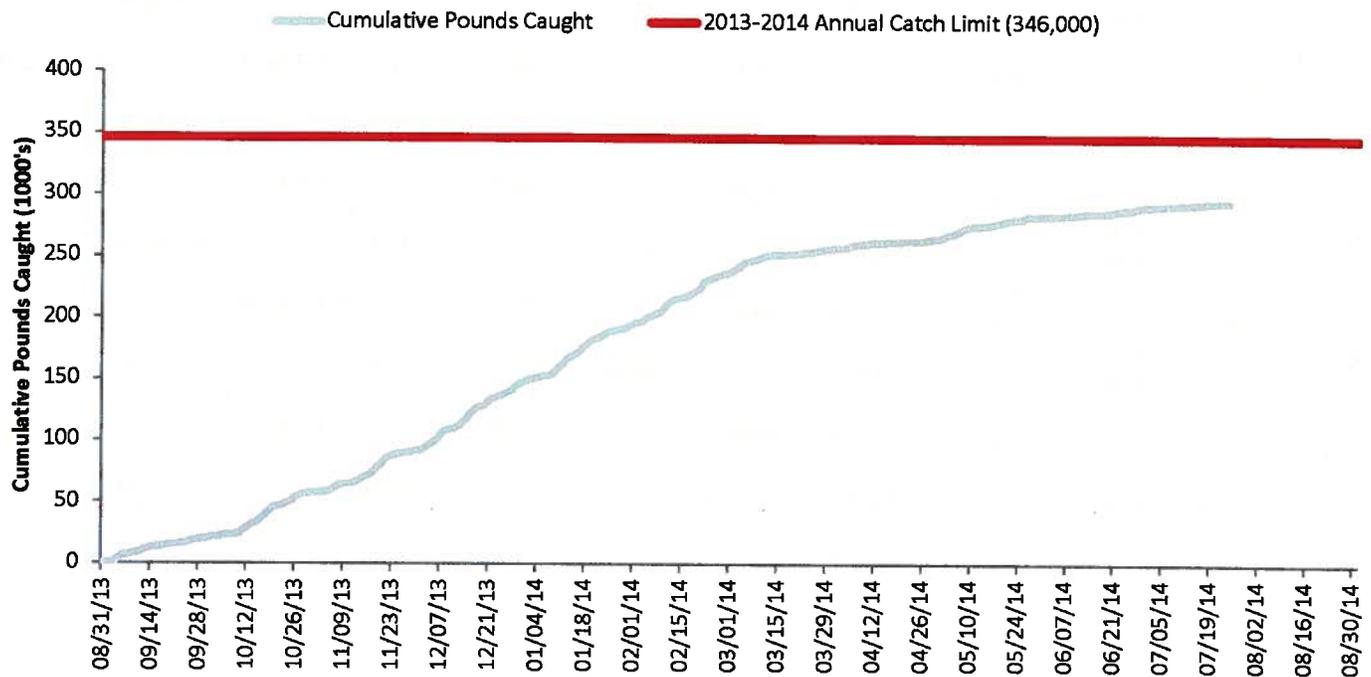


BOTTOMFISH NEWS



2013-2014 MHI Deep 7 Bottomfish Landings

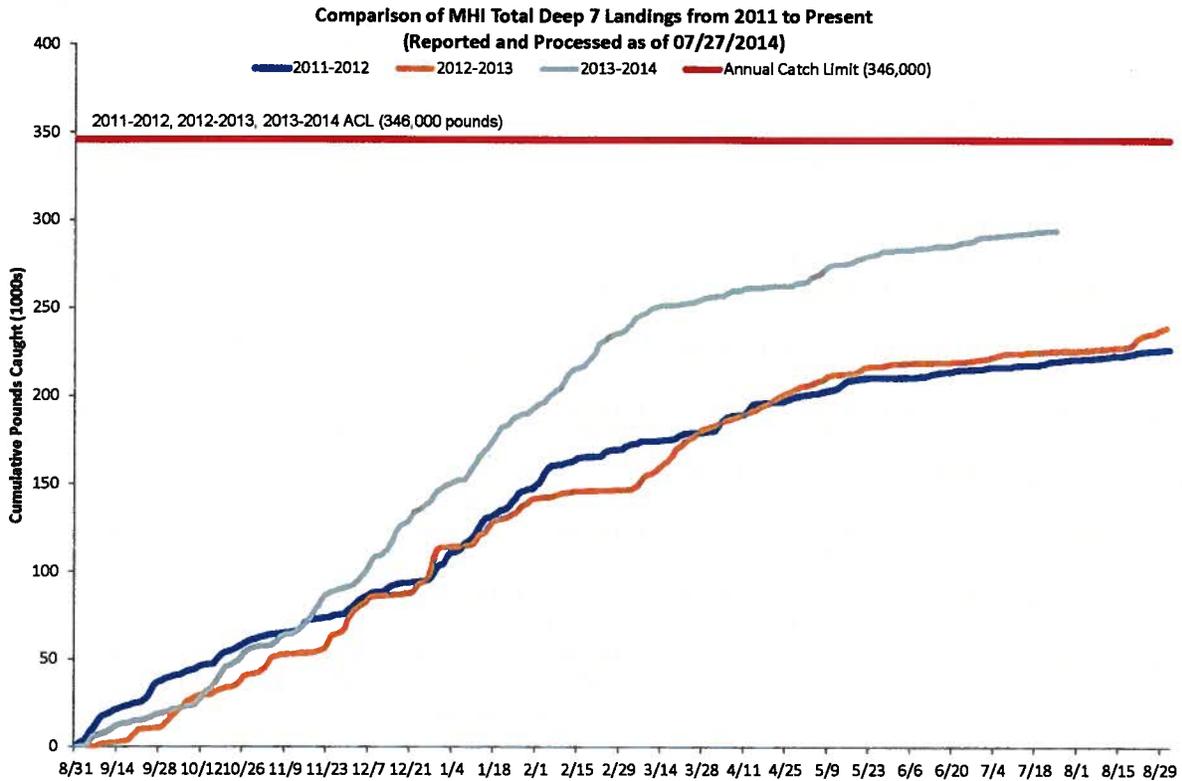
**Main Hawaiian Islands Monthly Catch of Deep 7 Bottomfish
(Includes ONLY data Received and Processed as of 07/27/2014)**



AS of 7/27/2014, 407 commercial bottomfish fishers have reported landing 294,405 pounds of Deep 7 bottomfish, or 85% of the 346,000 annual catch limit (ACL). This is the largest landings accumulated in a fishing year since the 346,000 pound ACL was implemented on September 1, 2011. In March 2014, due to the high landings, fishery managers began closely monitoring the fishery. The trip report requirement and high compliance rate of 75% allowed fishery managers to make well informed decisions regarding the fishery. They found that the catch rate had decreased significantly lowering the probability that the fishery would reach the ACL. Before the 5 day trip report requirement was implemented in September 2011 there was a month lag time in the data mak-

ing it difficult to accurately project when the catch limit would be met. Mahalo to all the commercial fishermen who are reporting accurately and on time. Your cooperation permitted the scientists to watch the landing trend more closely and determine that the catch rate was slowing allowing the fishery to continue to stay open. At this point the fishery is projected to remain open through August 31, 2014 and reopen the next day, September 1, 2014 with the same ACL of the last three years, 346,000 pounds. In the event that the landings significantly increase in the remaining month of the 2013-2014 fishing year, all commercial and non-commercial fishers who registered their vessel for bottomfishing will receive a letter. Mahalo for your cooperation!

