



CARL T.C. GUTIERREZ
GOVERNOR OF GUAM

Office of the Speaker
ANTONIO R. UNPINGCO

Date: 5/13/97
Time: 10:30
Rec'd by: [Signature]
Print Name: Charlene Dimal

MAY 12 1997

The Honorable Antonio R. Unpingco
Speaker
Twenty-Fourth Guam Legislature
Guam Legislature Temporary Building
155 Heeler Street
Agana, Guam 96910

OFFICE OF THE LEGISLATIVE SECRETARY	
ACKNOWLEDGMENT RECEIPT	
Received By	<u>[Signature]</u>
Time	<u>4:43pm</u>
Date	<u>5-13-97</u>

Dear Speaker Unpingco:

Enclosed please find Bill No. 49 (COR), "AN ACT TO ESTABLISH RULES AND REGULATIONS FOR THE CONTROL OF FISHERIES BY THE DEPARTMENT OF AGRICULTURE", which I have signed into law today as Public Law No. 24-77.

These rules and regulations constitute one of the most comprehensive environmental protection measures put into place on Guam. The rules and regulations create five permanent reef preserves that enhance the concept of sustainable use of the environment by encouraging fishery production within our waters. At the same time, the health of our reefs will be improved, consequently improving the health of our environment, while bringing benefits to our people as well as to our many visitors.

Guamano fishermen have always depended on a healthy stock of reef fishes to feed their families. I remember when our reefs were abundant with lagua, tataga, goni, taguan, and atulai. There used to be enough fish, in numbers and size, to sustain our needs. As a fisherman myself, I can attest to the fact that this is not the case today. Our population has grown, more people than ever are fishing, our activities are impacting on the reefs, and there has been a corresponding decrease in numbers and size of our fishes.


Through these rules and regulations, we are placing into practice the concept of sustainable use of the environment. They establish a framework of action to restore our reef fish stocks and make sure that our environment is given the opportunity and ability to renew itself for

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generations to come. The five fishing preserves will allow fish to spawn and grow in protection. This will lead to the fish stocks on all of our reefs to grow, and our fishermen will benefit.

A safe, healthy, and productive environment is a responsibility we must all share. I thank and congratulate the Legislature for its quick action in addressing these very important rules and regulations.

Very truly yours,


Carl T. C. Gutierrez
Governor of Guam

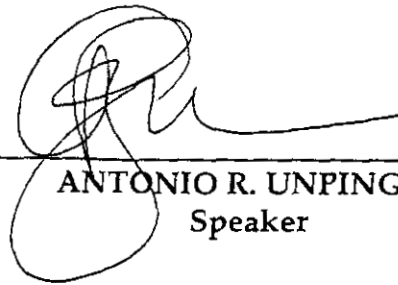
Attachment 00201

c: The Honorable Joanne M.S. Brown
 Legislative Secretary

TWENTY-FOURTH GUAM LEGISLATURE
1997 (FIRST) Regular Session


CERTIFICATION OF PASSAGE OF AN ACT TO THE GOVERNOR

This is to certify that Bill No. 49 (COR), "AN ACT TO ESTABLISH RULES AND REGULATIONS FOR THE CONTROL OF FISHERIES BY THE DEPARTMENT OF AGRICULTURE," was on the 30th day of April, 1997, duly and regularly passed.



ANTONIO R. UNPINGCO
Speaker

Attested:



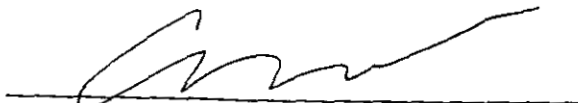
JOANNE M.S. BROWN
Senator and Legislative Secretary

This Act was received by the Governor this 24th day of April 30, 1997, at 11:06 o'clock P.M.

Assistant Staff Officer
Governor's Office



APPROVED:



CARL T. C. GUTIERREZ
Governor of Guam

Date: 5-12-97

Public Law No. 24-21

TWENTY-FOURTH GUAM LEGISLATURE
1997 (FIRST) Regular Session

Bill No. 49 (COR)

As amended by the Committee on
Natural Resources and as further amended
on the Floor.

Introduced by:

Mark Forbes

Committee on Rules, Government Reform
and Federal Affairs

By the request of the Governor in accordance
with the Organic Act of Guam.

AN ACT TO ESTABLISH RULES AND
REGULATIONS FOR THE CONTROL OF FISHERIES
BY THE DEPARTMENT OF AGRICULTURE.

1 BE IT ENACTED BY THE PEOPLE OF THE TERRITORY OF GUAM:

2 Section 1. (a) Authority for the Department of Agriculture to Promulgate
3 Rules and Regulations. Subsections: 63102 and 60108 of Title 5, Guam Code
4 Annotated, authorize the Department of Agriculture ("Department") to
5 promulgate rules and regulations providing for the control of fishing.

6 (b) Submission of Rules and Regulations in Bill Form. Public Law 22-96
7 requires that rules and regulations proposed by a government agency, after
8 submission to the Governor, be transmitted to the Legislature in bill form for the
9 convenience of the Guam Legislature. After the passage of forty-five(45) calendar
10 days plus seven (7) legislative days, the rules and regulations are approved.

11 (c) Approval of Rules and Regulations Provided by the Department of
12 Agriculture. The following rules and regulations for the Department are
13 approved:

1 **Section 1.** The Guam Legislature finds Guam's fisheries are a fragile and
2 irreplaceable resource and that the cultural identity and social fabric of the
3 people of Guam are dependent upon sustained traditional use and a healthy
4 natural fishery. Recent information has shown the near shore fishery is declining.
5 The Guam Legislature has determined that measures must be taken to preserve
6 local traditions and to protect the natural resource, which is so valuable to both
7 the community and the economy. In recognition of these facts the Guam
8 Legislature has delegated to the Department of Agriculture, under Subsection
9 63102 of Title 5, Guam Code Annotated, the responsibility to control and regulate
10 the fishery resource of the Territory of Guam.

11 The Guam Legislature has further delegated to the Department of
12 Agriculture, under Subsection 63127 of Title 5, Guam Code Annotated, the
13 authority to formulate regulations implementing that responsibility. In
14 accordance with the delegation of authority, the Department of Agriculture
15 formulated those fishing regulations now found in Subsections 15310 through
16 15315.1 inclusive, Title 16, Administrative Rules and Regulations. The
17 Department of Agriculture has determined that those existing fishing regulations
18 need revision to better protect and conserve Guam's fishing resources. The
19 Department has formulated a set of recommended revisions and has forwarded
20 them to the Guam Legislature via the Governor, for approval in the manner
21 prescribed by law.

22 **Section 2.** The Guam Legislature finds the revisions to the existing fishing
23 regulations formulated and recommended by the Department of Agriculture
24 reasonable and necessary for the conservation and preservation of Guam's
25 fishery resources. Subsection 15310 through 15316.0 inclusive of Title 16,

1 Administrative Rules and Regulations are hereby repealed in their entirety, and
2 the attached revisions repromulgated in their place.

3 "Title 16

4 NATURAL RESOURCES AND RECREATION.

5 CHAPTER 2.

6 FISHING REGULATION.

7 Subchapter A. General Regulations.

8 1. Definitions.

9 2. Harvest.

10 3. Seasons.

11 4. Gear Restrictions.

12 Subchapter B. Marine Preserves.

13 Subchapter C. Gastropods and Bivalves.

14 Subchapter D. Crabs and Spiny Lobsters.

15 Subchapter E. Coconut Crab, *Birgus latro*.

16 Subchapter F. Freshwater Fishing.

17 Subchapter G. Penalty.

18 Subchapter H. Implementation.

19 SUBCHAPTER A.

20 General Regulations.

21 Section 15310. Definition.

22 Section 15310.1. Harvest Regulations.

23 Section 15310.2. Harvest Seasons.

24 Section 15310.3. Gear Restrictions.

25

1 **Section 15310. Definitions.** For purposes of these regulations (Subsections
2 15310 through 15316);

3 (1) 'Aquatic Animal' is defined as any fish, marine invertebrate,
4 aquatic reptile, amphibian or marine mammal which lives in or near the water
5 (fresh, brackish or marine) which depends upon a water body for its survival.
6 This includes animals from fresh, brackish and marine environments.

7 (2) 'Aquatic Plant' is defined to include any member of the plant
8 kingdom, including all forms of aquatic algae and seagrass, which depend on
9 permanent or semi-permanent water bodies (marine or fresh) for survival.

10 (3) 'Aquatic Life' is defined to include all aquatic animals and
11 aquatic plants.

12 (4) 'Bottomfishing' is defined as any fishing in which a single line
13 (includes braided lines) baited with single or multiple hooks or lures is lowered
14 into water and fished in a still or drifting manner. Similar methods used for the
15 take of Pelagic Species shall not be covered under this definition.

16 (5) 'Boundary Marker' is defined as an object which is placed and
17 labeled to demarcate a boundary of a Marine Preserve.

18 (6) 'Cast Net (Talaya)' is defined as a circular net with weights or
19 chain around the perimeter which is thrown for the purpose of taking or
20 capturing any aquatic animal.

21 (7) 'Commercial' is defined as the selling, bartering, trading or
22 exchanging aquatic animals and/or aquatic plants for monetary or other
23 consideration or the intent to perform any of these acts.

24 (8) 'Commercial Export' is defined as the transferring or shipment of
25 aquatic animals and/or aquatic plants from Guam which is sent elsewhere for

1 purposes of sale, trade, barter or commercial use.

2 (9) 'Commercial Harvesting' is defined as the taking or capturing of
3 any aquatic life for commercial use.

4 (10) 'Crab' is defined to mean any member of the class Crustacea
5 except for spiny lobster as defined.

6 (11) 'Cultured Aquatic Plants/Animals' is defined as any aquatic
7 plant or aquatic animal raised or grown in captivity for sale having all the proper
8 local and Federal clearances required.

9 (12) 'Dip Net' is defined as a handled net with no greater than a
10 twelve (12) inch opening which is commonly used to capture aquarium fish.

11 (13) 'Director' is defined as the Director of the Department of
12 Agriculture.

13 (14) 'Drag Net (Chenchulun Mahala)' is defined as any net which is
14 pulled through the water, often maintaining contact with the bottom, in an
15 attempt to coral or entrap aquatic animals.

16 (15) 'Dredging Equipment' is defined as any device used to disturb
17 or remove the substrate on beaches or within the water of Guam. Small hand
18 implements or devices used for digging shall not be considered as dredging
19 equipment.

20 (16) 'Easy Access' is defined to mean carried on your person or
21 stored at a nearby shoreline site while in the water. If a vessel is used, the items
22 in question must be stored on board.

23 (17) 'Fish Aggregating Device' or 'FAD' is defined as any properly
24 permitted buoyant device permanently moored with the intention of attracting
25 fish in a specific area.

1 (18) 'Freshwater Fauna' are defined as any vertebrate or visible (to
2 the naked eye) invertebrate life forms found in Guam's inland waters. This does
3 not include insects or their larvae.

4 (19) 'Freshwater Fish' are defined as any fish found in Guam's
5 inland waters.

6 (20) 'Freshwater Gamefish' is defined as peacock bass (Tucunare),
7 *Cichla ocellaris*.

8 (21) 'Gaff' is defined as any hand held hook shaped device used for
9 harvesting aquatic animals.

10 (22) 'Gill Net (tekin)' is defined as any net in which the mechanism
11 for capturing the fish is entanglement.

12 (23) 'Gleaning' is defined as the take of any aquatic plant or aquatic
13 animal by hand or with an implement to prod.

14 (24) 'Harvest' see the definition of take.

15 (25) 'Waters of Guam' means that area of shore and waters seaward
16 of the mean high water line (mark) to the outermost limits of Guam's exclusive
17 economic zone, as provided by Subsection 402(a) of Title 1, Guam Code
18 Annotated.

19 (26) 'Hook and Line' fishing is defined as the combination of any
20 hook and a line used to capture fish. This shall include, but is not limited to, the
21 use of fishing rods or poles and handlines with bait or lures.

22 (27) 'Import' is defined as to land on, bring into or introduce into, or
23 attempt to land on, whether or not such landing, bringing, or introduction
24 constitutes an importation within the meaning of customs laws of Guam and the
25 United States.

1 (28) 'Inland Water Bodies' are defined to include, but are not limited
2 to, all natural and man-made rivers, streams, lakes, reservoirs or other similar
3 bodies of water. Inland waters may also be brackish in chemistry.

4 (29) 'Locally-caught' is defined as the capture, collection, or
5 possession of any aquatic life which came from waters of Guam.

6 (30) 'Longline' is defined as a line suspended horizontally by floats
7 with secondary lines with hooks and devices designed to capture fish.

8 (31) 'Marine Animal' is defined as any fish, invertebrate, mammal or
9 reptile that lives in the sea or brackish water which depends upon said body of
10 water for its survival. This includes, but is not limited to, turtles, crabs, corals,
11 octopus, starfish, jellyfish, sea cucumbers, worms, whales, porpoises, etc.

12 (32) 'Marine Mammal' is defined as any member of the class
13 Mammalia which spends any part of its life in the ocean.

14 (33) 'Marine Preserve' is defined as a well delineated area in which
15 certain activities or uses are permanently restricted or prohibited.

16 (34) 'Pelagic Fish' is defined as all billfish (all species of the families
17 Istiophoridae and Xiphidae), *Coryphaena hippurus* (*mahi mahi*), *Katsuwonis pelamis*
18 (*skipjack tuna, bonita*), *Euthynnus affinis* (*skipjack tuna, kawa kawa*), *Acanthoocybium*
19 *solandri* (*wahoo*), *Thunnus albacares* (*yellowfin tuna*), *Elegatis bipinnulatus* (*rainbow*
20 *runner*), or any other tuna or migratory ocean going fish.

21 (35) 'Personal use' is defined as the taking or capturing of any
22 aquatic or marine animal or aquatic plant for any non-commercial use.

23 (36) 'Purse Seine' is defined as a net used to surround an aquatic
24 animal in which the base of the net is then drawn closed to capture the fish.

25 (37) 'Reef Margin' is defined as that area where the reef flat and the

1 open ocean meet. This is generally the most distant area from shore which
2 becomes exposed during low tide. For enforcement purposes this area defines
3 the span from the outer most edge of the margin to one hundred (100) feet
4 toward shore.

5 (38) 'Relocate' is defined as the act of removing a resource from its
6 resident location and placing the resource in a new location.

7 (39) 'Resource' is defined as any natural, non-living or living entity.

8 (40) 'Rock' is defined as any hard material larger than sand size
9 grains made from a mineral or petrified mass.

10 (41) 'Sand' is defined as any natural loose grainy non-living material
11 formed from the erosion of rocks or calcium carbonate formations.

12 (42) 'Shore' is defined as the area between the mean low tide mark
13 and ten (10) meters inland from the mean high tide mark, except where
14 mangroves exist and then it shall extend to the inland edge of the mangrove.

15 (43) 'Spear' is defined as any shaft with a pointed tip which can be
16 used to take aquatic animals.

17 (44) 'Spearfishing' is defined as any method which uses a spear to
18 capture aquatic animals.

19 (45) 'Spiny Lobster' is defined as all members of the genus
20 *Panulirus*.

