

A New Approach for Prorating False Killer Whale Bycatch

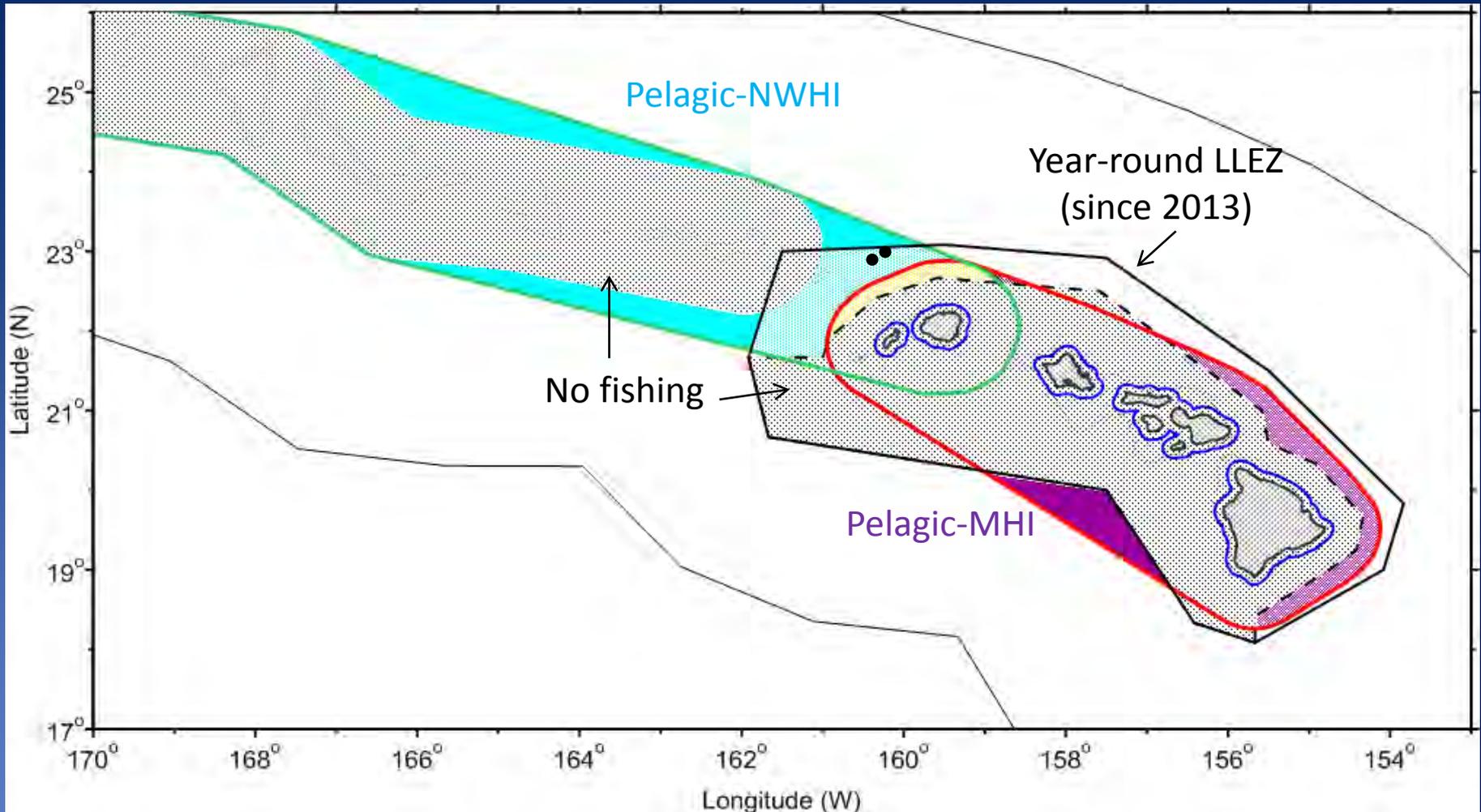
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Why a new approach?

- Consistent approach for prorating bycatch across all three stocks
- Data do not necessarily support maintaining complex density relationships within the proration process
- Simplify to allow proration independent of any changes to bycatch estimation framework

