

# CURRENT LINE

DAR STATEWIDE PROJECT QUARTERLY INFORMATION NEWSLETTER

VOLUME 1, NUMBER 3, July 1997

## RESULTS OF THE 1997 LEGISLATIVE SESSION

The 1997 Legislature has approved half of the increase in budget that the DLNR requested. This amounts to a little over \$900,000 and includes six additional positions for DAR. We would like to extend a BIG MAHALO to all of you who came out and offered your support for this budget increase during this Legislative session. The support you've given us has helped tremendously with this effort and the results are obvious. The increase is not much, but at least we can begin to do more to improve our resources which cannot be effectively managed and sustained with the current understanding of their status and requirements. With this additional knowledge, we can properly apply corrective measures that we know will help. Rules and Management must have a sound biological basis and public understanding to be effective. With this increase, the Legislature has finally begun to recognize and acknowledge the importance of these resources for the well-being of the people of Hawaii and its concern for the future of both.

Again, MAHALO for all your support!

## LICENSES, RULES & REGULATIONS

### TEMPORARY EXTENDED COMMERCIAL FISHERIES LICENSING HOURS



DLNR-DAR is offering extended commercial fisheries licensing hours this summer on Oahu **ONLY**. This limited service provides commercial fishers with the opportunity to obtain or renew a Commercial Marine License. Licensing hours will be extended for 2 hours on the

second and fourth Thursdays during the months of June through August. Normal daily licensing hours are from 8:00 A.M. to 3:30 P.M., Monday through Friday, except holidays at the Kalanimoku Building, 1151 Punchbowl St., Room 131. **Important Reminder:** Be sure to bring a **valid I.D.** such as a **driver's license**, or **state I.D.** Non U.S. citizens must provide the **U.S. Resident Alien card** or **work visa**. For more information contact the Statistical Unit at 587-0109. The extended licensing schedule is as follows:

|         |                |              |
|---------|----------------|--------------|
| 6/26/97 | from 3:30 p.m. | to 5:30 p.m. |
| 7/10/97 | from 3:30 p.m. | to 5:30 p.m. |
| 7/24/97 | from 3:30 p.m. | to 5:30 p.m. |
| 8/14/97 | from 3:30 p.m. | to 5:30 p.m. |
| 8/28/97 | from 3:30 p.m. | to 5:30 p.m. |

### AQUACULTURE FACILITY AND AQUACULTURE DEALER LICENSES



In April, the Department began issuing a new aquaculture facility license to qualified facilities culturing species that would otherwise be unlawful to possess or sell due to closed seasons, minimum size, or bag limits. Because the animals or plants are cultured, the facilities are allowed to have and sell them, despite the closed seasons, minimum size, or bag limit restrictions.

In addition to the facility licenses, the markets that buy these regulated species from the facilities need to have aquaculture dealer licenses. The dealer licenses enable the markets to have and sell regulated species that would otherwise be unlawful, provided the species were cultured in a licensed facility.

It is felt that culturing will reduce the pressure on wild stocks, provide a more steady supply of product for the markets, and encourage a culturing industry to diversify the State's economic base.

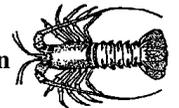
For more information or an application, contact the Aquaculture Development Program at 1177 Alakea St., Rm. 400, Honolulu, HI 96813 or call 587-0030.

### REMINDERS:



**Trout Season** coming up! Open season is from August to September so remember to purchase or renew your freshwater fishing license. Fishing at the Kokee Public Fishing Area is allowed between the hours of 5:30 a.m. and 6:45 p.m. Bag limit is 7 trout per person per day.

### Spiny Lobster Season Slipper Lobster Season & Kona Crab Season



will be **closed** between May 1st thru August 31st. These animals spawn during this time, so let's give them a chance to breed and multiply.

**Moi & Moi-li'i Season** will be **closed** between June 1st and August 31st. These animals spawn during the summer months so let's give them a break to help increase their numbers.

It's summer time and the **Ahi** are running! **Ahi Season** is open all year round, however, remember that minimum size for sale is 3 pounds.

## INSHORE PROJECTS

### KANEOHE BAY TAKO FISHERY



He'e ("tako" or octopus) represent an extremely important component of the Kaneohe commercial fishery, while less than half as much is caught in adjacent coastal areas. This is due in part to the migration of tako into shallow waters of Kaneohe Bay, making them more susceptible to divers using spears. When recreational and subsistence fishing is

taken into account, the tako fishery ranks in the top three for Kaneohe Bay.