21 (46) 'Surround Net' (Chenchulun Managam) is defined as any
22 vertical net set to act as a barrier to detain fish in which the fish
23 are not gilled by the net. A surround net is not pursed and
24 therefore is not a type of purse seine.

25 (47) 'Take' shall be as defined in Subsection 63101(g) and Subsection

1 63203(m), both of Title 5, Guam Code Annotated.

2 (48) 'Transplant' is defined as the act of removing a resource from
3 its resident location and placing it at a new location for the
4 purpose of replenishing the area or creating an altered habitat.

5 **Section 15310.1. Harvest Regulations.** (a) It shall be unlawful for any
6 person to knowingly relocate or transplant any aquatic animal or aquatic plant
7 or rock or sand within the waters of Guam or import and release into the wild
8 any aquatic life without a valid permit. Permits will typically be limited to
9 scientific purposes. This shall not apply to the release of aquatic animals which
10 are regulated by size and are determined to be undersized, provided the release
11 is not intended to remove a resource from a specific area or re-establish animals
12 in a new area.

13 (b) The taking of marine mammals is prohibited.

14 **Section 15310.2. Harvest Seasons.** The harvest season for aquatic animals
15 and aquatic plants is year-round, unless otherwise designated in these rules and
16 regulations.

17 **Section 15310.3. Gear Restrictions.** (a) The use of dredging equipment
18 to take aquatic life is prohibited.

19 (b) Surround nets must be removed within six (6) hours of setting. All
20 aquatic animals prohibited from take or which do not meet take requirements
21 must be released immediately once determined to be in the net. All animals
22 killed during the take must be recovered and removed from the waters of Guam.

23 (c) The use of a gill net for the commercial harvest of aquatic animals is
24 prohibited.

25 (d) When bottom fishing or fishing by hook and line, all gear must be

1 attended at all times.

2 (e) The use of a horizontal longline for the commercial harvesting of any
3 aquatic fauna is prohibited within the waters of Guam.

4 (f) The use of a purse seine for the commercial harvesting of any aquatic
5 animal, marine animal or pelagic fish other than scads (*Selar crumenophthalmus*)
6 (locally known as *atulai*), is prohibited within the waters of Guam. If utilized for
7 the taking of *atulai*, all other aquatic life captured must be released and every
8 effort to return it live must be made.

9 (g) It shall be unlawful to attach, moor or tie any boat or water craft, or
10 any rigging or structure to, or to board, deface, damage, remove or destroy any
11 fish aggregating device, except as authorized by the Director. Permits may be
12 issued for certain activities.

13 SUBCHAPTER B.

14 Marine Preserves.

15 Section 15311.0. Marine Preserves.

16 Section 15311.1. General Rules for Managing Marine
17 Preserves.

18 Section 15311.2. Designated Marine Preserves.

19 Section 15311.3. Special Regulations to be Applied to Each
20 Type of Marine Preserve.

21 **Section 15311.0. Marine Preserves.** The Director of Agriculture will
22 determine the need to establish Marine Preserves, which are areas in which the
23 take of aquatic animals will be restricted to protect coral reef habitat and/or the
24 related fauna. Such areas once established shall be permanently designated as
25 Marine Preserves. The restrictions established for such an area shall always

1 govern the allowable activities within the designated Marine Preserve.

2 **Section 15311.1. General Rules for Managing Marine Preserves.** (a) All

3 Marine Preserves shall be clearly marked with boundary markers and signage
4 at popular entry points to educate the public as to the rules for the area.

5 (b) Within an established Marine Preserves the following activities shall
6 be prohibited: dip netting, gill netting, drag netting, surround netting, spear
7 fishing, the use of gaffs, shell collecting, gleaning and removal of sand or rocks.

8 (c) All Marine Preserves shall include the shoreline and shall extend
9 horizontally inland ten (10) meters from the mean high tide mark or, if there is
10 mangrove in the area, to the extreme inland edge of the mangrove if such point
11 is farther inland than ten (10) meters from the mean high tide mark. Unless
12 otherwise specified, the ocean boundary of the Marine Preserves shall be up to
13 the six hundred (600) foot depth contour.

14 (1) The Director of Agriculture shall place range markers to delineate
15 each of the side boundaries from the reef margin to the six hundred (600) depth
16 contour.

17 (2) The Director of Agriculture shall create and make available to the
18 public at the Department maps of the Marine Preserves.

19 **Section 15311.2. Designate Marine Preserves.** The following
20 areas have been designated as Marine Preserves, as described in Subsection
21 15310.0:

22 (1) Tumon Bay Location: Tumon
23 Boundaries: From Two Lovers Point to the northeast tip of
24 Hospital Point.

25 (2) Piti Bomb Holes Location: Piti

1 Boundaries: From the southwest end of Piti Channel mark to
2 Camel Rock and then to Asan Point.

3 (3) Sasa Bay Location: Piti

4 Boundaries: From the west corner of Polaris Point on the finger-like
5 peninsula to the most southerly point on Drydock Island. All the water and
6 shoreline in the bay to the east of this boundary are within a Marine Preserve.
7 The shoreline inclusion within the Marine Preserve shall exceed the ten (10)
8 meter distance in areas where mangroves exist. The boundary in such areas shall
9 extend to the extreme inland edge of the mangroves.

10 (5) Achang Reef Flat Location: Merizo]

11 Boundaries: From the southern side of Manell Channel to the northern
12 side of "Ajayan Channel."

13 (6) Pati Point Location: Andersen Air Force Base

14 Boundaries: Form the marker (144° 53' 44 E. Longitude, 13° 32' 40' N.
15 Latitude) in front of the pillbox to the west of Tarague channel easterly along the
16 coast to Pati Point, then southerly to Anao Point.

17 (7) Limit the boundaries of all Marine Preserves to 10 fathoms (60
18 ft.).

19 **Section 15311.3. Special Regulations to be Applied to Select Marine**
20 **Preserves.** (a) Bottomfishing may be conducted within a Marine Preserve from
21 the sixty (60) foot contour seaward.

22 (1) Trolling may be conducted from the reef margin seaward, but only
23 for pelagic fish. Persons catching non-pelagic fish shall release them immediately
24 upon capture. Where the reef margin is not well defined because of gaps or
25 undulations in the reef, the margin shall be defined by drawing a point between

1 two (2) well defined points.

2 (2) The Director of Agriculture shall place buoys or other suitable
3 markers to delineate the areas described herein for bottomfishing and trolling
4 and shall create and make available to the public maps of these areas.

5 (b) Tumon Bay: All fishing except for cast net from shore, hook and line
6 from shore, and those methods specifically identified as allowable by law or
7 regulation in a preserve shall be prohibited. Hook and line fishing, and cast net
8 fishing allowed from shore, shall be limited to the take of rabbitfish (*Sesjun*,
9 *Manahac*), juvenile goatfish (*Tiao'*), juvenile jacks (*E'e'*) and the convict tang
10 (*Kichu*). Cast net fishing will also be allowed along the reef margin for rabbitfish
11 and convict tangs only.

12 (c) Piti, Sasa Bay, Anae and Achang Reef Flat: All forms of fishing except
13 those methods specifically identified as allowable by law or regulation in a
14 Marine Preserve shall be prohibited.

15 (d) Pati Point: All fishing except hook and line from shore, and those
16 method specifically identified as allowable by law or regulation in a Marine
17 Preserve, shall be prohibited.

18 SUBCHAPTER C.

19 Marine Invertebrates.

20 Section 15312.1. Commercial Harvest of Trochus (*Trochus*
21 *niloticus*) (*Aliling*).

22 Section 15312.2. Harvest of Trochus for Personal Use.

23 Section 15312.3. Commercial Harvest of Tridacnid Clams (*All*
24 *Tridacna spp.*) (*Hima*).

25 Section 15312.4. Harvest of Tridacna Clams for Personal Use.

1 Section 15312.5. Commercial Harvest of Marine Gastropods
2 and Bivalves.

3 Section 15312.6. Harvest of Gastropods for Personal Use.

4 Section 15312.7. Harvest of Bivalves for Personal Use.

5 Section 15312.8. Other Marine Invertebrates.

6 **Section 15312.1. Commercial Harvest of Trochus (*Trochus niloticus*)**
7 *(Aliling)*. **(a) Size Limit.** The commercial harvest of Trochus shall be limited to
8 shells with a base diameter of four (4) inches or greater and for local sale only (see
9 illustration). There shall be no commercial export of Trochus. This applies to live
10 and dead Trochus collected.

11
12 (See Exhibit 1)

13
14
15 **(b) Bag Limit.** No more than one thousand (1,000) pieces of Trochus can
16 be taken per person per year for local commercial sale. All Trochus must be
17 preserved whole until cooked or frozen. The Island-wide total commercial
18 harvest shall be set at ten thousand (10,000) pieces annually, and once this total
19 is obtained the season shall be closed.

20 **(c) Area.** The commercial harvesting of *Trochus* is prohibited shoreward
21 of the outer edge of the fringing reef (reef margin). This includes the lagoons and
22 channels that extend shoreward from the outer edge of the fringing reef. The
23 harvest of Trochus from "Marine Preserves" is prohibited.

24 **(d) Season.** Commercial harvest of *Trochus* for locals shall be permitted all
25 year provided the harvest limit is not met. Once ten thousand (10,000) pieces

1 have been taken Island-wide, this commercial fishery will be closed for the
2 remainder of the year. The commercial season shall be regulated on a fiscal year
3 basis, which will begin on October 1 of each year.

4 (e) **License.** All individuals shall be required to obtain a license from the
5 Department of Agriculture to harvest *Trochus* for commercial purposes. This
6 licenses will be valid for one (1) year and cost Twenty-Five Dollars (\$25.00) per
7 person. The license must be kept within easy access when collecting or selling
8 *Trochus* or any part thereof. Anyone selling *Trochus* must have a valid license or
9 be able to provide the license number of the individual who sold the *Trochus* to
10 them.

11 **Section 15312.2. Harvest of *Trochus* for Personal Use. (a) Size Limit.**
12 Harvesting of *Trochus* for personal use shall be limited to shells with base
13 diameters of three (3) inches or greater (see illustration).

14 (b) **Bag Limit.** Each person is allowed fifty (50) *Trochus* per day, including
15 shells. All *Trochus* must be preserved whole until cooked or frozen.

16 (c) Shells of *Trochus* taken for personal use shall not be sold, traded or
17 bartered.

18 (d) No more than twenty (20) locally caught pieces of *Trochus* may be hand
19 carried as export from Guam.

20 **Section 15312.3. Commercial Harvest of Tridacnid Clams (Giant**
21 **Clams), (*Tridacna maxima*, *Tridacna squamosa*, *Tridacna derasa* or any other**
22 ***Tridacna spp.* And *Hippopus hippopus* (*Hima*).** No commercial harvesting of the
23 above-listed species of clams shall be allowed. This does not include cultured
24 clams in a Department of Agriculture approved culture facility.

25 **Subsection 15312.4. Harvest of Tridacnid Clams (Giant Clams) for**

1 **Personal Use. (a) Size Limit.** For personal use, the take of Tridacnid clams shall
2 be limited to shells having a valve (shell) length not less than seven (7) inches (see
3 illustration).

4
5
6 (See Exhibit 2)

7
8 (b) **Bag Limit.** For personal use, each person is allowed no more than three
9 (3) clams, shells included, per day. Tridacnid clams must be preserved whole
10 until cooked or frozen, this prohibits harvesting only the meat portion of the
11 clam.

12 (c) Shells of Tridacnid clams taken for personal use shall not be sold,
13 traded or bartered.

14 (d) **Area.** Harvesting of Tridacnid clams for personal use is prohibited in
15 "Marine Preserves."

16 **Section 15312.5. Commercial Harvest of Marine Gastropods and**
17 **Bivalves Other Than *Trochus* and *Tridnacna*.** No commercial harvest of fresh or
18 locally-caught marine gastropods and bivalves shall be permitted (see special
19 regulations for *Trochus* and Giant Clam).

20 **Section 15312.6. Harvest of Marine Gastropods Other Than *Trochus* for**
21 **Personal Use. (a) Bag Limit.** Harvest shall be limited to thirty (30) pieces, shells
22 included of mixed gastropods per person per day (see special regulations for
23 *Trochus* and Giant Clam). Marine gastropods harvest must be preserved whole
24 until cooked or frozen. Ornamental shell collectors shall be limited to ten (10)
25 specimens per species and can possess the shell without having to preserve the

1 animal. Any fragments of shells shall count as one (1) specimen.

2 (1) Marine gastropods taken for personal use shall not be sold, traded or
3 bartered.

4 (2) Exception: The personal harvest of selected conchs is permitted. No
5 more than one thousand (1,000) per day per person combined of the species
6 *Strombus fragilis*, *Strombus gibberelus*, *Strombus Luhuanes*, locally referred to
7 dogas, may be taken.

8 **Section 15312.7. Harvest of Marine Bivalves (clams, oysters, and**
9 **mussels) Other Than Tridacna for Personal Use (species specific regulations**
10 **take priority over this regulations, see Tridacna clams).** (a) Marine bivalves
11 taken locally for personal use shall not be sold, traded or bartered.

12 (b) Harvest shall be limited to two hundred (200) pieces, shells included of
13 bivalves combined per person per day. Marine bivalves taken must be preserved
14 whole until cooked or frozen. Ornamental shell collectors shall be limited to ten
15 (10) specimens per species and can possess the shell without having to preserve
16 the animal. A single valve (half of the shell) or any part thereof shall be counted
17 as one (1) specimen.

18 (c) There shall be no export of locally-caught marine bivalves.

19 **Subsection 15312.8. Harvest of Other Marine Invertebrates, Including**
20 **Holothurians and Echinoderms.** (a) Marine invertebrates taken locally for
21 personal use shall not be sold, traded or bartered.

22 (b) Harvest shall be limited to one hundred (100) pieces combined per
23 person per day.

24 (c) There shall be no export of locally-caught marine invertebrate.

25 **SUBCHAPTER D.**

1 **Crabs and Lobsters.**

2 Section 15313.0. Commercial Harvest of Crabs.

3 Section 15313.1. Taking of Crabs for Personal Use.

4 **Section 15313.0. Commercial Harvest of Crabs and/or Spiny Lobster**
5 **Other Than Coconut Crab (*Birgus latro*). (a) Size Limit and Individuals with**
6 **Eggs. No spiny lobster shall be taken with a carapace (body shell, does not**
7 **include tail or antennas) length less than four (4) inches, measured from the**
8 **dorsal posterior end of the carapace to the point between the two horns over the**
9 **eyes, see illustration. No spiny lobster carrying eggs shall be taken.**

10
11
12
13 (See Exhibit 3)

14
15
16 No crabs or slipper lobster (*Scyllarides* spp.) with a carapace (shell)
17 width
18 less than (3) inches or carrying eggs shall be taken (see illustration).

19
20
21 (See Exhibit 4)

22
23
24 The land crab, *Cardisoma carnifex*, may be collected at any size, but still
25 may not be collected when carrying eggs. Evidence of removal of eggs (orange

1 to

2 brown colored mass attached under tail) shall be considered prima facie evidence
3 of violation of this Section of the Regulation. Crabs and spiny lobster must be
4 preserved whole until cooked or frozen.