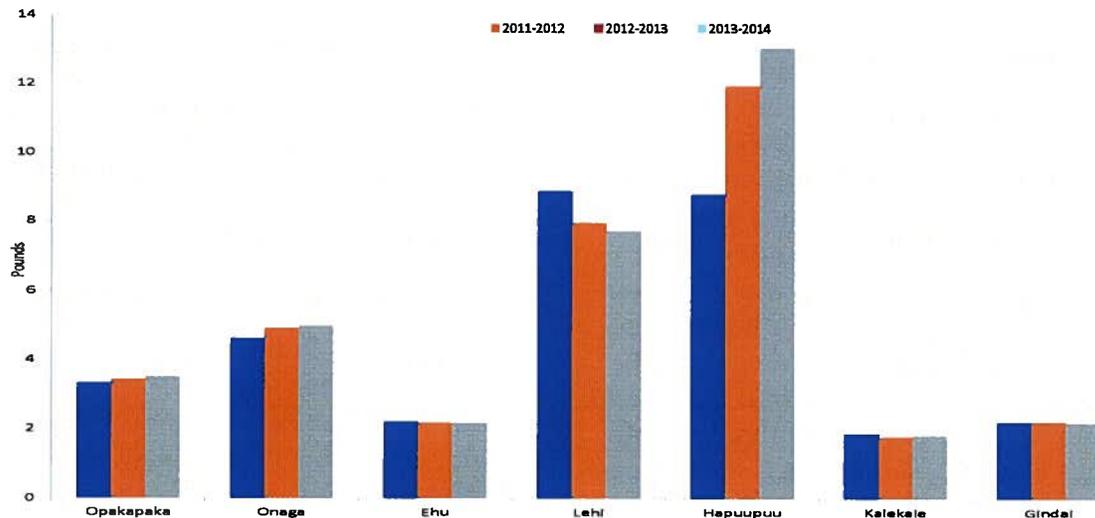
A Comparison of MHI Deep 7 Bottomfish Landings over the last 3 years with an ACL of 346,000 pounds



Fishing Year	Number of Fishers	Sum of Landings	Number of Trips	Percent of ACL
2011-2012	479	226,702	3,106	65.5
2012-2013	458	239,034	2,987	69.1
2013-2014*	407	294,405	2,979	85.1

*Fishing year is still open until August 31, 2014

Comparison of the Average Pounds Landed of MHI Deep 7 Bottomfish from 2011 to Present
(data as of 7/27/14)



Larger average size of Deep 7 bottomfish during the 2013-2014 fishing year contributed to the higher landings, especially since there were less active commercial fishers and less trips compared with the two previous years.

Bottomfish Restricted Fishing Areas and the Deep 7: an update on monitoring results.

Dana Sackett, Jeffrey Drazen, Virginia Moriwake –University of Hawaii

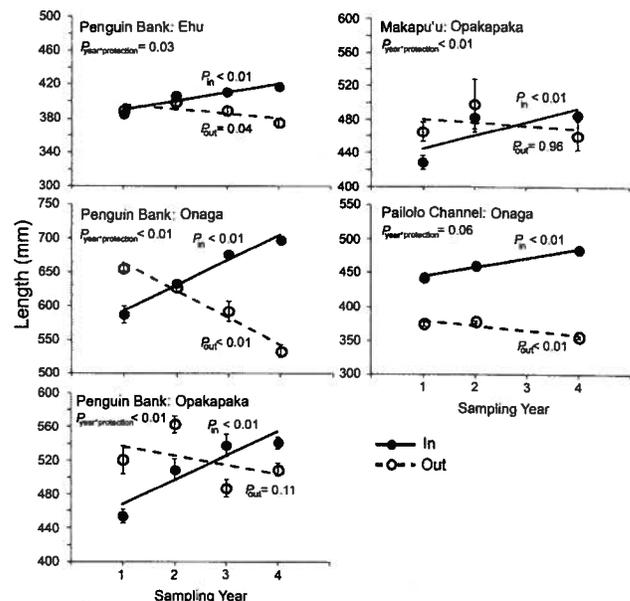


An image from BotCam of a school of opakapaka.

The bottomfish restricted fishing areas, more commonly referred to as BRFAs were initially established in 1998 and revised in 2007 by the State of Hawai'i, Department of Land and Natural Resources (DLNR) in response to declining catch rates and spawning potential ratios of the Deep 7. Monitoring began in 2007 when the system of BRFAs were revised, using a baited camera system (BotCam) to determine if these protected areas, like others, could cause increases in the size and abundance of bottomfish inside the reserves with the long term goal of a higher production of eggs and juveniles and spillover of larger adult fish into neighboring fished areas. Results so far are positive and suggest that both of these goals are beginning to be met.

In the first four years of monitoring data (2007-2011) from four BRFAs showed that fish length, and in some cases abundance, increased for one or more of the most economically important Deep 7 species (ehu, onaga and opakapaka) inside, while outside fish sizes and relative abundance declined or stayed the same. These results

demonstrate that fish size and abundance are changing over time as a result of protection rather than having always been there (for example if there had always been large fish in the BRFAs). This study was peer-reviewed by other scientists and published in the journal *Marine Biology* this year. These results were also presented to the Western Pacific Regional Fisheries Management Council and at a Fishers' Talk Story session with DLNR Director William Aila.