Information from a series of shoreline fishing surveys done in 1991 & 1992, was used to describe total inshore landings in Kaneohe Bay. The survey covered only the portion of the Bay enclosed within an imaginary line running from Pyramid Rock on the Mokapu Peninsula to Kualoa Point.

Survey information indicates that tako is one of the principle species fished for in the Bay, making up about 45% to 55% of the estimated annual harvest from Kaneohe Bay by all fishermen. In 1991, an estimate of 25,852 lbs. of tako were caught within Kaneohe Bay by recreational, subsistence, and commercial fishers. In 1992, 34,068 lbs. were estimated caught from the Bay. Reported commercial landings of tako from Kaneohe Bay between 1980 - 1993 averaged 1446 lbs. per year. This means that survey estimates 17 to 24 times more tako was caught by all fishers than were the amount reported commercially - WOW! Clearly, total catch and the portion reported are significantly different!

Species such as tako, caught in shallow reefs in Kaneohe Bay and nearby inshore areas, are also found at offshore depths where they are more difficult to capture. Thus, offshore areas provide a *de facto* refuge from fishing pressure which may play a role in renewing inshore fisheries. It's been observed that tako found near the barrier reef appear smaller than those found further inshore. These smaller tako are probably younger ones that migrate inshore and are attracted to food sources (crabs, etc.) offered by the Bay's estuarine habitat.

The local day tako (*Octopus cyanea*), has a life span of about 12 to 15 months and can weigh up to 14 pounds. Females spawn between 10 to 13 months. As females become sexually mature, they decrease their food intake which slows their growth rate. About two weeks before they lay their eggs, they stop eating almost entirely. After spawning, individuals die in about a month, due to a lack of enzymes necessary for digestion. Even if they were still able to eat, they would be unable to digest their food. Males develop enlarged suckers on cer-

tain areas of the arms when they reach sexual maturity, at which time they become more aggressive. When males develop these enlarged suckers, they do not eat as much and their growth also begins to slow down. Eventually they start to lose weight and die.

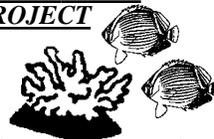
The eggs hatch in about 3 to 5 weeks. Hatching occurs only at night between 11 p.m. and 1 a.m. This may be nature's adaptation to ensure survival of the species since potential predators (e.g. fish) are at minimal numbers during this time.

Local tako may be able to grow to 14 lbs. in weight, but this is largely dependent upon the availability of food. If there is less food available, the tako may reach sexual maturity at a much smaller size. The following table will give you an idea on how fast tako can grow if the conditions are right and there is plenty of food available:

| <i>Weight of tako (lbs.)</i> | <i>Growth (*Weight gain) of tako after 1 month (lbs.)</i> |
|------------------------------|---|
| 1/4 lbs.                     | 1 lbs.  |
| 1/2 lbs.                     | >1 3/4 lbs.   |
| 3/4 lbs.                     | 2 1/2 lbs.  |
| 1 lbs.                       | >3 lbs.   |

*\*For every one pound of food a tako consumes, 1/2 lb. adds to its body weight.*

### **WEST HAWAII CORAL REEF MONITORING PROJECT**



Two types of additional ocean monitoring have begun in West Hawaii, both with the cooperation of the commercial fishing and marine recreation communities. The purpose of these programs is to assess the potential impacts of non-consumptive SCUBA diving and fishing pressure on selected reefs. Both monitoring programs include DLNR-DAR and UH-Hilo personnel, combining expertise in underwater surveys, marine plants and animals, photography, database gathering, statistical analysis, and resource management.

Two monitoring sites have been established so far, and some of you have noticed them already. One focused on corals is in Kealakekua Bay MLCD near

the monument and down along the pali. The other is near "turtle rock" outside Honokohau Harbor. These are in addition to our continuing general fish population counts at West Hawaii locations, including Fishery Management Areas and Marine Life Conservation Districts. The new effort is designed to assess increased impacts on marine resources. Each study site is composed of an "experimental" area of two 50-meter long surveys and a same size "control" area close by, but away from the main activity under study (tour diving, aquarium fish collecting, etc.)