5 (b) There shall be no commercial export of crabs or spiny lobsters.

6 (c) **Gear.** It shall be illegal to puncture, impale or spear crabs and/or spiny
7 lobster intended for sale; only devices which do not impose any physical harm
8 to the crabs and/or spiny lobster may be utilized for harvest. Any crabs or spiny
9 lobster in confinement shall be considered taken and subject to harvest
10 regulations. Upon harvest, crabs and lobster are not to be impaled for
11 confinement (stringers are prohibited). Any sub-legal crab or spiny lobster
12 injured due to attempted harvest will be viewed as take.

13 **Section 15313.1. Taking of Crabs and/or Spiny Lobster (*Panulirus sp.*)**
14 **Other Than Coconut Crab (*Birgus latro*) for Personal Use. (a) Size Limit and**
15 **Individuals with Eggs.** No lobster with a carapace length less than three and
16 one-half (3 1/2) inches, measured from the dorsal posterior end of the carapace
17 to the point between the two (2) horns over the eyes or carrying eggs shall be
18 taken (see illustration). No crabs of the genus *Etisus* (Red Reef Crab), *Carpilius*
19 (seven-eleven crab), *Scylla* (Mangrove crab) or slipper lobster (*Scyllarides spp*)
20 with a carapace width less than two (2) inches or carrying eggs shall be taken,
21 except for the land crab, *Cardisoma carnifex*, which can be collected at any size,
22 except when it is carrying eggs. Evidence of removal of eggs (orange to brown
23 colored mass attached under tail) shall be considered prima facie evidence of
24 violation of this Section of the Regulation. Crabs and lobster must be preserved
25 whole until cooked or frozen.

1 (b) Shells of crabs and lobsters taken for personal use shall not be sold,
2 traded or bartered.

3 (c) **Gear.** It shall be illegal to puncture, impale or spear crabs and/or spiny
4 lobster; only devices which do not impose any physical harm to the crabs and/or
5 spiny lobster may be utilized for harvest. Any crabs and/or spiny lobster not
6 complying with the minimum harvest size requirements must be released
7 immediately. Any crabs or spiny lobster in confinement shall be considered
8 taken and subject to harvest regulations. Upon harvest, crabs and lobster are not
9 to be impaled for confinement (stringers are prohibited). Any sub-legal crab or
10 lobster injured due to attempted harvest will be viewed as take.

11 SUBCHAPTER E.

12 Coconut Crabs.

13 Section 15314.0. Commercial Harvest of Coconut Crabs.

14 Section 15314.1. Taking of Coconut Crabs for Personal Use.

15 **Section 15314.0. (a) Size Limit and Individuals with Eggs.** The
16 commercial harvest or sale of coconut crabs with a carapace width less than four
17 (4) inches is prohibited (see illustration). Coconut crabs must be preserved whole
18 until cooked or frozen. Any coconut crab not complying with the commercial
19 harvest minimum size requirements must be released immediately. Any coconut
20 crab in confinement will be considered taken and subject to harvest regulations.
21 No coconut crabs shall be taken, while they are carrying eggs. Evidence of
22 removal of eggs (orange to brown colored mass attached under tail) shall be
23 considered prima facie evidence of violation of this Section of the Regulation.
24 Any sub-legal crab injured due to attempted harvest will be viewed as take.

25

1
2 (Exhibit 5)
3
4

5 (b) **Bag Limit.** No more than fifty (50) individually locally-caught coconut
6 crabs may be sold per year. Coconut crabs must be preserved whole until cooked
7 or frozen.

8 **Section 15314.1. Harvest of Coconut Crab for Personal Use. (a) Size**
9 **Limit and Individuals with Eggs.** For personal use, the harvest of coconut crabs
10 with a carapace with less than three (3) inches is prohibited (see illustration).

11 Any coconut crab not complying with the minimum size requirements must be
12 released immediately. Any coconut crab in confinement will be considered taken
13 and subject to harvest regulations.

14 No coconut crabs shall be taken, while they are carrying eggs. Evidence of
15 removal of eggs (orange to brown colored mass attached under tail) shall be
16 considered prima facie evidence of violation of this Section of the Regulation.
17 Coconut crabs must be preserved whole until cooked. Any sub-legal crab injured
18 due to attempted harvest will be viewed as take.

19 (b) Shells of coconut crabs taken for personal use shall not be sold, traded
20 or bartered.

21 (c) **Bag Limit.** For personal use purposes, each person is allowed no more
22 than ten (10) individual coconut crabs per day. Coconut crabs must be preserved
23 whole until cooked or frozen.

24
25 **SUBCHAPTER F.**

1 **Freshwater Fishing.**

2 Section 15315.0. Commercial Harvest of Freshwater
3 Gamefish.

4 Section 15315.1. Taking of Freshwater Fauna for
5 Personal Use.

6 **Section 15315. Commercial Harvest of Freshwater Fauna.** The
7 commercial harvest of freshwater fauna is prohibited. This does not include
8 cultivated freshwater fauna from aquaculture facilities.

9 **Section 15315.1. Taking of Freshwater Fauna for Personal Use. (a)**

10 **Licenses.** The Department of Agriculture will issue freshwater fishing licenses
11 at a cost of Fifty Dollars (\$50) per angler for non-indigenous residents wishing to
12 fish in fresh water for one (1) fiscal year (October 1 to September 30). All persons
13 fishing for or in possession of fresh water fauna must be in possession of a valid
14 fresh water fishing license unless they are an indigenous native of Guahan or a
15 spouse or child of an indigenous native of Guahan.

16 For purpose of this act, indigenous native refers to an individual born on
17 Guam on or before 1940, his/her decedents and their spouses.

18 **(b) Bag Limit.** No more than four (4) peacock bass (Tucunare) may be
19 taken into possession per day. No peacock bass less than ten (10) inches in length
20 may be taken. Peacock bass must be kept whole until cooked or frozen and may
21 not be impaled. Tilapia, catfish, prawns and freshwater eels are considered non-
22 game fish and can be harvested without limit all year.

23 **(c) Gear.** (1) Take of peacock bass shall be limited to hook and line fishing
24 techniques, includes, but is not limited to, use of fishing rods and poles. It shall
25 be

1 unlawful to puncture, impale or spear any peacock bass. Any peacock bass
2 which does not meet the minimum size requirements must be released
3 immediately. If undersized gamefish are hooked in such a way that the hook can
4 not be removed without killing the fish, the line must be cut as close to the hook
5 as is possible and the fish released. Any peacock bass in confinement will be
6 considered taken and subject to harvest regulations. Upon take, peacock bass are
7 not to be impaled for confinement, stringers are prohibited.

8 (2) Except as authorized herein, the use of nets is prohibited in take of any
9 freshwater fauna. A landing net with a handle may be used to net a fish already
10 hooked while fishing. The diameter of the opening on the landing net shall not
11 exceed two (2) feet or four (4) square feet. A handled dip net with a handle and
12 opening not to exceed one (1) foot in diameter or one (1) square foot may be used
13 to take up to one hundred (100) freshwater animals less than three (3) inches in
14 length (non-gamefish) per day,

15 (3) Capture of peacock bass by traps is prohibited. Traps may be used to
16 take non-gamefish, but must not be left unattended more than twelve (12) hours,
17 nor exceed a volume of twenty (20) cubic feet in size. Any peacock bass caught
18 in traps must be released. The use of traps requires a valid fishing license.

19 (4) Peacock bass can only be taken by a single, hand-held hook and line per
20 fisherman, Multiple-line fishing for gamefish is prohibited. Only one (1) baited
21 hook per line or one (1) artificial lure, which may have up to three (3) barbs
22 originating at a common shaft, may be used.

23 (5) All fishing gear other than traps must be attended to at all times.
24

25 Section _____. The Department of Agriculture shall establish in accordance

1 with the Administrative Adjudication Law a schedule of fines, fees, and penalties
2 and appeals process related to specific violations of Title 16 of the Administrative
3 Rules and Regulations.

4 SUBCHAPTER H.

5 Implementation.

6 Section 15317.0. Timeframe and Implementation

7 8 Section 13517.0. Timeframe and Implementation. Effective Date. (a)

9 This Law shall go into effect eight (8) months after enactment. During that initial
10 eight (8) month period, the Director of Agriculture shall educate the public about
11 the new law and generally prepare for implementation. Education of the public
12 shall include the provision of educational materials to village mayors and
13 conducting village aquatic presentations of information on the new regulations.

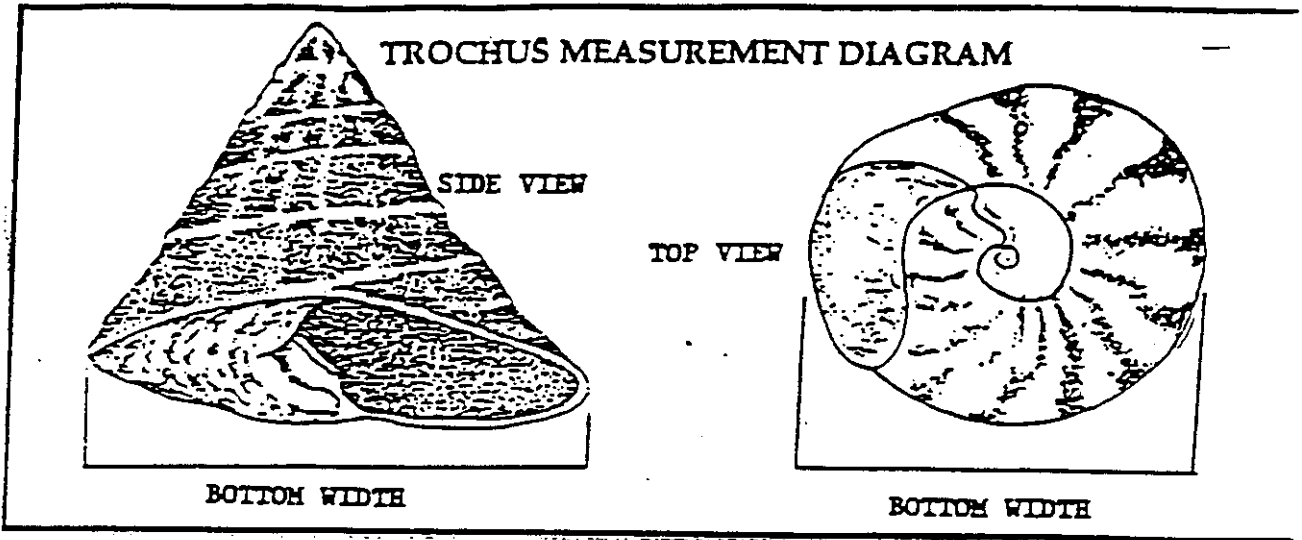
14 (1) During this period, the Director shall create and place at the
15 appropriate locations, signs designed to define the locations and restrictions of
16 the Marine Preserves.

17 (b) During the six (6) months immediately following the aforementioned
18 preparatory period of eight (8) months, the Director shall issue only written
19 warnings to first offenders who violate provisions of law regarding Marine
20 Preserves. The Director shall record the names and addresses of first offenders.
21 Persons who commit a second offense during this six (6) month period shall be
22 subject to the penalties allowed as described herein.

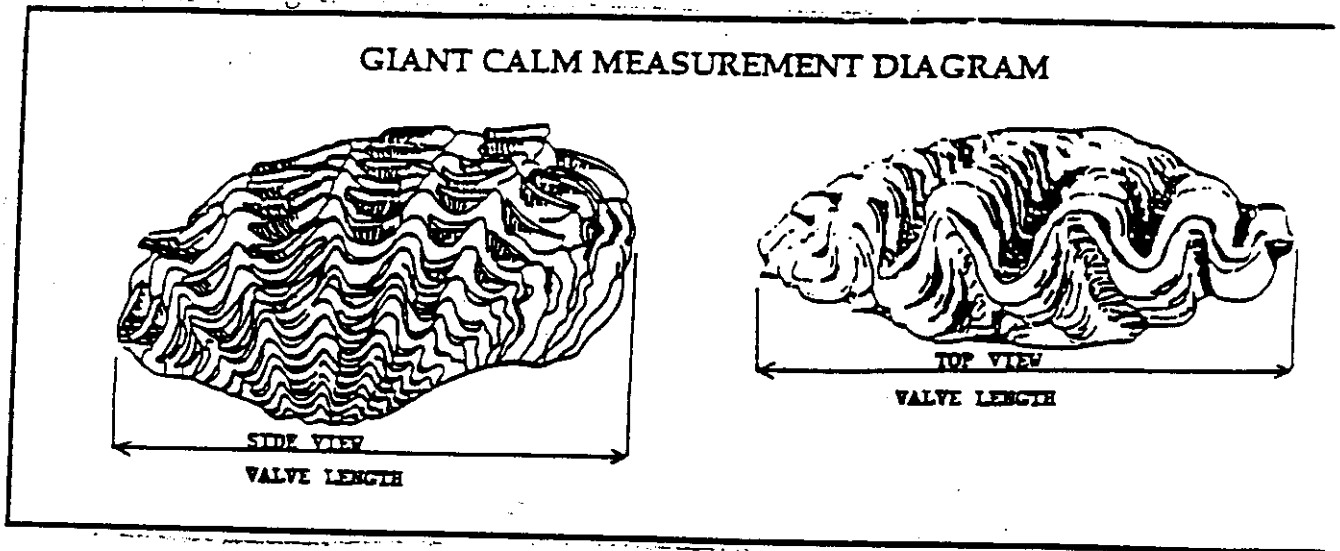
23 (c) When the six (6) month period described above ends, the Director and
24 other law enforcement officials shall enforce the law as mandated herein.