New boundaries & overlap zones



Proration and bycatch estimation approach *(for longline fisheries only)*

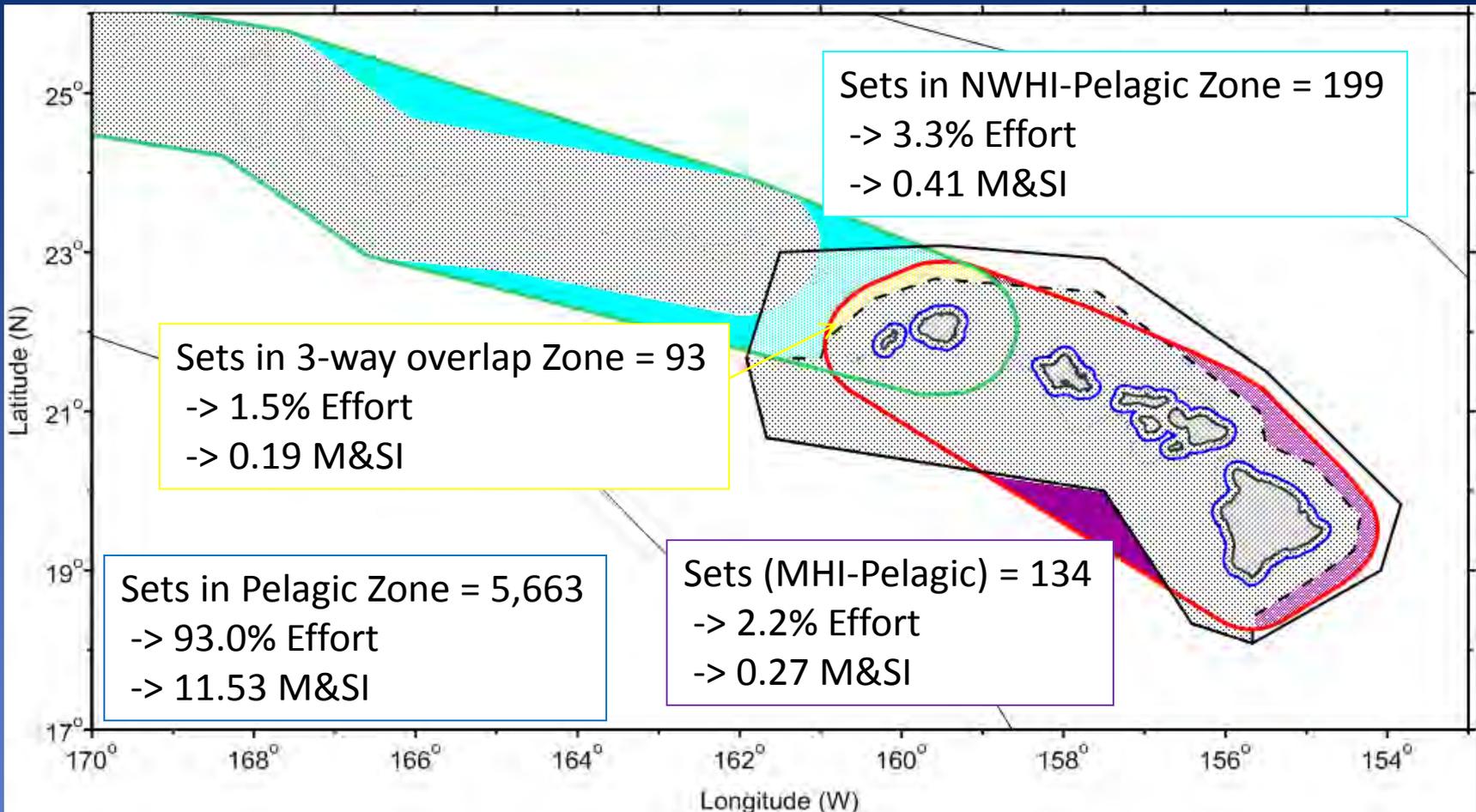
1. Estimate annual take inside and outside the EEZ by year (Marti)
 - ≤ 2012 pre-FKWTRP serious injury rate proration- 92%SI: 8% NSI
 - 2013 apportions estimated take SI:NSI based on observed rate
2. Prorate annual EEZ take among overlap zones based on distribution of fishing effort (by set)
3. Within an overlap zone, apportion among stocks based on relative density
4. When a take occurred in an overlap area, the observed take is assigned to that area

Proration of EEZ Effort & Take

(example 2009)