We have installed a 3/8" stainless steel eyebolt at the beginning and end of each survey, so that we look at exactly the same stretch of bottom (and water column) each trip. The eyebolts are glued into holes drilled with compressed air. We stretch a graduated plastic tape out for scale on each 50 meter count. PLEASE KOKUA, do not tamper with the eyebolts and the little floats on leaders; they help give us lots of data with minimum impact on the reef.

We use a combination of photography and visual counts. Photographic slides of corals, for example, are scanned into a computer, giving percentage of cover for different species. Subsequent surveys show condition of the reefs over time and the information is easily recalled.

For more information call the Division of Aquatic Resources on the Big Island at 974-6201 or 885-7891 ... ALOHA.

### **FRESHWATER FISHING /PROJECTS**

#### **CATFISH FISHING AT NUUANU RESERVOIR**



You may have heard that the Board of Water Supply was planning to drain Nuuanu Reservoir after completion of the May opening for catfish fishing. Due to safety reasons, the Reservoir will not be drained at this time. Catfish fishing will be allowed to continue till further notice.

The next opening for catfish fishing is in August 1997. Remember to put in for

your lottery date by filling out the application cards. Cards should be available near the end of June at the **DLNR Visitor Center** in the Kalanimoku Building, Room 131, and also at other licensing agents.

**WAHIWA RESERVOIR**



If you've been driving along Kam Hwy by Schofield Barracks and seen the over abundance of water hyacinth in Lake Wilson, you're not alone! These plants have become a growing problem. Under ideal conditions (high nutrient content, sunlight, etc.) these plants can increase their surface area by 15% per day! We are currently increasing our efforts to control them with herbicide and physically removing them from the Reservoir. If these plants are not brought under control, they will continue to overrun and cover the entire Reservoir. This would cause a chain reaction that would remove oxygen from the Lake and produce a massive fish kill. This in turn would create a potential health hazard for Wahiawa town due to decaying fish. In addition, the overgrowth of water hyacinths causes a navigational hazard.

Again, we are asking you to please help us by removing these plants if you happen to be fishing at Wahiawa Reservoir. By removing these plants from the water and placing them high on the exposed bank areas, the plant will dry up and die. This will help us tremendously with our efforts to bring this problem under control.

**STREAMS: THE MAUKA-MAKAI CONNECTION**



Most people are not aware that Hawaii has some of the most unique freshwater animals in the entire world. These animals inhabit Hawaiian streams and include 5 native fish (known collectively as `o`opu), 2 native shrimp (*opae*), and 2 native snails (*hihiwai* & *hapawai*). Some of these animals are harvested for food from streams that have abundant populations in them. They are most abundant on the windward sides of islands where there is adequate rainfall to supply streams with year-round flow. But populations persist in the upper reaches of some streams on the leeward

sides although there may be no water in the lower reaches for months or years at a time. Because freshwater is a finite resource in Hawaii, these animals are placed in direct competition with man.

Water is commonly diverted from streams for agricultural and irrigational purposes. If too much water is taken, this can lower the flow to the ocean and affect not only the freshwater animals, but our coastal fisheries as well.

Some fisheries are heavily tied to freshwater input from streams. The mauka-makai connection of freshwater and ocean water create areas known as estuaries which are important habitats for certain species (e.g. mullet, moi, nehu, etc.) in addition to serving as ideal nurseries for a variety of juvenile fish species.

Estuaries influence nearby coastal and pelagic waters and studies suggest many species (weke, ulua/papio, tako, crabs, limu, etc.) are migratory and/or seasonal prompted by environmental cues such as seasonal rainfall and temperature changes in the area.

Offshore pelagic and bottomfish fisheries are also linked in various ways to the inshore estuary. The aku fishery is dependent on the availability of the estuarine nehu as bait. Nightly inshore movement of juvenile opakapaka to shallow areas adjacent to Kaneohe Bay (one of the most important estuaries in the state) are among the signs that some of these species are also attracted to estuaries.

So how can we sustain our fishery resources and utilize our much needed freshwater at the same time? Studying the native freshwater animals is one of the ways we can monitor our streams to be sure that the mauka-makai connection remains intact. All of the native freshwater animals spend the early part of their life cycle in the ocean. Adults are restricted to freshwater, but larval animals are washed into the sea where they occur in the plankton for as long as five months before migrating back into freshwater as postlarvae or juveniles. Recruiting animals are always a positive sign and as long as these animals can

complete their life cycle, we know that the mauka-makai connection is in place. The one thing that we know for sure is to keep that mauka-makai connection going. Without it, both our freshwater and marine fisheries will collapse.