25 (d) The Department of Agriculture shall submit an assessment report to

1 the Guam Legislature to determine the success of the Marine Preserves two (2)
2 years after the effective date of the enactment of this Law for public review.”
3

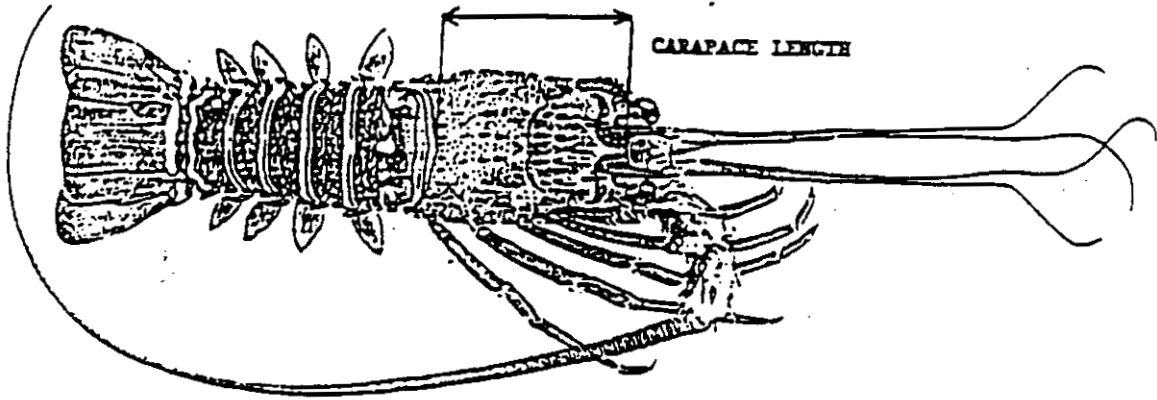


(Exhibit 1)



(Exhibit 2)

SPINY LOBSTER MEASUREMENT DIAGRAM



(Exhibit 3)

CRAB MEASUREMENT DIAGRAM



CARAPACE WIDTH



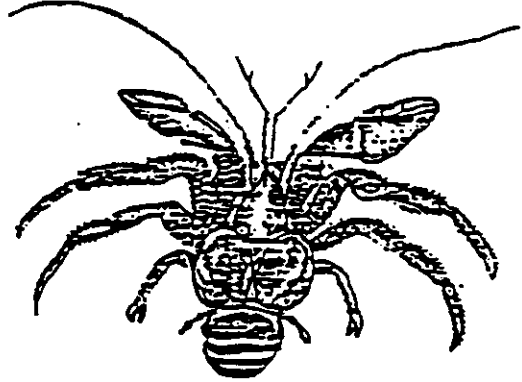
CRAB

(Exhibit 4)

COCONUT CRAB MEASUREMENT DIAGRAM



CARAPACE WIDTH



COCONUT CRAB

(Exhibit 5)

PL 24-21



Office of Senator
Joanne M. Salas Brown
Twenty-Fourth Guam Legislature

April 14, 1997

Honorable Antonio R. Unpingco
Speaker
Twenty-Fourth Guam Legislature
155 Hesler Street
Agana, Guam 96910

Dear Mr. Speaker:

The Committee on Natural Resources, to which the following was referred, wishes to report their findings and recommendations:

Bill 49: An Act to Establish Rules and Regulations for the Control of Fisheries by the Department of Agriculture

The Committee's voting record on Bill 49 is as follows:

To Do Pass	<u>10</u>
Not To Pass	<u>1</u>
To Abstain	<u>0</u>
To Place in the Inactive File	<u>0</u>
Not Voting	<u>0</u>

The recommendation of the Committee is To Do Pass. A copy of the voting sheet, report and all pertinent documents are enclosed for your information.

Sincerely,

JOANNE M. SALAS BROWN
Chairperson
Committee on Natural Resources

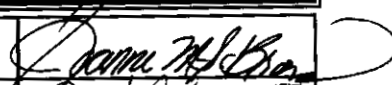


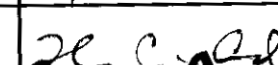
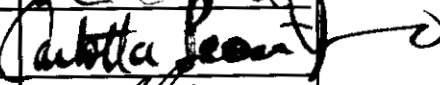
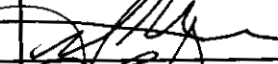


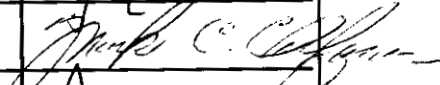
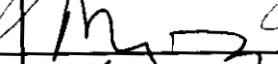
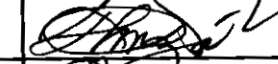

Enclosures

COMMITTEE ON NATURAL RESOURCES

Joanne M. Salas Brown
Chairperson

VOTING SHEET

Bill 49: An Act to Establish Rules and Regulations for the Control of Fisheries by the Department of Agriculture

Committee Members	To Do Pass	Not to Pass	Abstain	To Place in Inactive File	Signature
Joanne M.S. Brown Chairperson	✓				
Tony Lamorena Vice Chairman	✓				
E. Barrett-Anderson Member	✓				
Tom Ada Member	✓				
C. Leon Guerrero Member	✓				
Mark Forbes Member	✓				
Francis Santos Member	✓				
M. Charfauros Member		✓			
Anthony Blaz Member	✓				
J. WonPat-Borja Member	✓				
A.R. Unpingco Speaker Ex-Officio Member	✓				

COMMITTEE ON NATURAL RESOURCES

MARK-UP MEETING

26 March 1997

SUMMARY

Bill No. 49

**AN ACT TO ESTABLISH RULES AND REGULATIONS FOR THE CONTROL OF
FISHERIES BY THE DEPARTMENT OF AGRICULTURE**

The Committee on Natural Resources chaired by Senator Joanne M. Brown held a Mark-Up meeting on Wednesday, 26 March 1997, 2:00 p.m. in the Public Hearing Room.

In attendance were:

- Senator Joanne M. Brown
- Senator Tony Lamorena
- Senator Frank B. Aguon, Jr.
- Mr. Rufo Lujan
- Dr. Robert Richmond
- Dr. Sandra Romano
- Dr. Stevens Amesbury
- Mr. Michael Khulmann
- Mr. Gerry Davis
- Mr. Manuel Duenas
- Mr. James Cruz

The following is a summary of the mark-up meeting which addresses the issues and concerns raised in the Public Hearing of 26 February 1997.

- Definition of Commercial Fisherman
- Marine Preserves/Enforcement
- Education/Public Awareness
- Add New Section on "Timeframe"

(1) **Definition of the "commercial fisherman"** to the Rules and Regs was not carried out when Mr. Gerry Davis explained the risk involved by wanting to change the definition. The Department of Agriculture does charter fishermen and anytime that money is generated from the sale of their catch, it is deposited into a recreational fund. The fund is used to procure recreational components such as ramps, piers, and pads. By changing the definition to commercial fisherman, they would be eliminated from the recreational pool.

(2) **Marine Preserves and Enforcement** a request that only three out of the six sites identified be preserved. Concern of the Fisherman's Coop was with regards to the parameters (limit or the boundaries) set as to the provisions of the legislation. At present, the parameters is 200 yards from the reef margin. (Senator Brown requested Mr. Gerry Davis to meet with the Fishermen's Coop to further discuss and come to terms on parameters.

(3) **Education and Public Awareness.** Senator Joanne Brown requested that the Department of Agriculture develop an educational/public awareness program so that the public, including the school children be informed as to why we are establishing marine preserves and what the objective is.

(3) **Timeframe.** A new section will be added to the Rules and Regulations with regards to "Timeframe". Senator Joanne Brown requested that she would like an assessment report provided to the Legislature after the two-year period to see if we are increasing our fish food stock.

Senator Brown requested Mr. Gerry Davis to come up with a summary with regards to the 200 yards from reef margin or 30 feet with the different preserves outlined; provide the committee with a budget for the signs; and give an outline of the language with regards to new section on "timeframe" to take effect in March 31, 1998.

Committee on Natural Resources

Public Hearing

February 26, 1997

10:00 a.m.

Committee Report

Bill No. 49

“An Act to Establish Rules and Regulations for the Control of Fisheries by the Department of Agriculture”

Present were: Senator Joanne M. S. Brown, Chairperson
Senator Alberto Lamorena, Vice-Chairman
Senator Anthony C. Blaz
Senator Mark Charfauros
Senator Judith Won Pat-Borja
Senator Vicente Pangelinan
Senator Frank Aguon, Jr.

Dr. Robert Richmond, Professor of Marine Biology, University of Guam Marine Lab, presented his written testimony in support of Bill No. 49. Dr. Richmond addressed Subchapter B on Marine Preserves. He stated that preserves will aid local fishermen and fishery resources will be available for future generations. He noted that data from other jurisdictions support the concept that overall catch improved following the establishment of marine preserves. Because of limited coastal resources, establishing appropriate regulations and control will be a proactive stance by the Twenty-Fourth Guam Legislature. He concluded by commending the Department of Agriculture's Division of Aquatic and Wildlife Resources for developing sound legislation. (See attached testimony).

Dr. Charles Birkeland, Professor, University of Guam Marine Lab, submitted written testimony in support proposed legislation.(See attached testimony)

Dr. Steven Amesbury, University of Guam Marine Lab, presented his written testimony in support of proposed legislation. (See attached testimony)

Dr. Gustav Paulay, University of Guam Marine Lab, presented his written testimony in support of proposed legislation. (See attached testimony)

Dr. Sandra Romano, University of Guam Marine Lab, presented her written testimony in support of proposed legislation. (See attached testimony)

Michael Khulmann, Director, Department of Agriculture, presented his written testimony in support of proposed legislation. (See attached testimony).

Manuel Duenas, Guam Fishermen's Cooperative Association, presented his testimony in support of proposed legislation. Mr. Duenas elaborated about his reservations on this bill and gave recommendations. A recommendation Mr. Duenas made to utilize the fish hatchery to replenish reef fish instead of concentrating on Tilapia and catfish. Mr. Duenas expressed his concerns of tourists feeding reef fish hotdogs. He felt there should be a policy on this issue. He asked that a moratorium be initiated so the local fishermen can reap the benefits along with the tourists. (See attached testimony).

The Chairperson opened questioning by her fellow colleagues. She continued by ensuring that resources for future generations will be protected by the current legislature. She invited participating individuals to attend the mark-up meeting to discuss revisions and recommendations.

Senator Lamorena stated that he has held preliminary meetings with representatives from the tourism industry in constructing artificial reefs within Tumon Bay and various areas which will become preserves. He expressed his support for the bill and felt that certain areas should be more restrictive.

Senator Aguon shared with the public a project which was undertaken in Hawaii with regards to artificial reefs. This program was in progress for over five (5) years with an increase of fish regeneration of 500 fold. He felt that such a program should be instituted for Guam. He questioned the Department of Agriculture of how many public hearings were held by their department.

Mr. Khulmann responded that there were a total of six hearings; three hearings in one year and three hearings the following year.

Senator Aguon asked the Department of Agriculture about its enforcement capabilities.

Mr. Khulmann responded that the department currently has sixteen (16) conservation officers on staff which will not adequately staff the enforcement of the proposed regulations. He continued by stating that there would be less strain if certain areas were restricted or have a moratorium than to have several areas at different degrees.

Senator Pangelinan inquired if a rotating preserve was considered in drafting these rules and regulations.

Mr. Khulmann referred the inquiry to Mr. Bob Anderson, who is Chief of the Aquatic and Wildlife Division and Gerry Davis of Fisheries Section within the Department of Agriculture.

Bob Anderson stated that six public hearings were held. Revisions were made after each public hearing to reflect the recommendations or concerns brought before them at that time. Rotating preserves were discussed with it being deleted upon the recommendations from the public hearings. He then asked Gerry Davis to address those issues.

Gerry Davis continued by stating that during the public hearings there was a fishermen's group organized and they initially expressed total resistance to the preserve concept. After meeting with this group, a petition was signed by 650 fishermen to remove the four semi-permanent preserves and they would support placement of permanent preserves.

Senator Pangelinan continued his questioning by acknowledging that certain areas were not included on the eastern seaboard because these areas were not accessible because of the climatic changes.

Gerry Davis stated that there is a document which delineates changes made from the original proposal and lists each individual who testified at the hearings. During the second set of hearings, individuals who were against the draft rules and regulations were visited by Mr. Davis and issues were discussed and recommendations were made to resolve these concerns.

Senator Pangelinan questioned a study cited with regards to regeneration being accomplished within a "relatively short time". His inquiry was directed towards Dr. Romano with regards to what is a "relatively short time".

Dr. Sandra Romano responded that this would be a two year time period.

Senator Pangelinan felt that a two year period for fishermen who are totally dependent on this industry is detrimental to their livelihood.

Senator Charfauros agreed that to make these regulations work, enforcement is needed. He continued by stating that rules and regulation can be easily amended. He felt that the rules and regulations be converted into a bill and passed into law would make it more difficult to amend. His concern was protecting preserves established with the enactment of these regulations. He directed his inquiry to the Department of Agriculture with regards to enforcement being readily available.

Mr. Khulmann stated that the department would not have increased capability, but

would have to utilize the sixteen conservation officers. They are required to enforce fishery laws.

Senator Charfauros felt that with limited staff, enforcement could not be done. The senator also brought up the subject of the division not having a boat for their exclusive usage.

Bob Anderson stated that the sixteen (16) conservation officers presently do not have an exclusive boat for usage and do not have an aquatic capability. They work closely with other agencies to utilize their equipment.

Senator Charfauros stated that with these regulations, fees will be levied. He felt that fees generated should be set in an enforcement fund instead of being placed in the General Fund for enforcement purposes.

Bob Anderson stated that fees generated by these rules and regulations would be license fees and would, by present law, be placed in the Department of Agriculture's Conservation Fund. This Fund specifically supports the administration of the Article which these regulations are being proposed. Funds have been used in the past for the purchase of equipment for enforcement purposes.

Senator Charfauros inquired if there were provisions within the regulations to assess tour companies with a set fee.

Gerry Davis stated that these regulations did not incorporate these fees. The regulations only set fees for fishing. Under law, the department is not authorized to set fees for tourist companies.

Senator Charfauros stated that if there are problems with the present law with regards to this issue, the legislative body has the authority to amend this area of concern. Another concern was in regards to fresh water sources. He asked if there is any concerns in this area which needs to be addressed.

Gerry Davis responded by informing the senator that currently there is an in-house project with regards to surface water sources. Because of the locations, it is difficult to reach these locations to get sufficient data. This area is being looked at only for conservation purposes. To date, there is no ability to charge fees for fishing. The draft regulations do not incorporate surface water sources.

Senator Pangelinan inquired about the utilization of public resources, with preserves in place. Would Mr. Davis recommend imposing fees on commercial companies. He felt that fees being levied for fishing should also include tour companies utilizing the same resources.

Gerry Davis responded that with current regulations not covering a fee schedule for licensing of fishing within the marine environment, strictly for fresh water, future regulations could accommodate this need.

Senator Charfauros interjected and asked the Chair if he could call an individual from the public to address the committee. He asked a lady by the name of Paula from the recreational diving community to be seated at the table. He asked Paula if it were feasible or acceptable for diving community to pay a fee for the utilization of the preserves and in turn these fees be earmarked for enforcement activities.

Paula Bent responded that she believes the diving community would support the fees for utilization of the preserves, and would not foresee any problems.

Senator Lamorena supports imposing a fee for divers, etc. He stated that the fee is not necessarily for the purpose of revenues, but for statistic as to people using the resource.

Paula Bent commented that putting this bill forward will only benefit our children and the people of Guam. She also commented on Mr. Duenas' concern about tourist feeding reef fish "hot dogs". She stated they do buy fish and grind it up for fish feeding, but a lack of people knowing what the Fisherman's Coop has to offer is the problem. She suggested that the information be disseminated to the diving industry that such "fish feed" is available. She suggested that people involved get together so that they can put some laws into place.

Senator Brown stated that a lot of good discussion has occurred with Bill No. 49. She continued that they should look into the other issue that Senators Charfauros and Pangelinan brought up with regards to diving fees and bring those people together involved in the diving community to get input as well as experts from the marine lab and aquatic and wildlife. This median can generate revenues through the enforcement of protecting resources.

Paula Bent agreed with Senator Brown's statement. She further stated that the people in the diving industry are very aware of the environment, particularly, the divers, who are very concern about the ocean, the reefs and the fish. They would not mind getting together to pay some kind of a fee to protect the reefs and the diving industry.