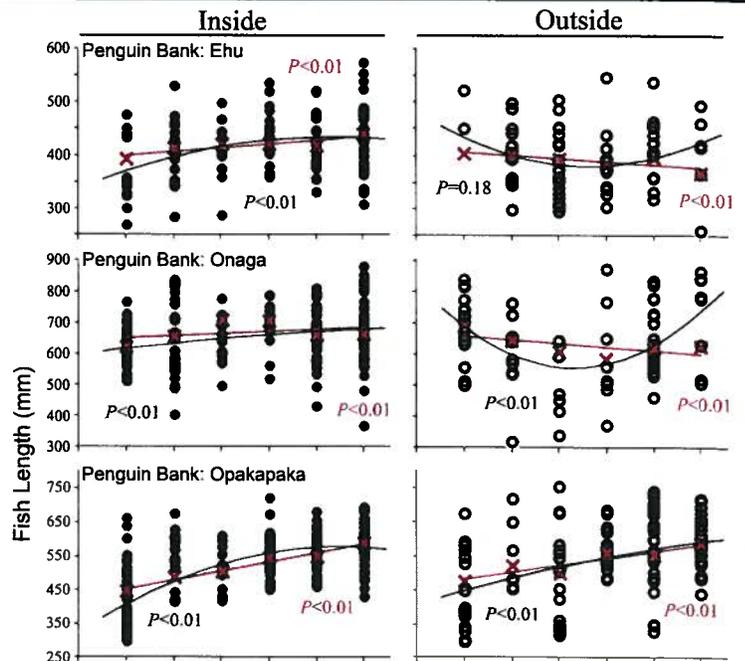
Predicted mean fish length over time inside and outside BRFAs.

Bottomfish Restricted Fishing Areas and the Deep 7: an update on monitoring results. (Continued)

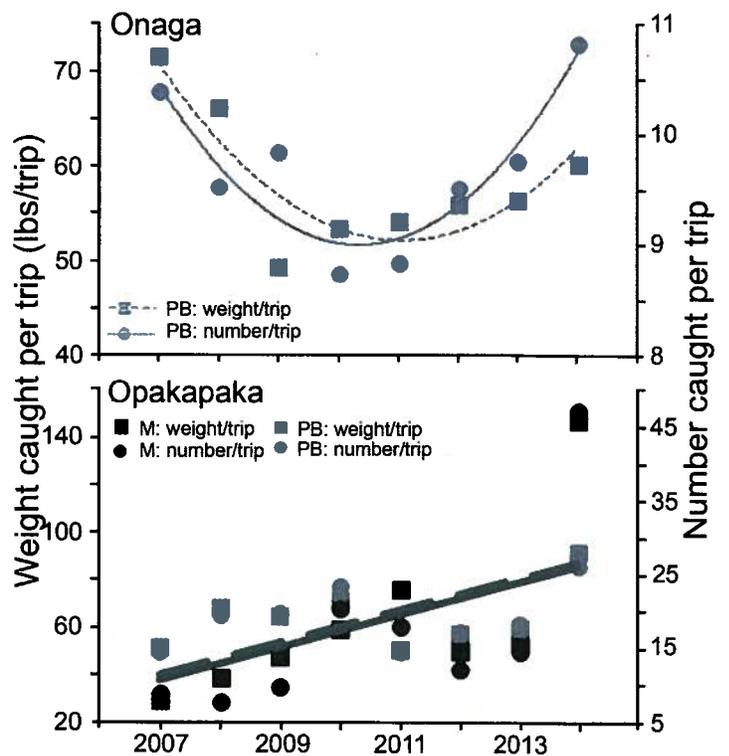
In addition to seeing clear benefits of the BRFAs to Deep 7 populations inside of them we wanted to determine if there was a benefit to the fishery through the spillover of fish into neighboring fished areas. We are using the last two years of monitoring data (2007-2013) that took place in Makapu'u and Penguin Bank BRFAs to achieve this goal. Spillover can be seen as a decline in abundance, size or diversity of fish with distance from the protected area; the result of the protected area acting as a source of more and larger fish to fished areas. Data collected in and around the BRFAs showed this pattern. The abundance, fish size and the number of Deep 7 species seen in a single sample all significantly declined with distance from both Makapu'u and Penguin Bank BRFAs. Furthermore, the declines with distance from the BRFAs only developed in the most recent years. Further supporting these conclusions, the size of ehu, onaga and opakapaka inside Penguin Bank initially increased but this upward trend is leveling-off inside the BRFA in the most recent years while outside fish sizes have begun to increase.