Total sets = 6,089

Total FKW M&SI = 12.4

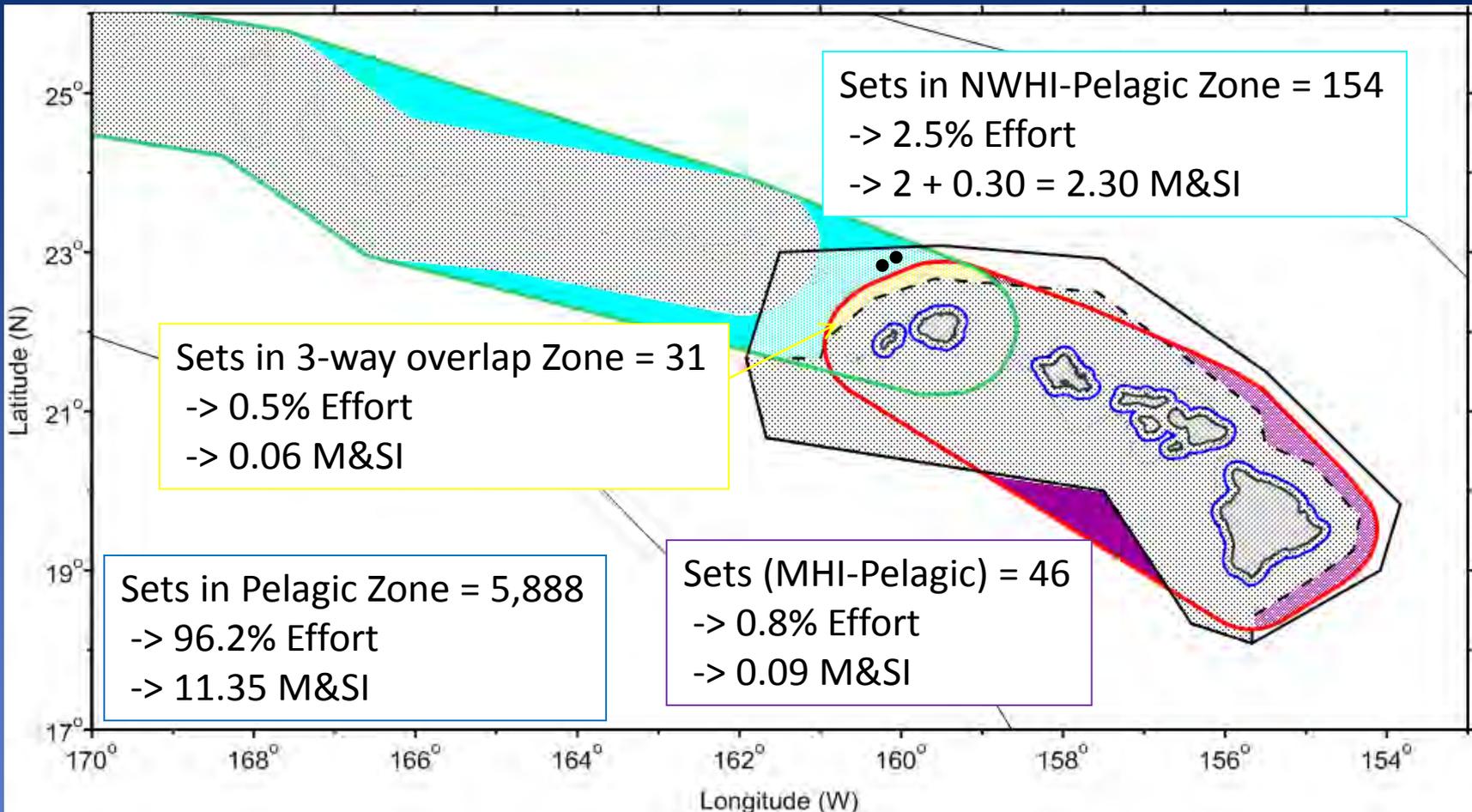


Proration of EEZ Effort & Take

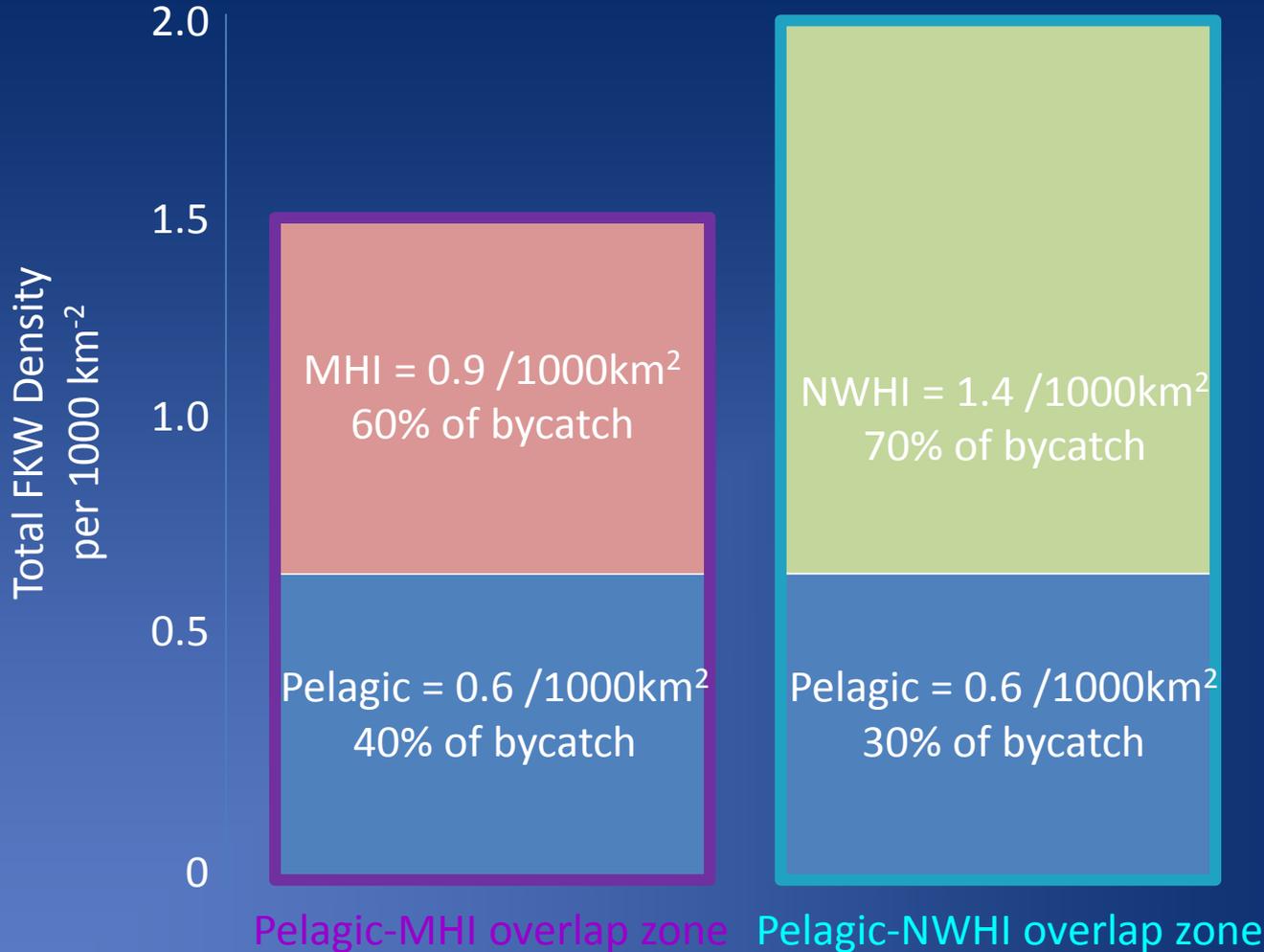
(example 2012- with observed takes in an overlap zone)

Total sets = 6,119
Total FKW M&SI = 13.8

NWHI-pelagic zone takes = 2
Remaining takes for proration = 11.8



Apportioning take in the overlap zones



Apportion take according to the ratio of average stock densities

Assumes relative densities of FKW in overlap zones are constant on average

In contrast to current proration scheme, no complex density relationship

Annual Takes Given Proration

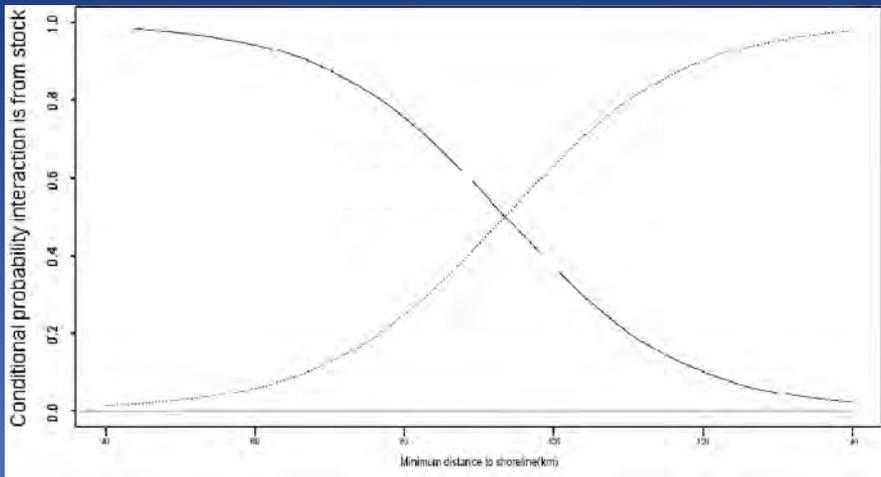
Year	NWHI Stock	MHI Insular Stock	Pelagic Stock	Outside EEZ
2009	0.4	0.2	11.8	38.5
2010	0.2	0.4	13.2	5.6
2011	0.2	0.1	12.2	2.2
2012	1.6	0.1	13.0	3.5
2013	0.0	0.0	4.1	6.6

FKWTRP

2 takes in NWHI-Pelagic Overlap Zone

Prior proration approach (through 2014)

- MHI insular & pelagic stocks only
- Assumes each stock only partially utilizes the overlap zone



- Utilization is not uniformly distributed for each stock, but is modelled using logistic decay function based on distance from shore
- Estimation uses location of each take to determine proportion of total take assigned to MHI insular versus pelagic stocks