Senator Brown stated that there a few issues that would have to be addressed before the bill gets on the floor. She would like Mr. Mike Khulmann and his department to educate the community and promote public awareness of our resources by the time the rules and regulations are implemented.

Senator Won Pat Borja stated that she is not opposed to the ideal of placing fines and fees, but would like to see the fines and fees placed in the area of educating our people and using the money for enforcement. She feels that there is also a need to protect our ferns and fauna. She offered her assistance to the Chairperson in whatever way she can assist in the public hearing.

Senator Brown stated that she will call a mark-up meeting before the bill gets to the floor. She informed those testifying that an invitation will be extended to them to set a time to meet to get additional comments before the bill goes into its final process. She asked if there were any more comments. She informed the public that if anyone wishes to testify, to feel free to send their testimony to her committee in the next couple of weeks so it can be incorporated in the committee report. She thanked everyone for their time.



UNIVERSITY OF GUAM
UNIBETSÉDĀT GUAHAN

MARINE LABORATORY

UOG Station · Mangifao, Guam 96923
Tel: (671) 734-2421 · Fax: (671) 734-6767

26 February 1997

Committee on Natural Resources
Twenty-Fourth Guam Legislature
Agana, Guam

Dear Chairperson Senator J.M.S. Brown and Committee Members:

I am here to testify in support of Bill 49: An Act to Establish Rules and Regulations for the Control of Fisheries by the Department of Agriculture. In particular, I wish to testify on the merits of Subchapter B. Marine Preserves, in taking responsibilities to enhance the fisheries yield of Guam reefs.

The reefs of Guam are being badly managed despite the good efforts of the Division of Aquatic and Wildlife Resources to establish responsible management policies, such as those put forth in Bill 49. The total yearly harvest of reef fishes has decreased by 73%, from 88.5 metric tons in 1985 to 23.9 metric tons in 1996 (Figure 1).* The "catch per unit effort" (CPUE = the amount of fish caught in an hour of fishing) has steadily decreased from 0.69 kg (one and a half pounds) per hour in 1985 to just over a fifth of that amount per hour (0.15 kg = one third of a pound) in 1996 (Figure 2).*

We need reserves to protect the breeding stock and to facilitate the recovery and increase the total yield of Guam's reef fisheries. It has been shown that when 25% of the area of reef is protected from fishing, the total yield almost doubles for the rest of the island. On Apo and Sumilon Islands in the Philippines, the local villages of fishermen and their families were convinced to put the area immediately in front of their villages off-limits to fishing. The yield of the rest of the reefs doubled in less than two years (Figure 3). Experiments in the Caribbean also demonstrate that coral-reef reserves increase the abundance of fishes both inside and outside the area of protection. By reducing mortality from fishing, reserves or sanctuaries provide an area in which a spawning-stock population and even some large individuals are allowed to survive. This substantially increases the spawning potential and genetic variability of the targeted species. Furthermore, undisturbed spawning grounds are also provided. These provide potential long-term maintenance or even enhancement of fisheries yield to

*These data and graphs have been obtained upon request from the Division of Aquatic and Wildlife Resources.

areas outside the reserves. Reproductive output from reserves help replenish fished areas outside the reserves by natural larval dispersal and/or by movements of adult fishes out of the reserves into the less crowded areas.

Most of the reproductive potential of fish populations is in the large individuals. If people could be convinced to harvest medium-sized fishes, they could obtain about 20 times the mass of food from a reef with the same amount of stress on the reproductive potential of the resource (Figure 4). Calculations show that for snappers (*Lutjanus campechanus*), protection of 20% of the area increases egg production by 1200%. The dominant animals on coral reefs, and especially those targeted by fishermen, are characterized by irregular recruitment success, high natural mortality of juveniles, slow growth, low natural adult mortality, postponed first reproduction, increased fecundity with age, sedentary post-settlement life-history stages, long adult life and multiple reproduction. These traits favor postponing reproduction until having grown large, then the reproductive potential increases at a tremendous rate with increase in length. These life-history characteristics make successful reproduction in these populations especially vulnerable to the targeting of large individuals (Figure 4). It is impractical to ask fishermen to harvest only medium-sized fishers, but with clearly marked boundaries, fisheries reserves can protect a breeding stock. If some of the larger fishes roam outside the reserves, then they are fair game for capture.

It is not just the species with larger individuals that are especially vulnerable on coral reefs and that can be favored with breeding-stock protection. For example, the yellowstripe goatfish *Mulloides flavolineatus* is a schooling predator of small, soft-bodied invertebrates in the sand. It reaches sexual maturity within one year after hatching and has a long period of repeated spawnings each year. The local fishermen on Guam probably do not realize that fishing pressure has been drastically reducing the reproductive potential of the goatfish each year over about a seven-year period. By 1991, the reproductive potential of *M. flavolineatus* was only 5% of its unfished potential (Division of Aquatic and Wildlife Resources Report from 1992). By harvesting the larger individuals of even the smaller, more rapidly maturing fishes, a greater portion of the breeding stock is taken than is perceived by the fishermen. Fishery reserves protect against both recruitment overfishing and growth overfishing.

In the Philippines and in the Caribbean, reserves have been found to allow increases in abundances of both targeted and nontargeted species. The reason nontargeted species are also benefitted may be the use of nonselective fishing methods in the nonprotected areas.

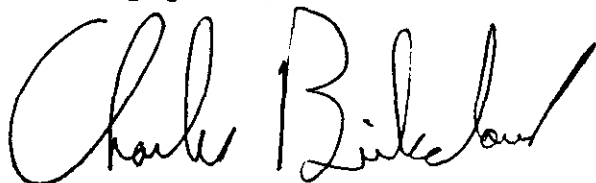
Reserves protect the genetic diversity of targeted fish populations, whereas catch quotas based on optimal yield

calculations do not. The fecundity of fishes increases exponentially with body size; and so in natural populations in low nutrient conditions where predation on larvae and juveniles is intense and successful recruitment is sparse and uncertain, the selective pressure strongly favors large body size, long life, and multiple reproduction. When the species that formerly was top predator and had a refuge in size is now the prey of humans, however, the probability of living long enough to reproduce at a large size becomes small; and the selective pressure strongly favors rapid growth and early reproduction (Figure 5).

It is also not just the territorial or benthic species that are vulnerable to overfishing and benefit from refuges. The motile caesionids, carangids and scombrids decreased by 64% following the breakdown in protection of a reserve in the Philippines. It is possible that a decrease in food-supply made the refuge lose its attraction to the more wide-ranging fishes when protection broke down.

Fishery reserves also have the potential of generating revenue from tourism, providing relatively undisturbed habitats and fish populations for scientific study and educational use. The complex interactions at all levels on coral reefs, the great diversity of species, the life history characteristics of animals adapted to systems with low concentrations of nutrient input, the patchiness of reef populations, and the vagaries of recruitment from the plankton make the reductionist approach in calculating optimal sustainable yields less reliable in preserving breeding stocks than is the holistic approach of establishing refuges. Fishery reserves provide a back-up in case of management failure, they are more readily understood by the public than the limitations imposed by optimal yield calculations, they simplify enforcement, and they affect the users of the fishery more equitably than do more complex regulations. Considering the rates of growth of human populations in coastal regions of the tropics, reserves may be the only practical means of maintaining viable spawning stock populations with any potential of sustaining a fisheries.

Sincerely yours,

A handwritten signature in cursive script that reads "Charles Birkeland". The signature is fluid and somewhat stylized, with a prominent initial "C" and a long, sweeping underline.

Charles Birkeland
Professor

Figure 1. **12-Year Inshore Survey: Total Harvest - Seasonal Catch**

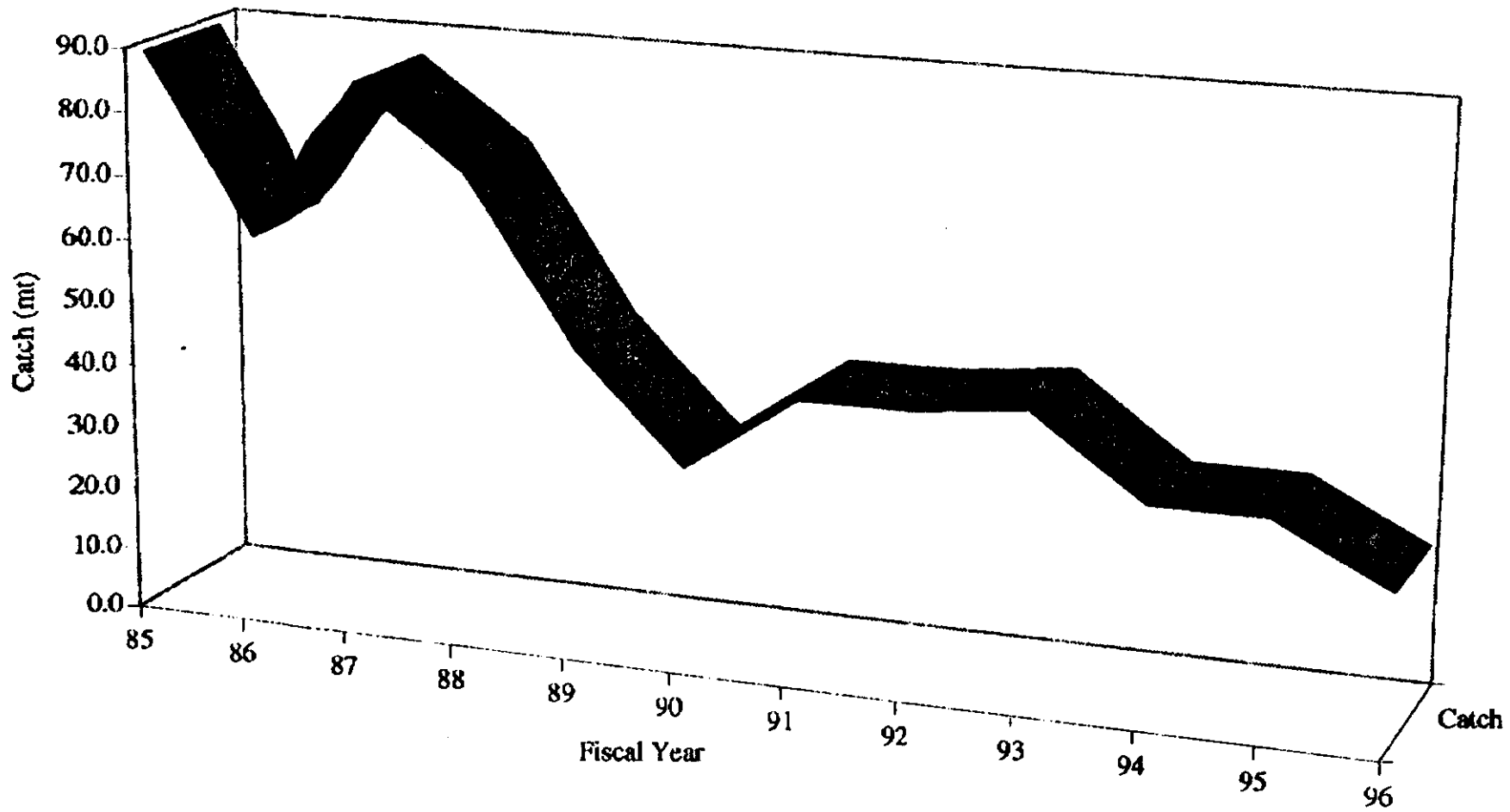


Figure 2. 12-Year Inshore Catch Survey: CPUE (kg/gh)