Fisher's catch data recorded in the fishing areas surrounding the BRFAs were also examined and demonstrated the same trends seen from data collected with BotCam outside of BRFAs. These data also showed that the size and number of fish caught per trip were increasing in recent years near the BRFAs. These results suggest that these BRFAs have begun to benefit the Deep 7 fishery.

MAHALO Dana Sackett, Jeffrey Drazen, and Virginia Moriwake for contributing to the Bottomfish News!

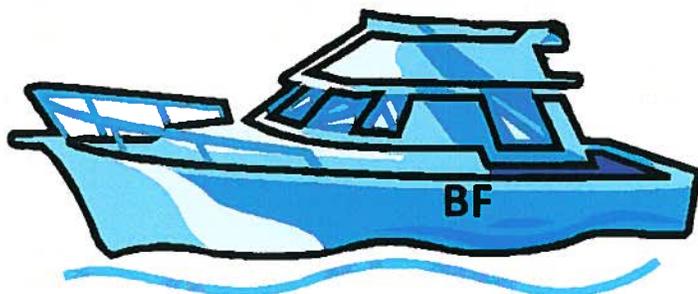


Changes in fish length over time inside and outside Penguin Bank and Makapu'u BRFA. Black = raw data. Red = linear model results.



The weight and number of onaga and opakapaka caught per fishing trip over time around Penguin Bank and Makapu'u BRFAs.

Deep 7 Bottomfish Vessel Registration Reminder



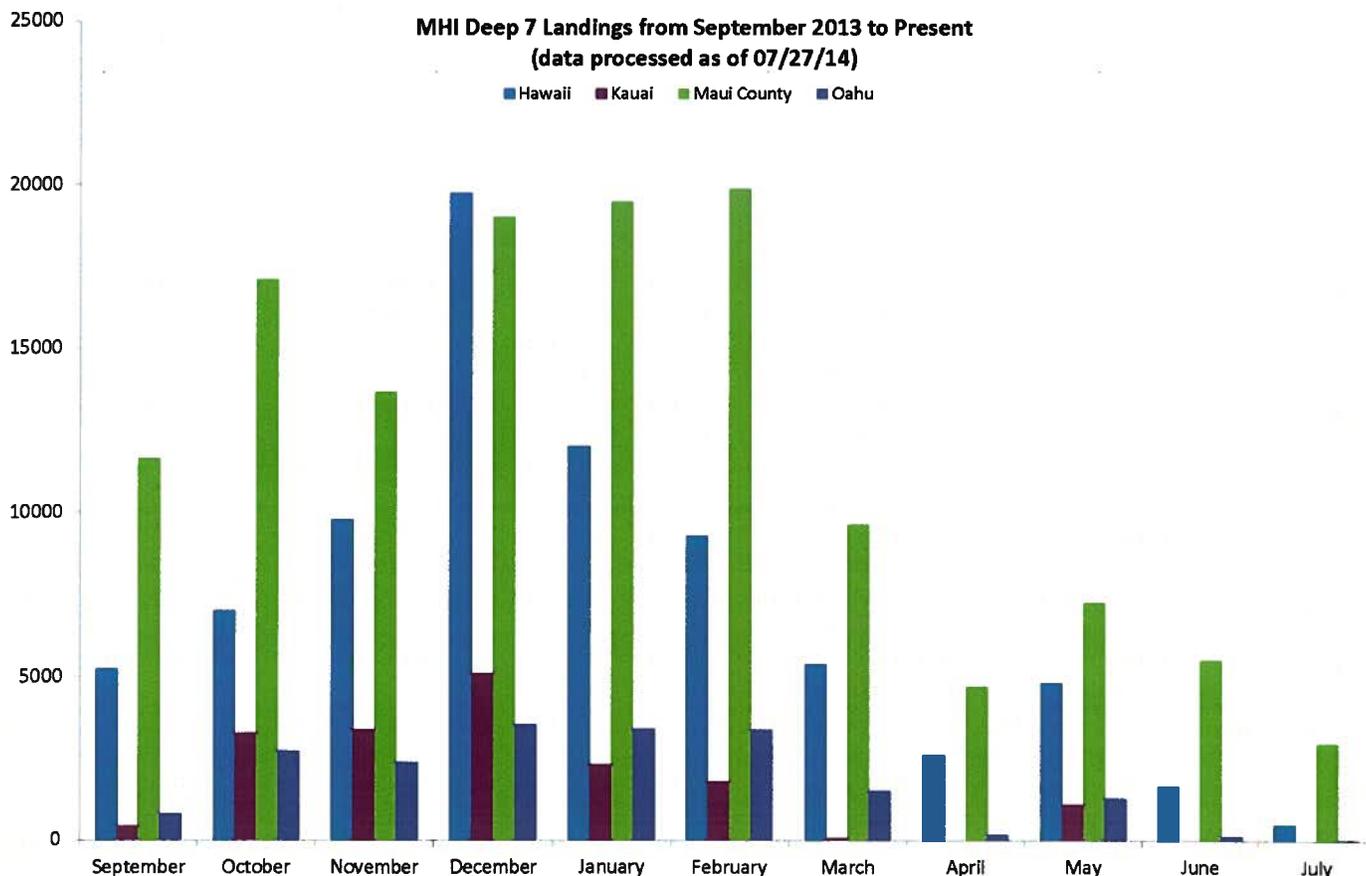
If you plan to catch Deep 7 bottomfish during the 2014-2015 fishing year, please renew your bottomfish vessel registration. There is no fee for this registration. This is the fourth year that fishers have been required to register their vessels annually if they plan to catch any of the Deep 7 species regardless if they are commercial or non-commercial. Fishing years begin September 1 and end August 31 or when the fishery reaches the Annual Catch Limit (ACL) each year. You can renew online: dlnr.ehawaii.gov/cmls or in a DAR office.

