

An underwater photograph of a vibrant coral reef. The water is clear and blue, with sunlight filtering through from the surface. The reef is composed of various types of coral, including large, branching brown corals, a prominent purple soft coral, and yellow branching corals. Small fish are visible swimming around the reef.

# **Pohnpei and And Atoll**

# **Rapid Ecological Assessment**

**Recommendations for MPA's and Resource  
Management**

# KEY FINDINGS CORAL

## Biodiversity

- c. 330 species of reef building corals (120 spp. more than previously recorded)
- Pohnpei inshore reefs are degraded and have lower biodiversity
- Coral biodiversity is linked to mangrove cover and roads
- Reduced coral biodiversity and coral cover is linked to reduced fish numbers





# Four areas for priority action

1. Southern mid-lagoonal reefs in and adjacent to the Nahtik MPA (Pahnsedlap-Woane)
2. Central western reefs from coast to inside outer barrier (Palikir/Dauahk)
3. Northern mid-lagoonal and outer-barrier (Mwhand).
4. Eastern outer barrier reefs (Namwen Naningih)



# Impact of Sediments

- High sediment load inshore is smothering and stressing corals in some nearshore areas – v. low diversity
- Sediments are retained on coastal reefs because of lack of flushing, limiting coral recruitment and recovery
- Sediments are likely causing shifts in coral community structure – reducing diversity as less tolerant ‘sensitive’ species are lost
- Western side has best remaining nearshore communities



Fine terrigenous sediments cover much of the substrate beneath a damaged colony of *Acanthastrea hemprichii*



# KEY FINDINGS FISH

## Biodiversity

- Total known fish fauna of the Pohnpei region now stands at 642 species
- 1 new species of damsel fish recorded (toik)
- Highest biodiversity in channels and outer reef areas.



# Impacts of Crown-of-thorns starfish

- Low to moderate numbers of Crown-of-thorns starfish at most sites and large numbers at some sites.
- The starfish caused damage in 1970s and has become chronic
- Because of continuing predation on corals, some areas have not fully recovered.







# Crown-of-thorns Starfish

COTS are present in most areas around Pohnpei in low – moderate abundance, and in higher abundances (outbreak) in some places

Continuing COTS predation on preferred coral species is causing shifts in coral community structure

# Crown-of-thorns Starfish damage



# Pohnpei Market Survey



# Objectives

- *Provide Pohnpei State with 1-yr baseline statistics for future comparison*
- *Gauge current level of fish consumption versus productivity*
- *Identify most important fish families and how much pressure is being placed on them, where and by whom*



# Rationale

- *Identify whether Pohnpei is sustainable*
  - *Production greater than consumption?*
  - *Production = consumption?*
  - *Consumption greater than production?*
- *Identify potential changes needed to legislation*
- *Identify potential changes needed to market or fishing practices*



# Characteristics of Unsustainable (Overfished) Fisheries

- *Reduced catch per unit time*
- *Reduced size for individual species*
- *Loss of species*
- *Loss of spawning aggregations*
- *Loss of reproductive potential (amount of eggs to the reef)*