**OFFSHORE PROJECTS**

**FAD PROJECT**

FADs were replaced around Oahu during late March and the deployment cruise for the Big Island and Maui County areas was completed at the end of April. No other cruise is being scheduled till further notice. Here is the most recent update of missing FADs and replaced FADs:

*Missing FADs (as of 5/6/97):*

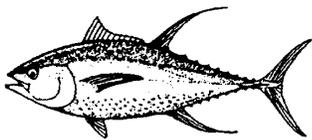
| <u>FAD</u> | <u>Location</u> | <u>Island</u> |
|------------|-----------------|---------------|
| E          | Leleiwi         | Hawai'i       |
| QQ         | Makuu           | Hawai'i       |
| UU         | Auau Pt.        | Hawai'i       |
| MC         | Palaoa          | Lana'i        |
| LA         | Lahaina         | Maui          |
| R          | Makaha          | O'ahu         |
| U          | Kaneohe         | O'ahu         |
| LL         | Hauula          | O'ahu         |
| CO         | Kaena Pt.       | O'ahu         |
| EK         | Hanalei         | Kaua'i        |
| Z          | Kipukai         | Kaua'i        |

*Replaced FADs: (as of 5/6/97)*

| <u>FAD</u> | <u>Location</u> | <u>Island</u>   |
|------------|-----------------|-----------------|
| KH         | Kahena          | Hawai'i         |
| NL         | Nuu Landing     | Maui            |
| N          | Cape Halawa     | <b>Moloka'i</b> |
| O          | Kalaupapa       | <b>Moloka'i</b> |
| T          | Makapuu         | O'ahu           |
| X          | Kahuku          | O'ahu           |
| MM         | Mokapu Pt.      | O'ahu           |

For current locations and/or more information, contact Warren Cortez at 848-2939. Also, if you know of any FADs that broke loose, see any light out or have any other comments, please give Warren a call.

## FISH FACTS



*Thunnus albacares*  
(Yellowfin tuna, 'Ahi, Shibi)

### SIZES

**Length:** commonly between 43 - 50 in. fork length; but can exceed 8 ft.

**Weight:** average range is about 60 - under 100 lbs, but can exceed >300 lbs.

### BREEDING

**Sexual Maturity:** 1.5 - 2 years; mature adults commonly found in late spring through early fall; juveniles common in fall and winter

**Spawning:** spawning occurs to some extent throughout the year with the peak spawning activity occurring during the summer months

### LIFESTYLE

**Habitat:** open ocean species; found within the upper 55 fathoms of the water column

**Swimming Speed:** cruising speed is about 1.4 mph; a 2 ft. fish swimming at burst speed was recorded at 45.8 mph.

**Diet:** pelagic fishes, squids, & crustacea; feeds during the day and at night

**Life Span:** maximum known age 5 yrs.

**Distribution:** includes all warm seas. stocks range worldwide in tropical and subtropical seas, but absent from the Mediterranean Sea.

### RELATED SPECIES

The yellowfin tuna is a member of the Mackerel and Tuna Fish Family which includes other commercially important species such as tombo (albacore), big-eye, and aku (skipjack). In Hawaii, the tunas account for more than 55 percent of the total offshore catch reported by commercial fishermen.

The following table will give you an idea of how fast these fish grow and how old they are. Please note that these are just ball park figures and meant only to give you a general idea on the relationship of length, weight, and age.

*Length, Weight and Age of Yellowfin*

| Length<br>(inches) | Weight<br>(pounds) | Age<br>(years) |
|--------------------|--------------------|----------------|
| 12                 | 1                  |                |
| 16                 | 3                  |                |
| 20                 | 6                  |                |
| 24                 | 10                 | 1.5            |
| 28                 | 15                 |                |
| 31                 | 22                 |                |
| 35                 | 32                 |                |
| 39                 | 44                 |                |
| 43                 | 58                 | 2              |
| 47                 | 75                 |                |
| 51                 | 95                 |                |
| 55                 | 119                | 3              |
| 59                 | 146                |                |
| 63                 | 177                | 4              |
| 67                 | 212                | 5              |
| 71                 | 252                |                |
| 75                 | 296                |                |
| 79                 | 344                |                |
| 83                 | 398                |                |