diplomats but to settle and agree on the complex technical problems the Conference had been called to solve. Black, brown, yellow, tan and white they worked solidly together behind the scenes in Committees and hammered out an agreement so technically sound that the lawyers and diplomats were frustrated in trying to discover objectionable features in it, and still are.

In my humble opinion this Rome Conference was the most important of the lot in the past fifteen years, because here were agreed upon the principles which have stood up under the examination of the International Law Commission, the diverse nations both individually and collectively in the General Assemblies and the Specialized Conferences, and which will govern the high seas fisheries of the world in our generation and I hope in the next.

The First Conference on the Law of the Sea appeared to be hopeless at the start. Now the issues had gotten so important that the top diplomats and international lawyers headed the delegations, and to many delegations had been added the military men. But it all turned out as well in the end. The important men of the delegations concentrated on the important First Committee and left the unimportant fishery experts pretty much to themselves in the Third Committee.

These were much the same fishery experts who had been at Rome, at Washington, before, and were acquainted with each other through the dozens of meetings and conferences that the fishing fraternity had had over the years

around the world. Accordingly, despite the seemingly impossible task they had, and despite the inabilities of their superiors to agree in Committee One, the largely unmolested fishery people in Committee Three sat down and hammered out a straight, sound, business deal which became the "Convention on Fishing and the Conservation of the Living Resources of the High Seas."

Had the entirety of the membership of Committee One at that conference packed their bags, gone home at the Easter Recess, and stayed there, the fish people of Committee Three would have also settled the breadth of the territorial sea and the issue of fishery limits too. They had an agreement worked out behind the scenes among themselves on these points which would have done that. But the Home Governments, having all their experts in Geneva, made inexpert decisions and prevented this agreement from coming to light. Thus the three mile limit has seemed to disappear from the scene and nothing has replaced it.

So we came to the Second Conference on the Law of the Sea. Here the diplomats, the international lawyers and the military men absolutely dominated. The fish people's advice in all delegations was pretty well ignored and brusquely brushed aside. The upshot was that nothing was agreed upon. None of the remaining problems were solved.

Personally I think this was a good thing. There will be no Third Conference on the Law of the Sea for a long while. The diplomats, the lawyers and the military men have gone back to their lasts and are out of our hair. We fish people have been left the fruits of our labors over these years in the "Convention on Fishing and the Conservation of the Living Resources of the High Seas." This is a sound document under which we can govern ourselves if the others will let us alone to do so. In these short eight months several steps in this direction have already been successfully initiated.

Thus the center of the diplomatic-military storm seems to have passed us by at last, the waves are already subsiding in height and violence, and we fish people can get down to the job of getting food out of the sea with which to feed the hungry world, which was what we hired out to do in the first place.

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Fractionation And Purification Of Triglycerides, Fatty Acids And Methyl Esters From Fish Oils

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INTRODUCTION

THE PRODUCTION OF NEW INDUSTRIAL PRODUCTS from fish oils may very well require the use of purified fractions of fish-oil triglycerides or fatty acids.