Reporting Reminder: Report everything you catch

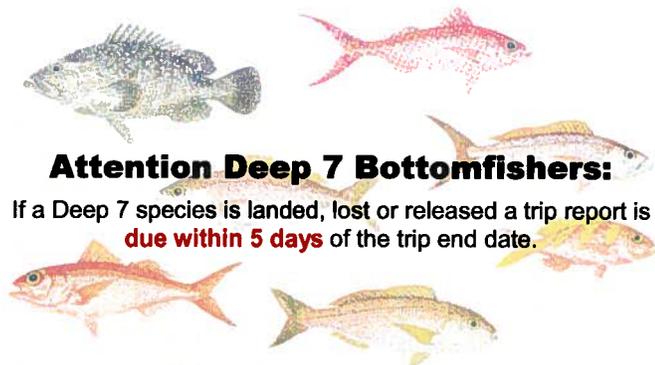
Stock assessment scientists need to see everything caught on your catch reports in order to make an accurate stock assessment. Stock assessments are used to make management decisions such as setting Annual Catch Limits (ACLs). Please be sure to report every fish

that you caught whether it is sold or kept for home consumption. In addition, please report every fish that is released or lost to a predator. Stock assessment scientists need to see the whole picture of your fishing trip in order to make accurate stock assessments allowing fishery managers to set an ACL.

Comparison of the 2013-2014 Fishing year by Island



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Honolulu, Hawaii 96813



Attention Deep 7 Bottomfishers:

If a Deep 7 species is landed, lost or released a trip report is **due within 5 days** of the trip end date.

- Bottomfish trip reports are due within 5 days of trip end.
- Late trip reports are subject to a fine.
- Reports can be entered online: dlnr.ehawaii.gov/cmls or using a paper form, please call (808) 587-0109 for a trip report book or visit your local DAR office.



Division of Aquatic Resources
Hawaii Department of Land and
Natural Resources

Dear Commercial Bottomfish fishers and dealers-Please let us know what kind of information is useful to you. We welcome your feedback! Any feedback about the newsletter, positive or negative, is greatly appreciated! PLEASE CALL Statistical unit staff member, Jessica Miller at (808) 587-0594 or e-mail bottomfish@hawaii.gov. Mahalo! - DAR Statistical Unit

Thank you to everyone for your ideas and assistance in editing the Bottomfish Newsletter Volume 17! A special thanks to: Reginald Kokubun, Eric Yokomori, and Dieter Stelling.
Editor: Jessica Miller