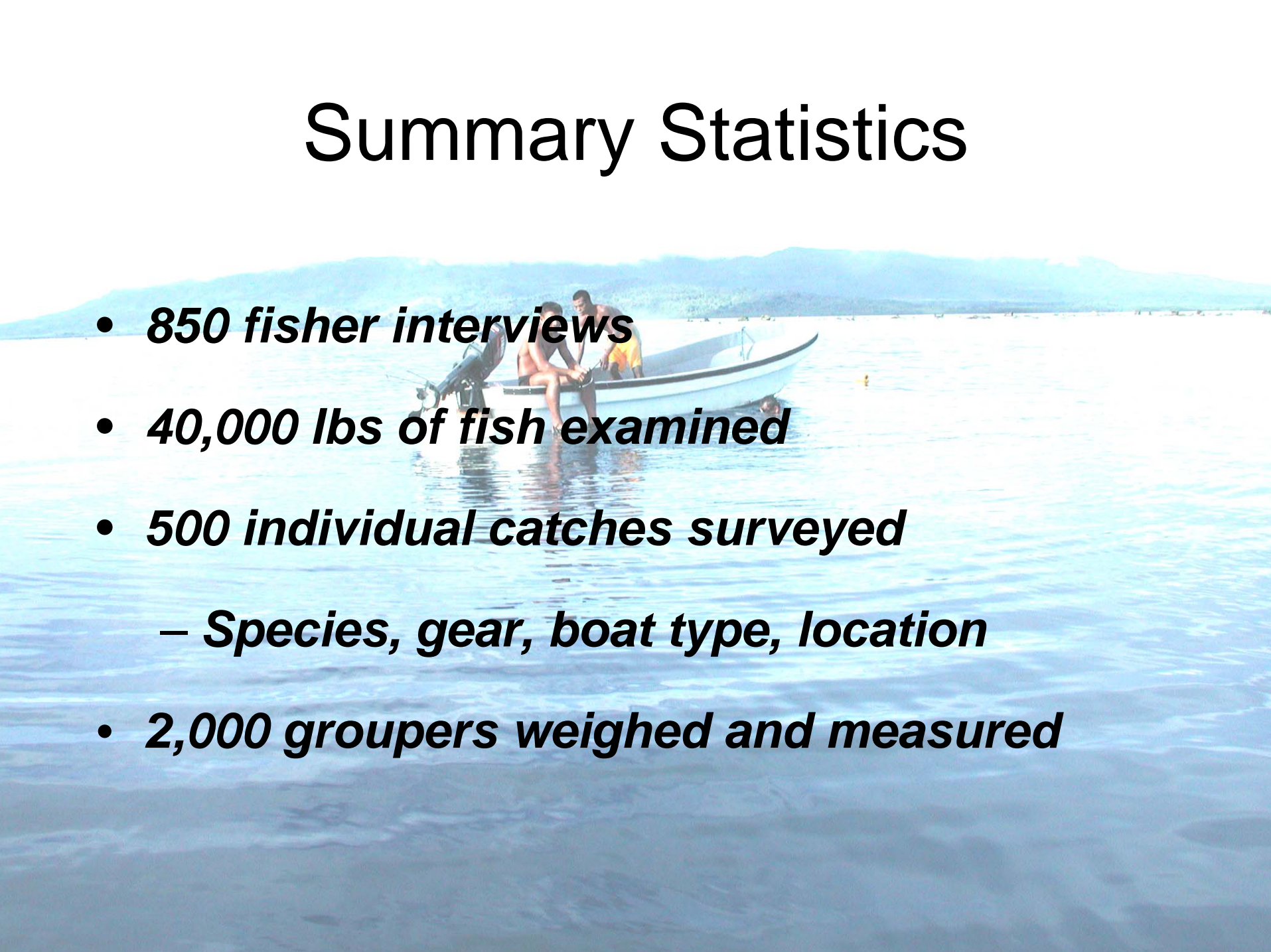


# Economics and culture of unsustainable fisheries

- *Reduced revenue, increased costs*
- *Loss of independent protein source*
- *Loss of potential tourism dollars*
- *Loss of cultural heritage*