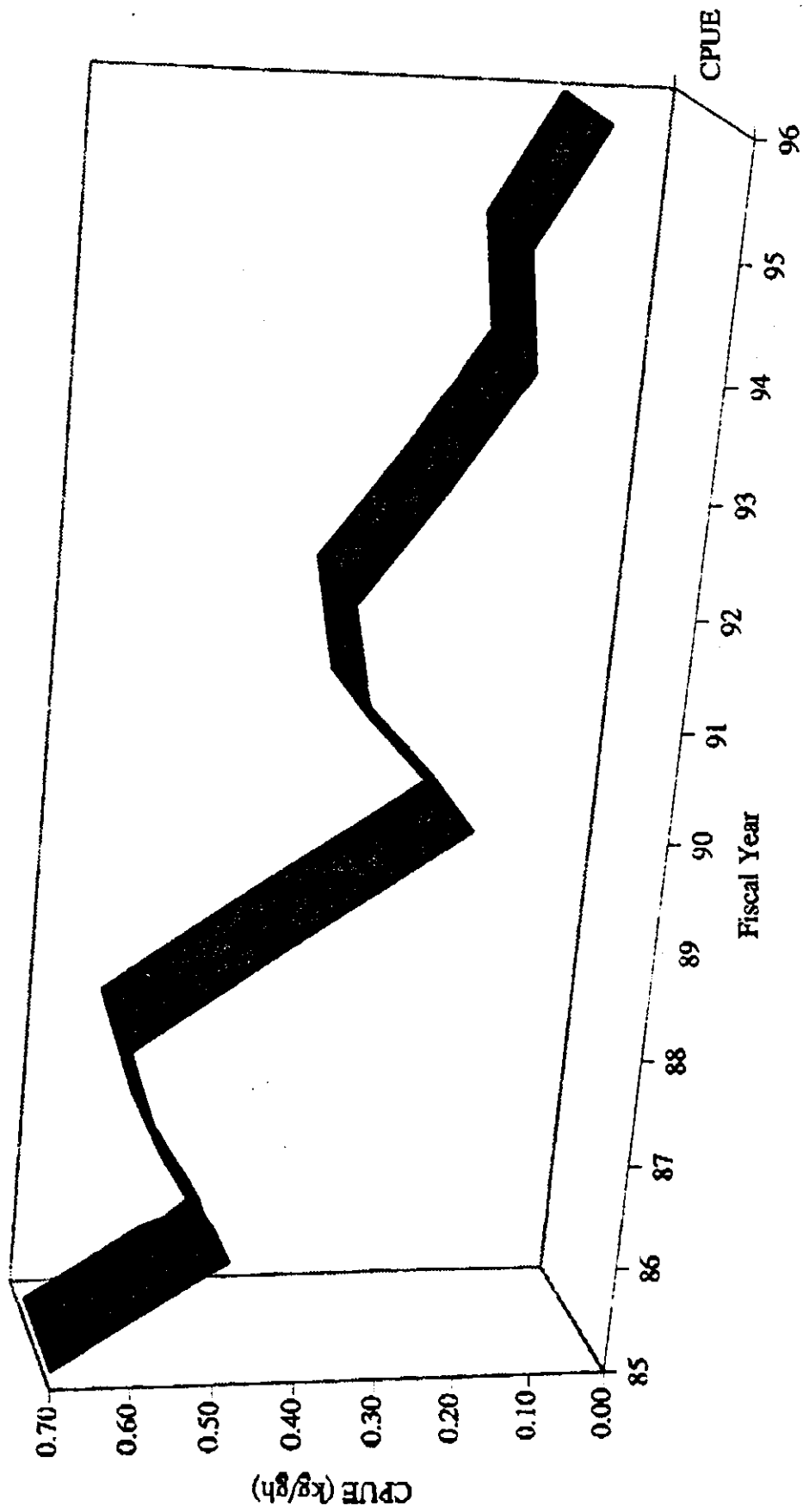
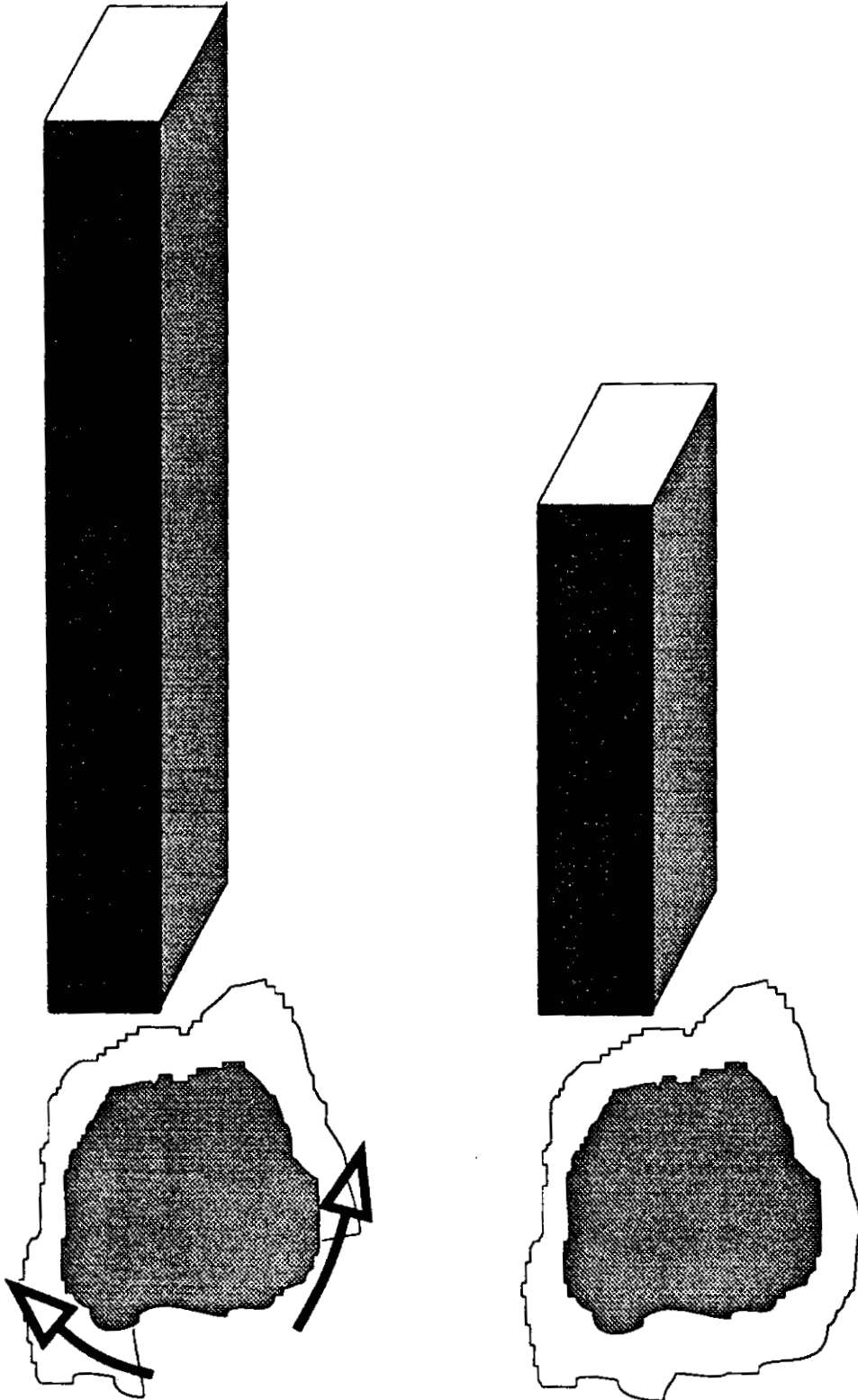


Figure 3. Fishery yield on the reefs around Sumilon Island in the Philippines was nearly doubled within two years in the late 1980s when 25% of the reef was protected from fishing.

Yield of Reef Fishes

20 metric tons / km²



75 % reef fished

100 % reef fished

Figure 4.

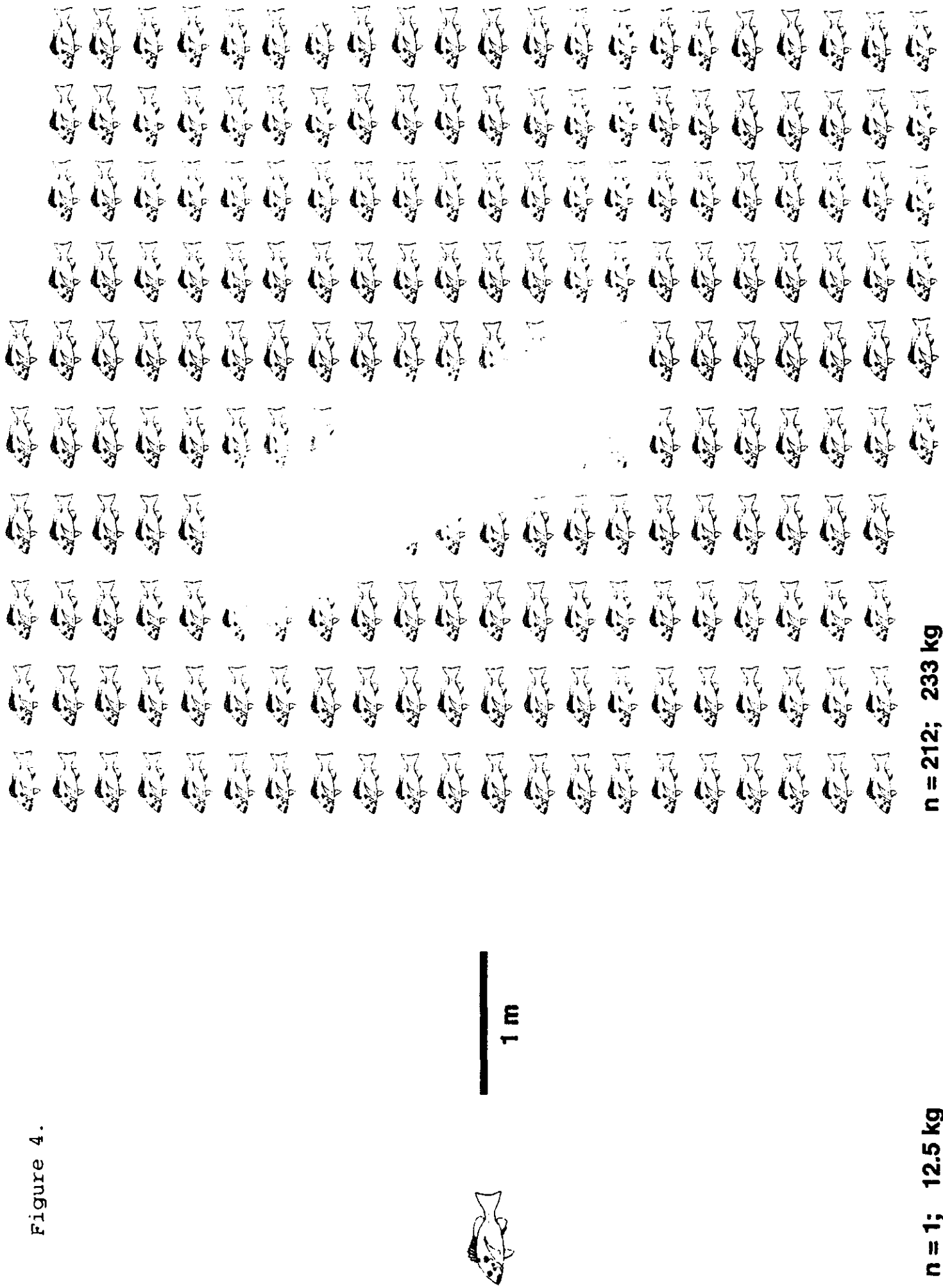
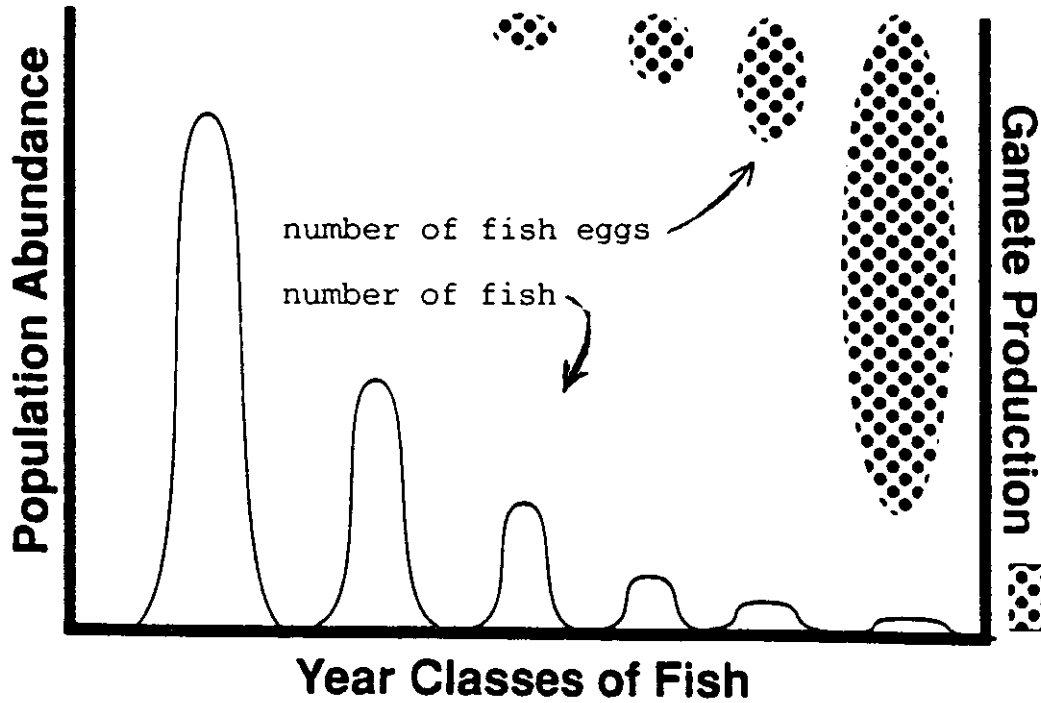
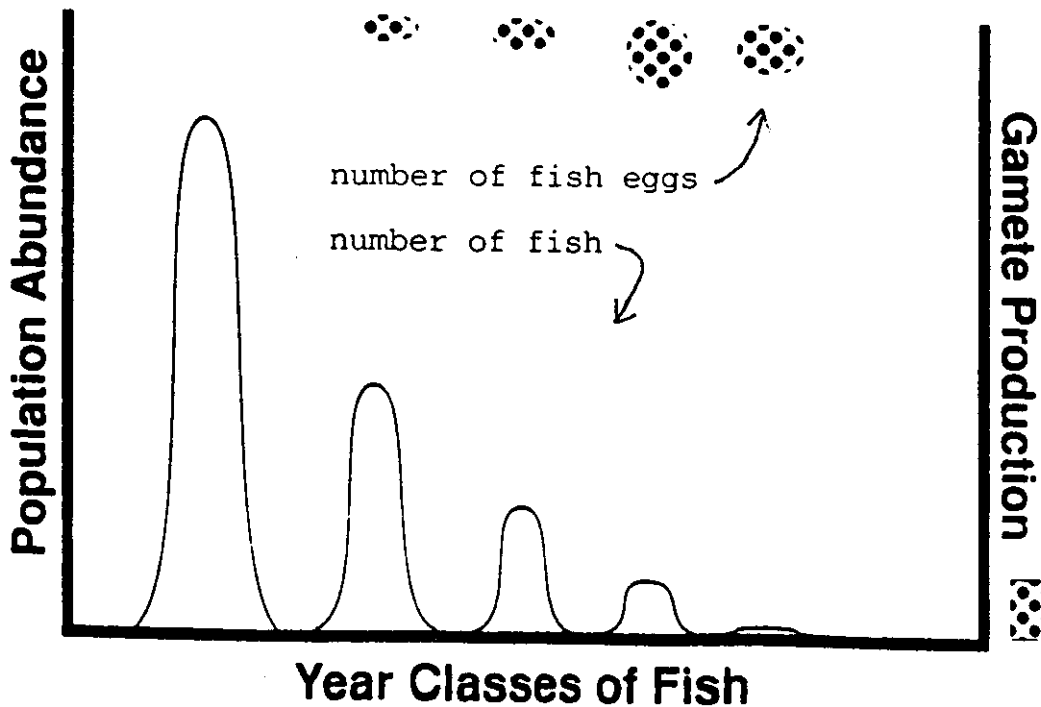


Figure 3. There is strong selective advantage for a top predator to grow large because egg production increases exponentially with body size. When the top predator becomes prey to humans, selection favors early reproduction. Reserves protect the genetic diversity of populations.

Natural Selection on Top Predator



Selection When Top Predator Is Now Prey



**FISCAL NOTE
BUREAU OF BUDGET AND MANAGEMENT RESEARCH**

Bill No. 49
Amendatory Bill: YES _____ NO X

Date Received - March 05, 1997
Date Reviewed - March 12, 1997

Department/Agency Affected: Department of Agriculture
Department/Agency Head: M. Kuhlman, Director
Total FY appropriation to Date: \$3,353,457 (General Fund)

Bill Title (preamble): AN ACT TO ESTABLISH RULES AND REGULATIONS FOR THE CONTROL OF FISHERIES BY THE DEPARTMENT OF AGRICULTURE.

Change in Law: N/A

Bill's Impact on Present Program Funding:

Increase _____ Decrease _____ Reallocation _____ No Change X
Bill is for: Operations X Capital Improvement _____ Other _____

FINANCIAL/PROGRAM IMPACT

ESTIMATED SINGLE-YEAR FUND REQUIREMENTS (Per Bill)

PROGRAM CATEGORY	GENERAL FUND	OTHER	TOTAL
<u>Natural Resources, Rec./Arts</u>	<u>See Footnote</u>	_____	_____

ESTIMATED MULTI-YEAR FUND REQUIREMENTS (Per Bill)

FUND	1st	2nd	3rd	4th	5th	TOTAL
GEN. FUND	See Footnote	_____	_____	_____	_____	_____
OTHER	_____	_____	_____	_____	_____	_____
TOTAL	_____	_____	_____	_____	_____	_____

Funds Adequate To Cover Intent Of Bill? YES/NO - If No, Add'l Amount Required: N/A
Agency/Person/Date Contacted: Agriculture/ Toni Santos, Admin. Svcs. Officer/ March 12, 1997.