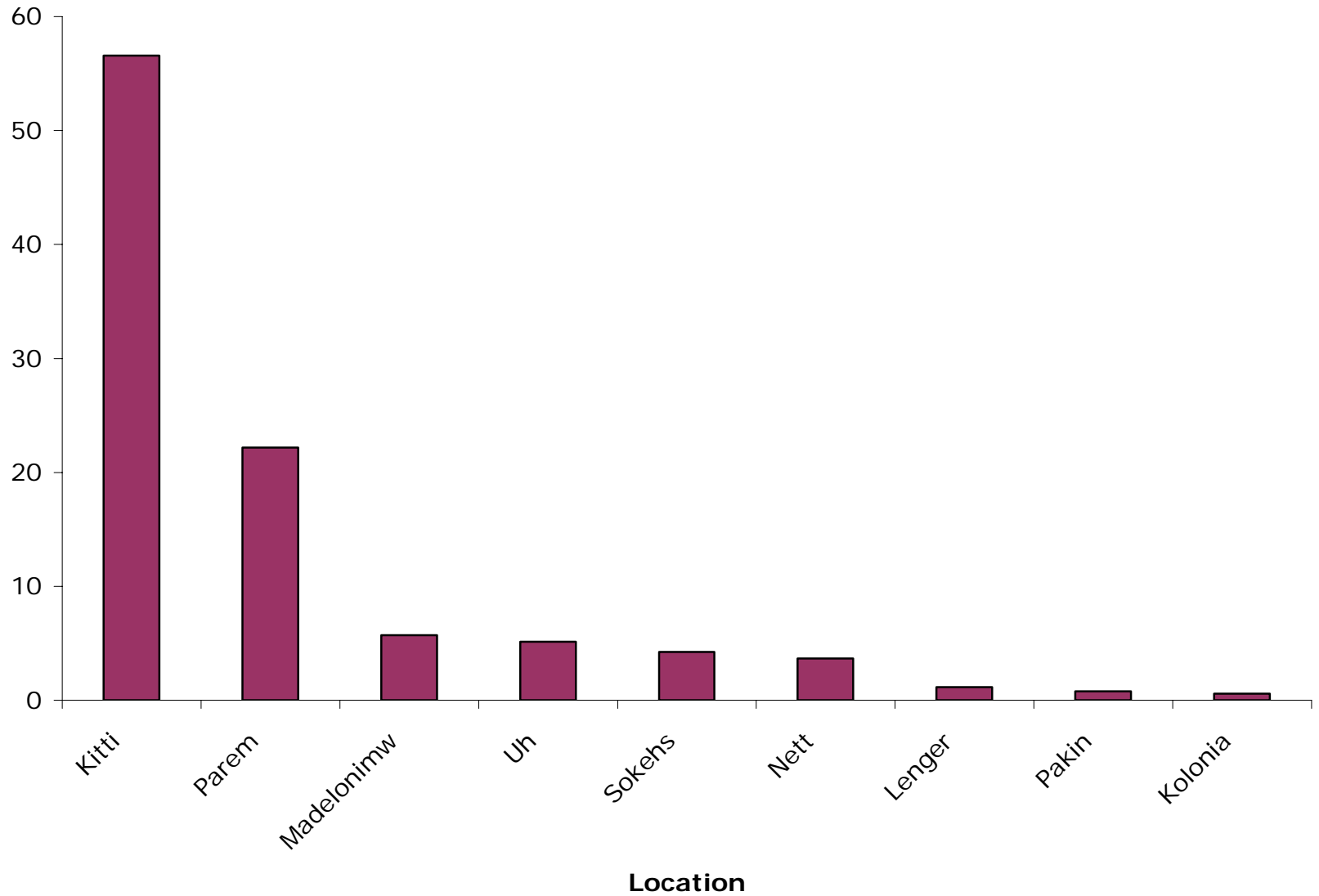


# Summary Statistics

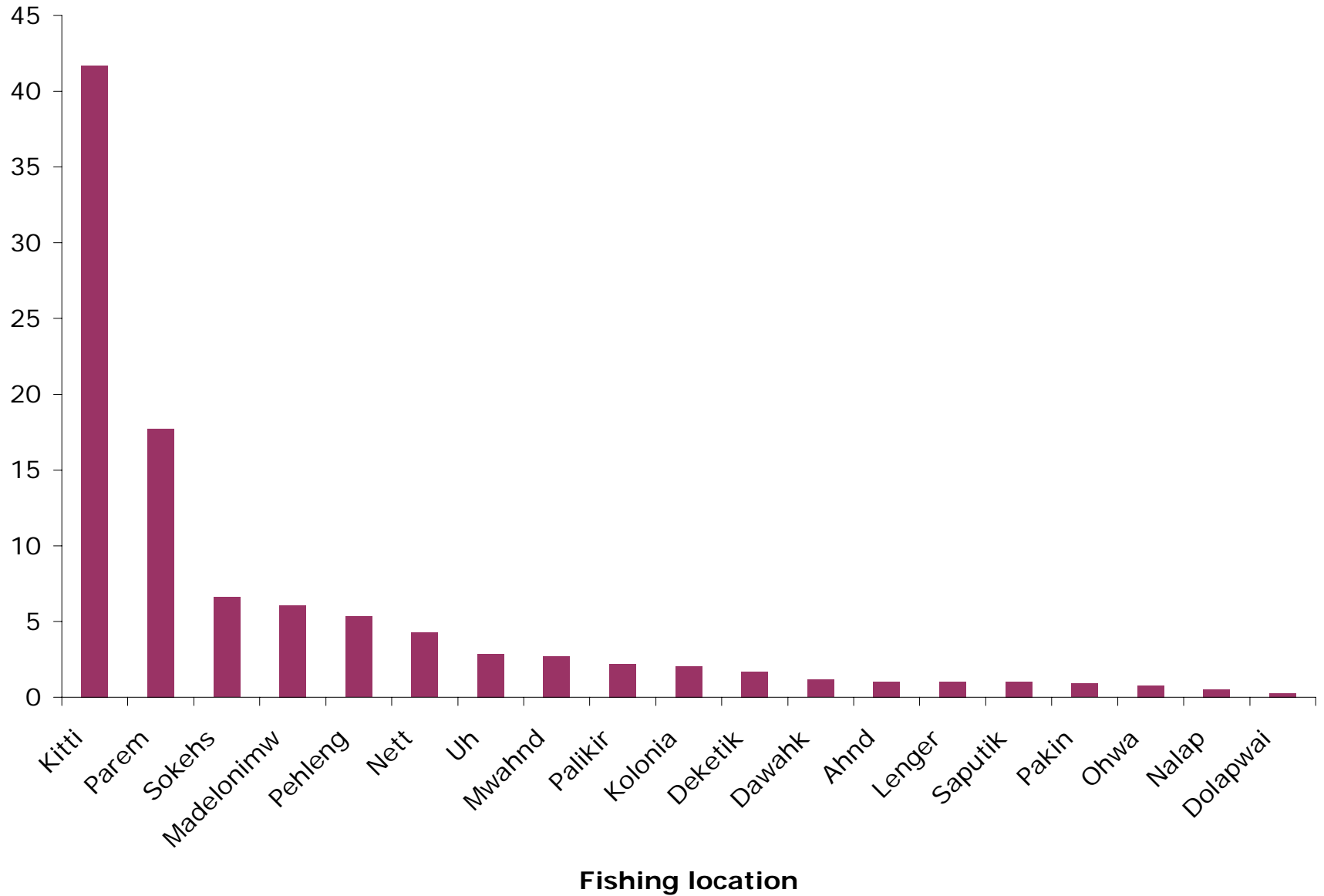
- ***850 fisher interviews***
  - ***40,000 lbs of fish examined***
  - ***500 individual catches surveyed***
    - ***Species, gear, boat type, location***
  - ***2,000 groupers weighed and measured***
- 
- A photograph of two people on a small boat in a body of water, with mountains in the background. The image is used as a background for the text.