ESTIMATED POTENTIAL MULTI-YEAR REVENUES

FUND	1st	2nd	3rd	4th	5th	TOTAL
GEN. FUND	See Footnote	_____	_____	_____	_____	_____
OTHER	_____	_____	_____	_____	_____	_____
TOTAL	_____	_____	_____	_____	_____	_____

ANALYST: Rajiv Sood DATE: 3/12/97 3/7/14 DIRECTOR: Joseph L. Sorensen DATE: MAR 17 1997

FOOTNOTE: While the Bill's language is largely administrative in nature, a fiscal impact may be realized in mandating the need to establish marine preserves. Additionally, mandating licenses, regulation, mapping and the marking of these preserves with signs, will also pose an impact. Although some revenue will be generated through the issuance of licenses and the enforcement of violations, these amounts cannot be determined at this time without sufficient trend data regarding habits related to the conduct of these activities.

**MARINE LABORATORY
UNIVERSITY OF GUAM**

February 25, 1997

Committee on Natural Resources
Twenty-fourth Guam Legislature
Agana, Guam 96910

Dear Ms. Brown, Chairperson, and Members of the Committee:

I am here to provide testimony in favor of Bill 49 "An Act to Establish Rules and Regulations for the Control of Fisheries by the Department of Agriculture."

I would first like to commend the Guam Division of Aquatic and Wildlife Resources, Department of Agriculture, for preparing this document. It updates and clarifies the fisheries regulation of Guam for the benefit of the users of Guam's fishery resources, and it incorporates some new measures and provisions which will guarantee that, over the long term, our children and their children will be able to enjoy those resources.

I would particularly like to single out the provisions establishing and regulating Marine Preserves. As a means of protecting marine resources, marine preserves are increasingly being adopted throughout the world. Marine preserves have numerous advantages:

- 1) Protection is provided for whole marine communities, not just a few selected species. This provides protection for fishery target species as well as other species upon which they may depend for food, habitat, and spawning sites.
- 2) Adjacent areas will benefit by the "spill-over" from protected populations within the preserves, and so should provide better fishing.
- 3) Even more distant parts of Guam's reefs should benefit from the reproductive output of the spawning organisms living within the preserves.
- 4) The preserves are attractions in themselves. Guam's residents and visitors can snorkel and dive in these areas to experience the beauty of thriving and healthy marine communities.
- 5) Management costs for maintaining marine preserves are considerably less than for other management measures (such as catch limits and minimum sizes) which require many hours of effort on the part of highly trained fishery specialists.
- 6) Not only is management less expensive, it is also much more straightforward and realistic than is the case for other management measures which can more easily be evaded.

The sites which are to be designated as marine preserves are well chosen:

a) Tumon Bay and Piti Bomb Holes are important recreational and tourism areas where the attraction of healthy marine communities will provide great economic returns.

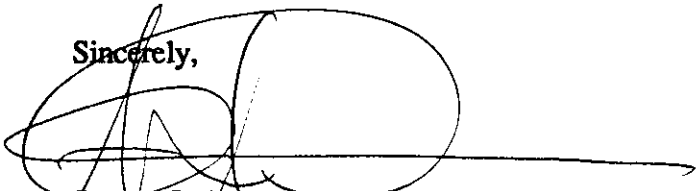
b) Anae Island is a popular dive site. Like Tumon and Piti Bomb Holes, it makes economic sense to protect this area.

c) Sasa Bay and Achang are among the few areas of mangrove habitats on Guam. Mangrove habitats have often been recognized as "nursery areas," locations where fish larvae and juveniles spend their early lives. These would be wise areas to protect.

d) The Pati Point Preserve is along the coastline of Andersen Air Force Base. Because access is restricted, this is a habitat of considerable richness and diversity. It is presently protected by the Air Force, but it would be better protected under the laws of Guam. Future changes in Air Force policy or military downsizing might eliminate the protection currently provided for this area, but this protection would continue if it were protected under Guam's laws.

I support Bill 49 and I appreciate the opportunity to provide these comments.

Sincerely,

A handwritten signature in black ink, appearing to read 'S. Amesbury', written over a horizontal line. The signature is stylized and somewhat illegible.

Steven S. Amesbury
Professor of Marine Biology



UNIVERSITY OF GUAM
UNIBETSEDÁT GUAHAN

MARINE LABORATORY

UOG Station · Mangilao, Guam 96923
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February 25, 1997

Senator Joanne M.S. Brown, Chair
Committee on Natural Resources
Twenty-Fourth Guam Legislature
Agana, Guam

Dear Chairperson Brown and Committee Members,

I am providing the following testimony in support of **Bill No. 49 "An Act to Establish Rules and Regulations for the Control of Fisheries by the Department of Agriculture."** I would like to specifically address **SUBCHAPTER B**, on Marine Preserves.

Marine preserves are proven tools for the enhancement of fishing and fisheries resources. The explanation is very straightforward: the protection afforded to fish and invertebrates by marine preserves allows them to grow to larger sizes, and larger organisms produce a larger number of offspring to replenish populations. Data from other jurisdictions have clearly demonstrated that overall catch improved following the establishment of marine reserves.

The proposed legislation is an important step forward in the protection of resources for sustainable use. Reserves will not only aid today's fishermen, but will ensure that fisheries resources are available for future generations. Coral reefs are particularly susceptible to overfishing, as they function primarily on the recycling of materials rather than the input of nutrients from either coastal upwelling or river discharge. For this reason, reserves are especially important to tropical islands with coral reefs.

The six areas selected for reserve status were well-chosen. They include a variety of habitat types, and locations that will allow for reseeded of stock. The selected preserves will not only support the needs of fishermen, but will also provide an attraction for tourists as well as residents. Similar reserves have worked in the Cayman islands, where divers are guaranteed an exciting experience, while the reproductive output of the protected fish and invertebrates goes to support the activities of fishermen in adjacent areas.

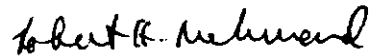
The passage of this legislation would be particularly timely, as 1997 has been declared the "International Year of the Reef." While such legislation exists in a number of other areas, if the proposed bill becomes law in the near future, Guam would be the first or among the first

jurisdictions to pass protective legislation affecting reef resources since the inception of this international event, which commenced this month.

It has been clearly demonstrated that coral reef fisheries cannot support large-scale commercial exploitation. Unlike pelagic fisheries, including tuna, wahoo and mahi, reef resources are easily fished out. Guam's coastal resources are best used to support local use rather than export. By passing Bill 49 establishing appropriate regulations and controls, especially the marine reserves, the Twenty-Fourth Legislature will be taking a proactive stance for the wise use of Guam's limited resources. This can also be seen as a pre-emptive measure, demonstrating Guam's ability to manage her own resources without pressure or decisions from outside sources.

In conclusion, I would like to commend the Guam Department of Agriculture's Division of Aquatic and Wildlife Resources for developing sound legislation, based on accurate information, that will truly serve the interests of the people of Guam, now and in the future.

Respectfully Submitted,



Robert H. Richmond, Ph.D.
Professor of Marine Biology



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February 25, 1997

Senator Joanne M.S. Brown, Chairperson
Committee on Natural Resources
Twenty-fourth Guam Legislature
Agaña, Guam

Dear Chairperson Brown and Committee Members,

I am here to testify in support of Bill. No. 49, "AN ACT TO ESTABLISH RULES AND REGULATIONS FOR THE CONTROL OF FISHERIES BY THE DEPARTMENT OF AGRICULTURE: SUBCHAPTER B. MARINE PRESERVES." I urge you to approve these rules and regulations as I believe they will greatly benefit Guam and its people.

Research by the Division of Aquatic and Wildlife Resources has clearly shown that Guam's coral reef fisheries are suffering from human exploitation and are in a state of decline. If nothing is done to change these trends our valuable coral reef resources will be destroyed. These rules and regulations will play an important role in stopping this destruction. They are a clear statement that the Government of Guam is concerned and willing to actively protect coral reef resources. Guam will be setting a precedent in this International Year of the Reef for government support of coral reef resource protection as it would be one of the first governments to pass such rules and regulations during the International Year of the Reef.

The permanent preserves designated in this bill will provide much needed refuges for the aquatic life living on coral reefs throughout the island. Similar preserves have been created in other places throughout the world with great success. These preserves have been found to provide refuges for growth and recruitment of marine organisms. That is, they protect organisms from capture allowing them to grow large and become reproductively mature. The reproductive output of these mature animals enhances populations within the preserve as well as outside of the preserve. Preserves also provide refuges for recruitment by providing an undisturbed area where new recruits from outside the preserve can settle and thrive.

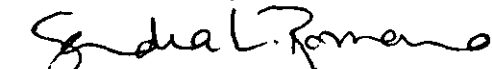
In Hawaii, both permanent and revolving preserves are in place. In permanent preserves such as Hanauma Bay, where any kind of harvesting of aquatic life is prohibited, the increase in aquatic life has been dramatic. Hanauma Bay is now an extremely popular tourist destination. Because it is protected, the great diversity of aquatic life there makes it an ideal place for people to experience the underwater world firsthand. The benefits to the tourist economy as a result are important. In other areas, such as Mamala Bay between Diamond Head and Waikiki, preserves are protected in alternate years. Even this relatively modest protection has been found to enhance the aquatic life in that area and adjacent areas.

In the Philippines, permanent preserves have also been found to enhance stocks of aquatic life. At Sumilon Island, where 25% of the coral reef was protected from 1974 to 1984 and then again from 1988 on, it was found that both catch per unit effort and total harvest, for the reef as a whole, increased significantly when the preserve was in place. It was found that the size and the density of fish increased in the preserve. However, these larger fish were found to move to the non-preserve area, increasing the fish harvest in the non-preserve area. Similar results were found at Apo Island in the Philippines. Permanent preserves at Apo Island were initially opposed by local peoples who had traditionally fished these areas. However, in a relatively short time, the local people saw an enhanced harvest in non-preserve areas and became active supporters and protectors of the preserves.

Other countries in the world with valuable coral reef resources have seen fit to provide some kind of protection for these resources. Perhaps the best example of this kind of protection is in Australia where the Great Barrier Reef has been divided into zones for different uses. Many island states in the Caribbean provide protection for their coral reef resources. While initially there may be some economic loss from the cessation of commercial exploitation of coral reef resources, the benefits from protecting coral reef resources for renewable and sustainable usage outweigh these losses in the end. It has been found that curtailing commercial fisheries for the protection of coral reef resources leads to other economic benefits such as those from tourism. Perhaps more importantly, our coral reefs provide other than just economic benefits- they protect our islands from storms and typhoons, and they are an important part of the cultural heritage of Guam. It is essential that our coral reefs be protected so that many generations to come will be able to make a living and enjoy life on Guam.

I thank you for this opportunity to testify in behalf of Bill No. 49.

Yours Sincerely,



Sandra L. Romano, PhD
Research Associate



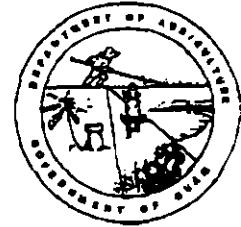
Carl T. C. Gutierrez
Governor

Madeleine Z. Bordallo
Lt. Governor

Department of Agriculture Dipattamenton Agrikottura

192 Dairy Road, Mangilao, Guam 96923

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Animal Health	734-3940
Aquatic & Wildlife Resources	735-3955/56; Fax 734-6570
Forestry & Soil Resources	735-3949/50; Fax 734-0111
Plant Nursery	734-3949
Plant Protection & Quarantine	472-1651; 477-7822



Michael W. Kuhlmann
Director

Joseph G. Sablan
Deputy Director

TESTIMONY OF
DIRECTOR OF AGRICULTURE MICHAEL W. KUHLMANN
BEFORE THE
NATURAL RESOURCES COMMITTEE
FEBRUARY 26, 1997

ON BILL NO. 49

MADAM CHAIR, I am pleased to present to the committee today the results of more than three years of work on rules and regulations to provide revitalization of island inshore fish stocks while reasonably accommodating island fishermen and ecotourism.

There is little disagreement that the number of inshore fish has been seriously decreasing over several years and continues to do so. There is less agreement about the cause, or causes. Each type of fishermen blames the others. Local fishermen blame fishermen arriving from other islands. All fishermen blame pollution and land erosion sedimentation, which also is negatively affecting the reefs and coral.

The actual answer is all of the above. The aggregate effects of all these conditions has caused serious depletion of this natural resource. Certain species which were plentiful only a few years ago are uncommon now, possibly near the brink of being threatened or endangered.

Also contributing to the problem is the common practice of taking fish no matter how small, instead of allowing them to reach reproduction age so there is perpetuation of their existence.

This developing condition has been scientifically, systematically monitored and recorded for years. There is little question about the situation and trend and knowledge is not based just on apocryphal reports, although the constant program of creel surveys, interviewing fishermen, supports the biological data.

The most disagreement is how to remedy the situation. There is general agreement that something needs to be done, but few people involved want their recreation curtailed. Each advocates implementing solutions in someone else's fishing area. Public



hearings were held and the inputs of many fishermen were taken into account, along with the scientific findings.

The primary resulting feature is that six areas are restricted to nearly no fishing - Tumon Bay; Piti Bomb Holes; Sasa Bay, in Piti; Anae Reef, in Agat; Achang Reef Flat, in Merizo; and Patti Point, at Andersen Air Force Base. These are the most appropriate areas for preserves where fish can multiply. Individual fishermen tend to think of their usual areas as separate, but, in fact, the entire island is a single fishery of many habitats.

Other limitations include minimum sizes for lobsters, crabs and clams; outlawing commercial use of gill nets; limiting surround nets to six hours; and prohibiting fishing by dredging.

MADAM CHAIR, the choice is clear-cut: practicing some moderation and restraint now or soon having no traditional fishing to pass on. Basically, the situation for the important island fish resource is: continue to overuse it, lose it.

Fortunately, timely action can avoid the dire conditions of other island species which have reached the state of being endangered or extinct. Agriculture has some mixed emotions in proposing these rules and regulations. Much of our efforts are directed toward greater utilization of Guam's natural bounty by more people. In presenting these moderate proposals, however, the department advocates responsible long-term preservation of this natural resource for future generations through short-term conservation.

Thank you.

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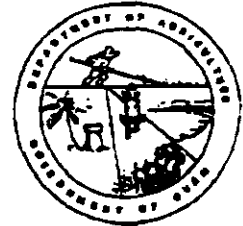
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Michael W. Kuhlmann
Director

Joseph G. Sablan
Deputy Director

TESTIMONY OF
DIRECTOR OF AGRICULTURE MICHAEL W. KUHLMANN
BEFORE THE
NATURAL RESOURCES COMMITTEE
FEBRUARY 26, 1997

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25 February 1997

TO: Senator Joanne Brown, Chair, & Committee Members
Committee on Natural Resources
24th Guam Legislature

FROM: Gustav Paulay, Ph.D., UOG Marine Lab

RE: Support for Bill No. 49: "An Act to Establish Rules and Regulations for the Control of Fisheries by the Department of Agriculture"

Dear Chairperson Brown and Committee Members,

I am a marine biologist at the UOG Marine Laboratory specializing on reef ecology and marine invertebrates. I am writing in support of Bill No. 49: "An Act to Establish Rules and Regulations for the Control of Fisheries by the Department of Agriculture".

Our reefs present a precious resource both for fisheries as well as for tourism. Healthy reefs hold more fish and are more attractive to tourists; managing reefs well is therefore a benefit for both fisheries and tourism.