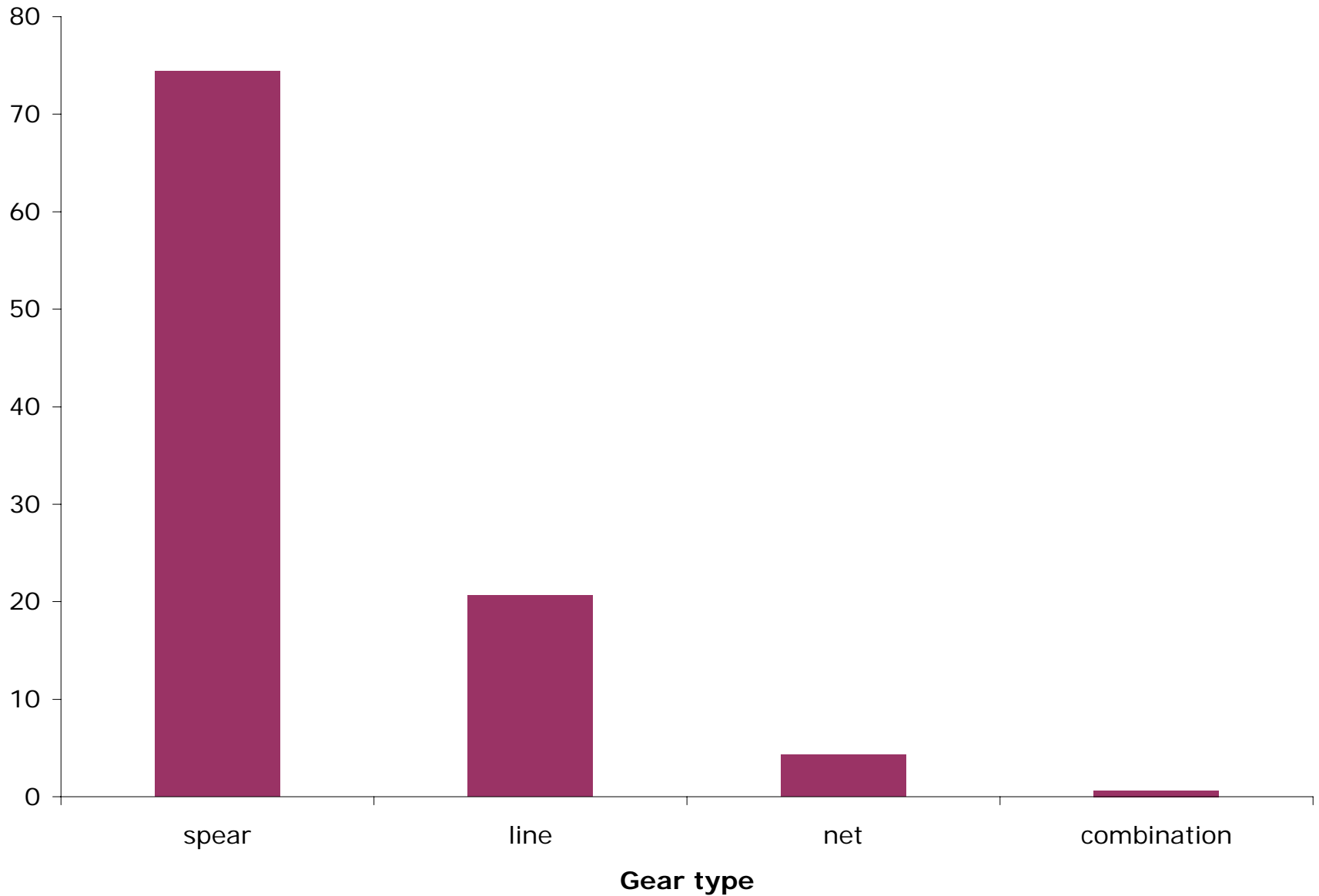
# *Fisher location*



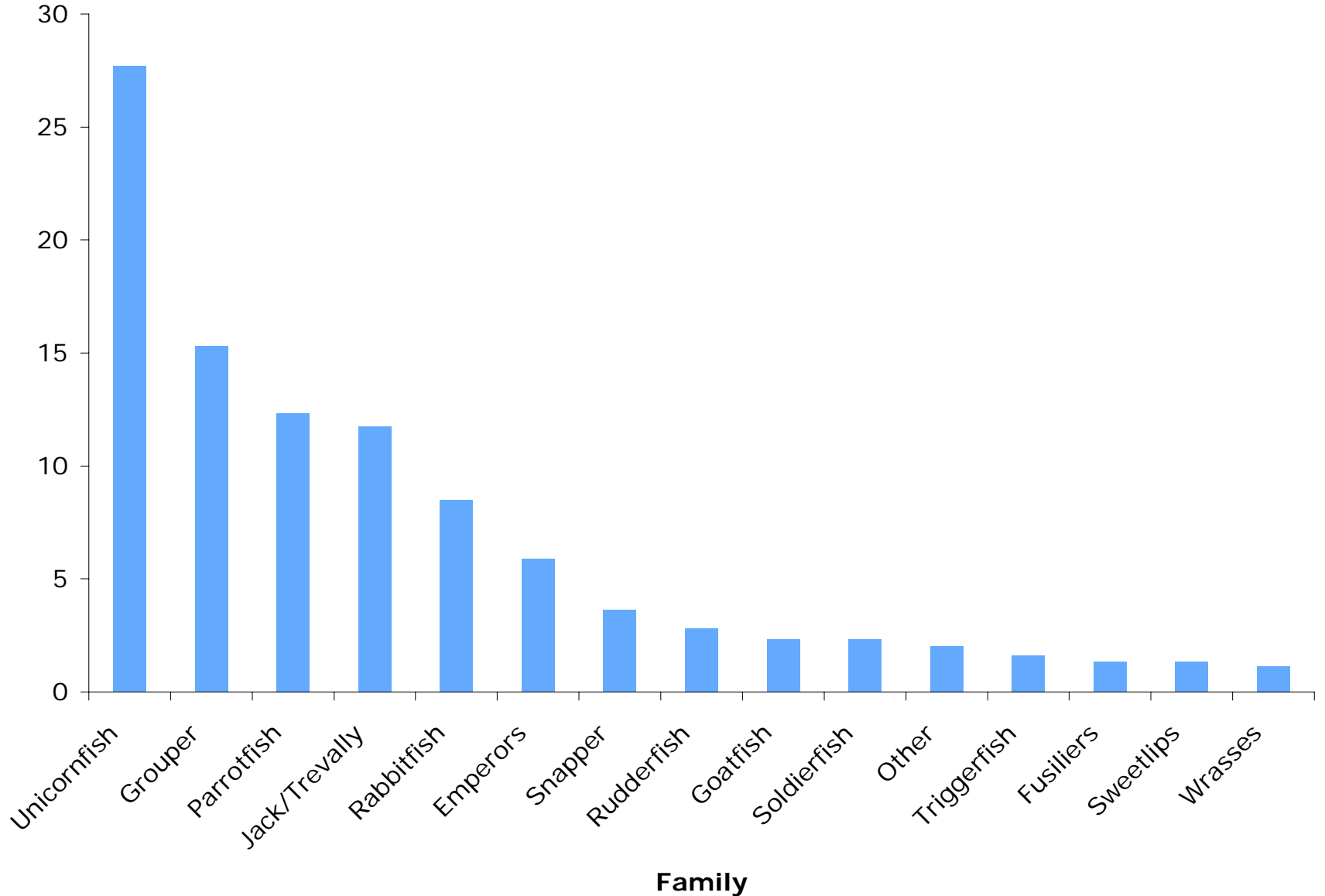
# *Fishing location*



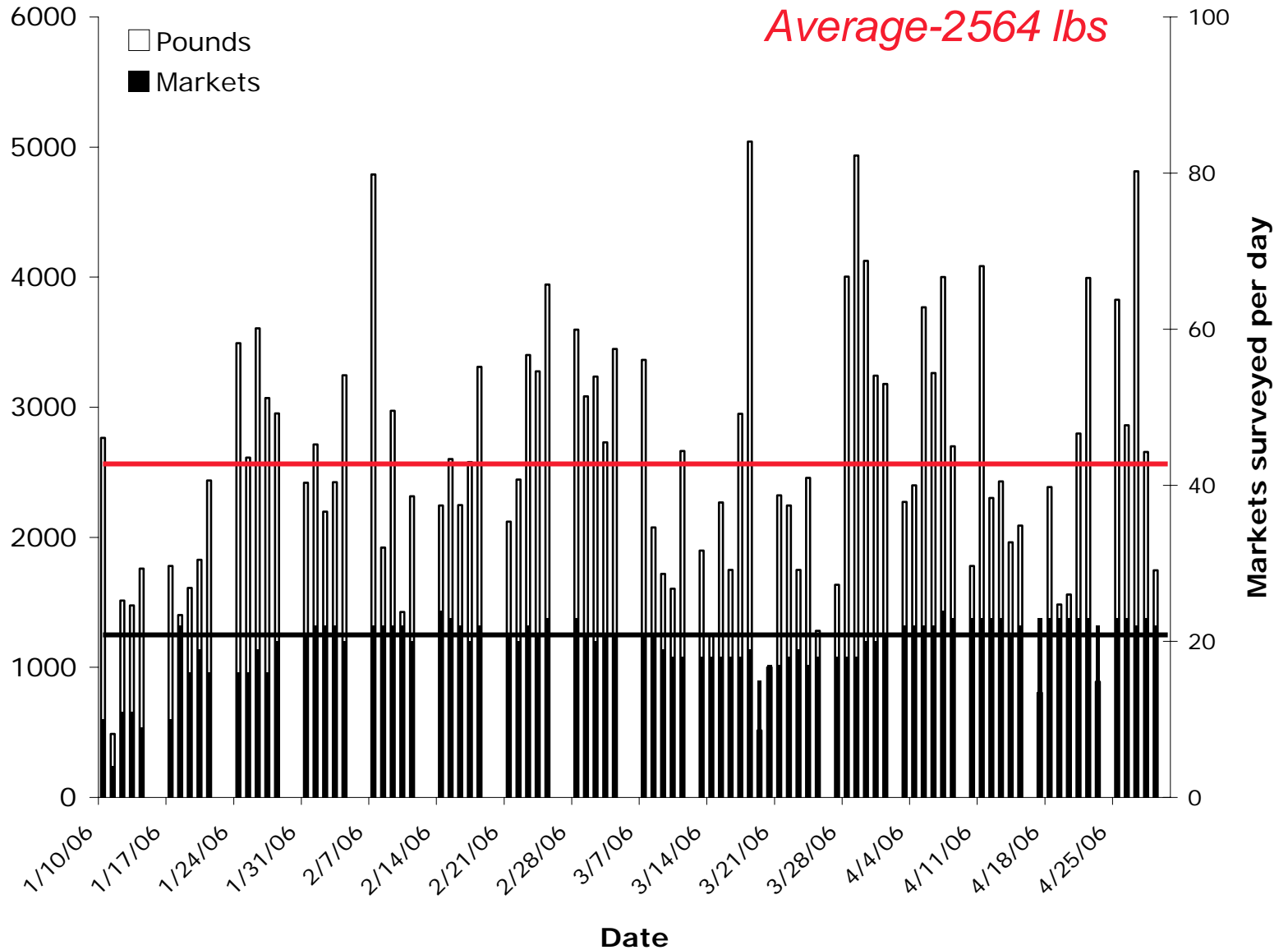
# *Catch by gear*



# *Contribution by Family*



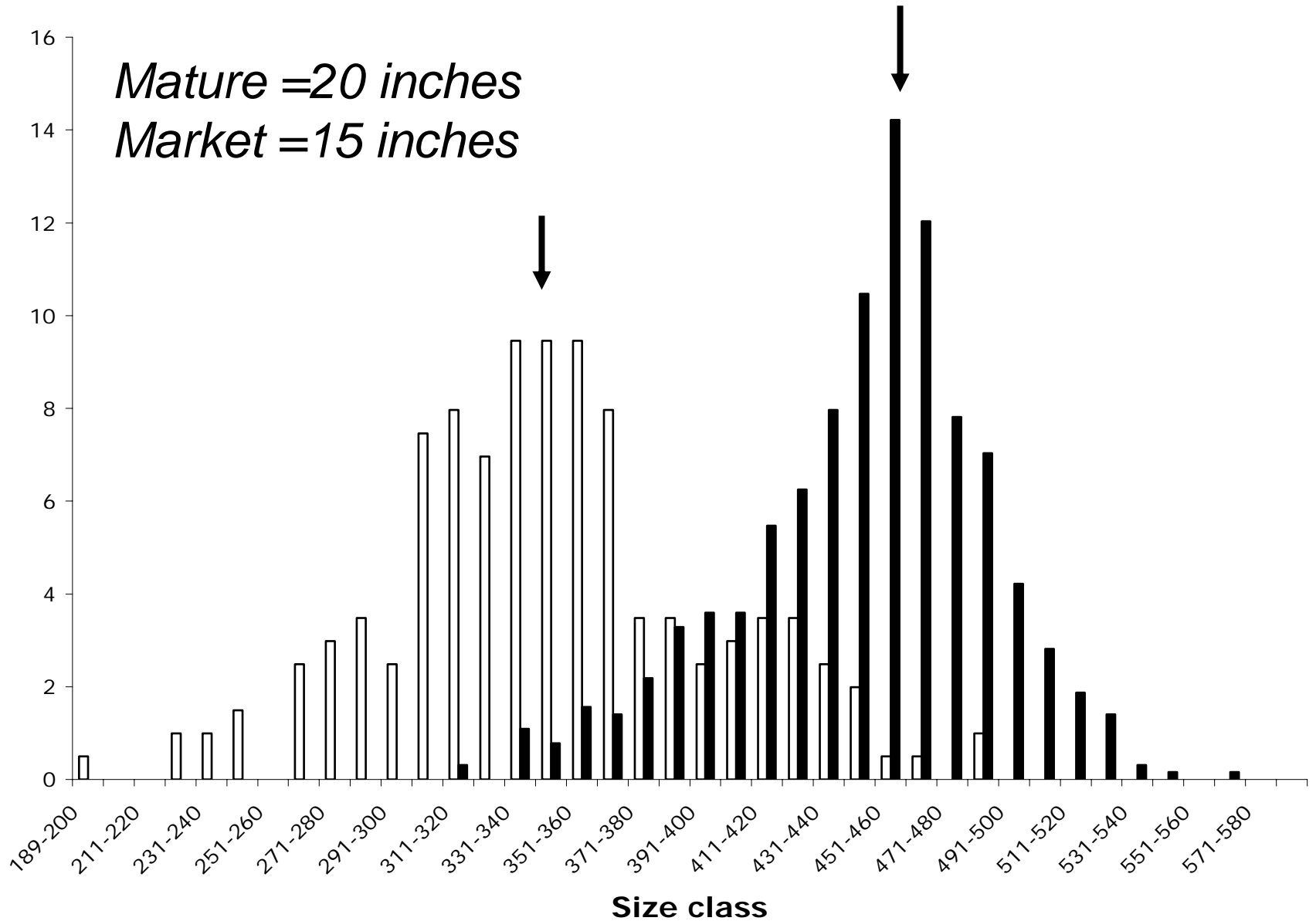
# Daily Market Totals



# *Undersized Fish*

*Mature = 20 inches*

*Market = 15 inches*



# *Undersized Fish*

- *Reduces the potential for reproduction*
  - *No eggs*
  - *No return to the reef*
- *Creates a reduction in population size*
  - *Less eggs means less fish*
- *Adds little to the economy*
  - *Small fish have small value*



# Targeting Spawning Aggregations

- ***Loss to reproductive potential (less eggs to the reef)***
- ***Reduction in overall population size (number of fish overall)***
- ***Loss of future jobs and revenue***
  - ***Dive tourism***
  - ***Market sales***
  - ***Fisheries (fishing, mechanic, etc.)***



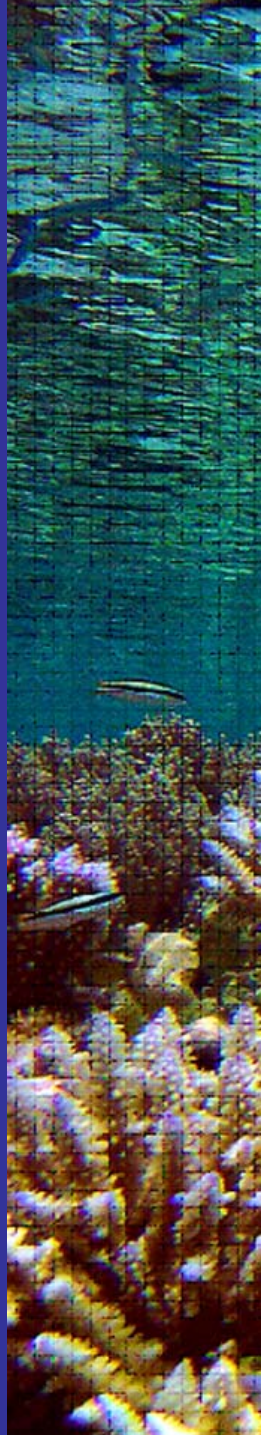
# *Summary findings*

- Pohnpei fisheries and market practices are:
  - Promoting over fishing
  - Reducing tourism potential
  - Reducing current and future market income
  - Prolonging economic hardship for fishers
  - Not maximizing market profit share
  - Low market prices drive higher demand



# *Summary Findings*

- Over fishing
  - Spawning aggregations
  - Undersized fish
  - Too much fish
- Destructive fishing gear
  - Selective
  - Unfair advantage to fishers



# Summary

- Pohnpei is currently over fishing and unsustainable
- Inaction will increase the potential for:
  - Loss of fisheries (fish and jobs)
  - Loss of tourism revenue
  - Increased poverty
  - Reduced availability of protein source
- Pohnpei inshore reefs are degraded and have lower biodiversity



# Kalahngan