The Department of Agriculture's proposal to establish permanent reef reserves on Guam is particularly to be commended. Such reserves enhance fishery production for the island as a whole and improve reef health overall, thus increasing the reef's appeal to divers. Specifically, two major benefits of such reserves are:

1) Increased recruitment of marine life. The recruitment (settlement of young individuals on the reef) of corals on Guam is limited. Studies done at the Marine Lab have shown that there are few coral larvae in the water around Guam, thus the chances for recovery of our degraded reefs are limited by the availability of young coral larvae to take up residence on the reefs. This limitation is largely the result of a limited abundance of parent corals on Guam: the majority of reefs around the island have less than 5% coral cover. Having few corals means having few coral babies available for recruitment. Although I am not familiar with fish recruitment patterns around Guam, the same problem should also apply to fish (as well as other marine life): few adult fish spawn few eggs, thus fish recruitment is also likely limited. Less fish recruitment means there are fewer fish that can be harvested once the fish are grown.

By providing a protected area for fish, coral and other marine life, the abundance and size of these marine organisms should increase dramatically within those reserves (see 2) also below). This in

turn will lead to an increase in the reproductive output of each of these organisms. More large fish produce more fish eggs, more young fish, and eventually a greater yield in fishery. More coral cover leads to more coral eggs, greater settlement of young coral, and greater coral growth everywhere. The reserves will thus lead to an increased supply of recruits for the rest of the island's reefs.

2) Healthy reefs. One of the greatest problems afflicting Guam's reefs today is a prodigious growth of seaweed. Seaweed compete with coral, overgrowing and smothering, especially the newly settled, small, coral colonies. Reefs with heavy seaweed growth lose much of their coral cover, and consequently become poor habitat for fish and other marine life. They are not healthy reefs and also have a minimal appeal for divers. Most of Guam's reef below a depth of 20 feet have less than 5% coral cover, a low abundance of coral caused in part by competition with the abundant seaweed present there. The two most important causes of strong seaweed growth are nutrient enrichment (such as from soil runoff and sewage) and the removal of herbivorous (vegetarian) fishes from the area. Both problems are clearly prevalent on Guam, and herbivorous fish are strikingly uncommon on many reefs that sport a real dense "meadow" of seaweeds. Such meadows are uncommon or absent on healthy reefs at depths below a few feet. Such reefs have an abundance of herbivorous fish, which remove seaweed and thus help corals settle and grow.

The proposed reserves should lead to a marked increase in herbivorous fish populations within the reserve, as well as a smaller increase of herbivorous fish populations around the island (see 1) above). This should help push the balance in favor of corals instead of algae, especially within the reserves. As a consequence coral cover should increase, which in turn will 1) provide better habitat for fish and other marine life and lead to a further increase in fish abundance, 2) make for a more attractive dive sites, and 3) provide a larger coral population which can spawn recruits into other areas.



GUAM FISHERMEN'S COOPERATIVE ASSOCIATION

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March 5, 1997

Senator Joanne M.S. Brown
Chair, Committee on Natural Resources
Guam Legislature
Agana, Guam

Dear Senator Brown,

The Guam Fishermen's Cooperative Association represents over 130 fishermen and their families as well as countless other indigenous residents of our Island all with vested interest throughout the Island. We are directly responsible for the receiving and processing approximately 80% of the local marine fauna. Therefore, we recommend to your Committee the following based on testimony given by the various Marine Experts at the Feb. 26, 1997 public hearing:

1) The areas identified on Bill 49 as Marine Preserves should be amended and **approve these three sites, which are:**

Tumon Bay between Two Lovers Point and the northeast tip of Hospital Point following the contour of the reef margin to a depth of thirty feet.

- The area identified by the Bill includes the contour of a popular **pelagic fishing area**. This area is actively used by the boating community for the trolling of wahoo and mahi-mahi.
- This area is also **un-enforceable** due to the Department of Agriculture's lack of equipment and manpower, thus violations are sure to occur also limiting the financial impact these preserves will have on the government's already poor financial posture.
- This area is currently used as a last-resort fishing area in the event of poor weather conditions. Whereby, limited bottom fishing occurs, as a point in fact, the charter boat industry actively promotes a **tag and release program** for this type of activity.

Piti Bomb Holes from the northeast tip of the Piti channel entrance to Camel Rock following the contour of the outer reef margin to a depth of thirty feet.

Sasa Bay as per description in proposed regulation.

These three sites should provide ample research areas for our Professors at the University of Guam Marine lab. These areas are accessible and can be easily monitored and will not be an additional financial burden for the government. Based on testimony given by these individuals a dramatic increase of fish within these areas could be realized in as little as two years. Therefore, careful documentation should be made of the progress of these areas and a report on these areas be submitted to the legislature by the year 2000. Perhaps then additional preserves could be established and funding feasible. The panel of experts all agreed that changes will occur rapidly therefore such a compromise is fair.

Areas to be deleted:

Anae Reef:

This area is a popular local training area for the local novice fisherman. The area is un-enforceable from shore and would be costly to enforce otherwise.

Achang Reef Flat:

This area is practically controlled by special interest groups and contains no true areas to provide for a refuge for marine fauna. Such designation would protect the area for the commercial usage already in existence and further restrict the areas usage by the locals is unjustifiable.

Pati Point:

This area is already designated a marine preserve by the military and to include it would be an over-lapping of jurisdiction. The area is located at the northeastern most point of Guam and accessible only three months of the year (similar to the rest of our eastern seaboard). Mother nature has created its own way of preserving our resources. This area is sheer cliff and has no real reef where fish could be monitored and a reef margin to serve as a refuge. Lastly, this area is inaccessible and can only be monitored from the cliffline. This would be difficult to enforce and as the law stands confiscation of property by the fisheries people is a great threat to any entering these areas.


2) The restriction on the harvesting of lobster by spear should be applied to commercial harvesting. Non-commercial harvesters may puncture, impale or spear in accordance to size regulation as stated.

3) The permitting requirement for the fresh water areas of our Island is wrong unless the Department of Agriculture intends to use the monies collected to fund a program

to re-stock the island's rivers with fauna. This practice of collecting freshwater fauna by village young and old has been practiced for hundreds of years and many could say it is a dying art or style. This practice should be encouraged and not vice versa. The enforcement of this section is almost impossible and would lead to the punishment of children and young adults for attempting such a long standing traditional practice.

In closing, I have lived on Guam all my life. I have been fortunate enough to be like my fellow islanders practicing certain traditional as well as non-traditional methods of harvesting from our resources. The island's resources should be protected and measures should be taken to ensure the perpetuation of this resource for the benefit of our people. Lastly, the government in enforcing these laws may subject violators with some of the stiffest penalties ever implemented. The penalty is unfair to Bobby boy to have his motorcycle confiscated because he harvested some shrimp while swimming at the river. A more in-depth study should take place and modifications to this type of **ramrod legislation** should be considered especially when the ones it affects the most are deeply concerned as to the ramifications of such legislation. The Guam Fishermen's Cooperative Association supports the intent of this legislation but who is the legislation intended for? The proof will be in the pudding as the marine biologist may have some encouraging news in two years especially if the legislature provides grant money to record such detrimental field data. One must remember that the Philippines with all its islands probably has enough reefs to go around the world a few times. We feel this is a fair compromise and hopes it favors well in your committee. Thank you for this opportunity to voice a local concern.

CO-OPERatively yours,


Manuel P. Duenas II
Pres., GFCA



GUAM FISHERMEN'S COOPERATIVE ASSOCIATION

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February 26, 1997

Good morning Senators,

My name is Manuel Duenas. The Guam Fishermen's Cooperative Association supports the intent of Bill 49 but with a few reservations and offers a few recommendations:

1) We request that the Department of Agriculture solicit participation from the GFCA and include the Association in future discussions regarding fisheries. Also any recommendations made regarding fishing on Guam be sent to the GFCA for review and perhaps some in-put. We recommend a moratorium to replenish our fish stocks and not a total outlawing of fishing in certain areas. Perhaps coordination between the Department of Commerce and the Department of Agriculture in utilizing the fish hatchery for replenishing our indigenous stock is a better activity than raising catfish and talapia for the last ten or so years without significant results.

2) We recommend that a review be made of the current areas of jurisdiction and responsibilities between the Department of Commerce and Agriculture for there seems to be a lack of coordination of either entity for the benefit of our fishermen. Fisheries was placed under the Department of Commerce and the accomplishment was a bigger and great reaping of our natural resources by foreign long lined vessels. The local fisherman must resolve himself to small catches and a poor economy of scale as he/she tries to peddle the catch and compete with the fish caught and sold on Guam by foreign boats, by a foreign crew and foreign owners with special facilities at the Port and special fuel prices far below the lowest available to the local fisherman: **but who cares about OUR FISHERMEN.**

3) Add under subchapter A-1 Definitions:

9-A "Commercial Fisherman" is defined as one who takes or captures any aquatic life within the territorial boundaries of our island for commercial use.

Add under definitions 30 Longline: "or vertically" between horizontally/by.

4) Why all the fees and what are these fees for?

In closing, I have been the President of the Guam Fishermen's Cooperative Association for over two years and I have truly seen enough of the Government's support. I certainly hope that this Government or should I say, **OUR** Government realize that for it is the people of Guam that has put their hard earned money and sweat into the economy of this Island: and not the Johnnies come lately as seen in the past soon prove to become the Johnnies begone.

**MARINE LABORATORY
UNIVERSITY OF GUAM**

February 25, 1997

Committee on Natural Resources
Twenty-fourth Guam Legislature
Agana, Guam 96910

Dear Ms. Brown, Chairperson, and Members of the Committee:

I am here to provide testimony in favor of Bill 49 "An Act to Establish Rules and Regulations for the Control of Fisheries by the Department of Agriculture."

I would first like to commend the Guam Division of Aquatic and Wildlife Resources, Department of Agriculture, for preparing this document. It updates and clarifies the fisheries regulation of Guam for the benefit of the users of Guam's fishery resources, and it incorporates some new measures and provisions which will guarantee that, over the long term, our children and their children will be able to enjoy those resources.

I would particularly like to single out the provisions establishing and regulating Marine Preserves. As a means of protecting marine resources, marine preserves are increasingly being adopted throughout the world. Marine preserves have numerous advantages:

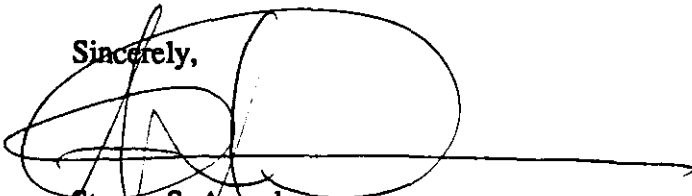
- 1) Protection is provided for whole marine communities, not just a few selected species. This provides protection for fishery target species as well as other species upon which they may depend for food, habitat, and spawning sites.
- 2) Adjacent areas will benefit by the "spill-over" from protected populations within the preserves, and so should provide better fishing.
- 3) Even more distant parts of Guam's reefs should benefit from the reproductive output of the spawning organisms living within the preserves.
- 4) The preserves are attractions in themselves. Guam's residents and visitors can snorkel and dive in these areas to experience the beauty of thriving and healthy marine communities.
- 5) Management costs for maintaining marine preserves are considerably less than for other management measures (such as catch limits and minimum sizes) which require many hours of effort on the part of highly trained fishery specialists.
- 6) Not only is management less expensive, it is also much more straightforward and realistic than is the case for other management measures which can more easily be evaded.

The sites which are to be designated as marine preserves are well chosen:

- a) Tumon Bay and Piti Bomb Holes are important recreational and tourism areas where the attraction of healthy marine communities will provide great economic returns.
- b) Anae Island is a popular dive site. Like Tumon and Piti Bomb Holes, it makes economic sense to protect this area.
- c) Sasa Bay and Achang are among the few areas of mangrove habitats on Guam. Mangrove habitats have often been recognized as "nursery areas," locations where fish larvae and juveniles spend their early lives. These would be wise areas to protect.
- d) The Pati Point Preserve is along the coastline of Andersen Air Force Base. Because access is restricted, this is a habitat of considerable richness and diversity. It is presently protected by the Air Force, but it would be better protected under the laws of Guam. Future changes in Air Force policy or military downsizing might eliminate the protection currently provided for this area, but this protection would continue if it were protected under Guam's laws.

I support Bill 49 and I appreciate the opportunity to provide these comments.

Sincerely,

A handwritten signature in black ink, appearing to read 'S. Amesbury', is written over a large, loopy scribble. A long horizontal line extends from the end of the signature to the right.

Steven S. Amesbury
Professor of Marine Biology



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February 25, 1997

Senator Joanne M.S. Brown, Chair
Committee on Natural Resources
Twenty-Fourth Guam Legislature
Agana, Guam

Dear Chairperson Brown and Committee Members,

I am providing the following testimony in support of **Bill No. 49 "An Act to Establish Rules and Regulations for the Control of Fisheries by the Department of Agriculture."** I would like to specifically address **SUBCHAPTER B, on Marine Preserves.**

Marine preserves are proven tools for the enhancement of fishing and fisheries resources. The explanation is very straightforward: the protection afforded to fish and invertebrates by marine preserves allows them to grow to larger sizes, and larger organisms produce a larger number of offspring to replenish populations. Data from other jurisdictions have clearly demonstrated that overall catch improved following the establishment of marine reserves.

The proposed legislation is an important step forward in the protection of resources for sustainable use. Reserves will not only aid today's fishermen, but will ensure that fisheries resources are available for future generations. Coral reefs are particularly susceptible to overfishing, as they function primarily on the recycling of materials rather than the input of nutrients from either coastal upwelling or river discharge. For this reason, reserves are especially important to tropical islands with coral reefs.

The six areas selected for reserve status were well-chosen. They include a variety of habitat types, and locations that will allow for reseeded of stock. The selected preserves will not only support the needs of fishermen, but will also provide an attraction for tourists as well as residents. Similar reserves have worked in the Cayman islands, where divers are guaranteed an exciting experience, while the reproductive output of the protected fish and invertebrates goes to support the activities of fishermen in adjacent areas.

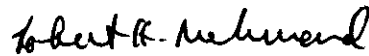
The passage of this legislation would be particularly timely, as 1997 has been declared the "International Year of the Reef." While such legislation exists in a number of other areas, if the proposed bill becomes law in the near future, Guam would be the first or among the first

jurisdictions to pass protective legislation affecting reef resources since the inception of this international event, which commenced this month.

It has been clearly demonstrated that coral reef fisheries cannot support large-scale commercial exploitation. Unlike pelagic fisheries, including tuna, wahoo and mahi, reef resources are easily fished out. Guam's coastal resources are best used to support local use rather than export. By passing Bill 49 establishing appropriate regulations and controls, especially the marine reserves, the Twenty-Fourth Legislature will be taking a proactive stance for the wise use of Guam's limited resources. This can also be seen as a pre-emptive measure, demonstrating Guam's ability to manage her own resources without pressure or decisions from outside sources.

In conclusion, I would like to commend the Guam Department of Agriculture's Division of Aquatic and Wildlife Resources for developing sound legislation, based on accurate information, that will truly serve the interests of the people of Guam, now and in the future.

Respectfully Submitted,



Robert H. Richmond, Ph.D.
Professor of Marine Biology