

# Hsin-Kang Mahi Mahi FIP

## Workplan Tracking

Updated June 2018

Green=expected progress being made (i.e., activity has begun, and expected milestones, deliverables and specified timeline are being met as planned).

Yellow=progress is below expectation (i.e., activity has begun, but expected milestones and deliverables have been delayed by 6 - 12 months, and specified timeline is not being met)

Red= inadequate progress (activity has begun, but expected milestones and deliverables have been delayed by > 12 months, and specified timeline is not being met.)

X : Milestone / Deliverable Due

/ : Activity not started

U : Unknown

### Legend for Quarterly Activity Tracking

2016	2017				2018				2019				FIP Process Underway (FIP workplan is being implemented)				Target Due Date	Date completed or reported	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			Details of Progress

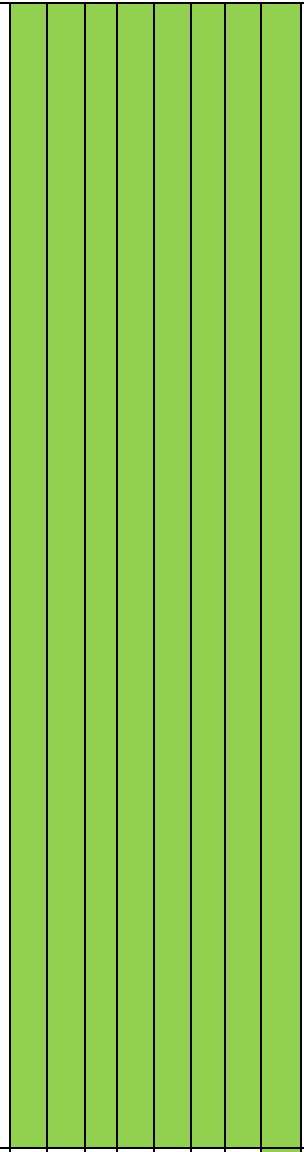
MSC Performance Indicators	Estimated PI Score (Initial)	Estimated PI Score (Current)	FIP Stage	Deficiency identified by pre-assessment at indicator level	Scale/Scope of improvements	Activity #	Activities/Tasks	Participants responsible for carrying out activity	Other PIs impacted by this activity	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	first half year of 2016	last half year of 2016	first half year of 2017	last half year of 2016	Target Due Date	Date completed or reported
Principle 1	1.2.1 Harvest Strategy	<60				1.2.1.	Development and implementation of conservation and management measures		1.2.2	/	/																				
	1.2.1 Harvest Strategy	<60				1.2.2.	Development and implementation of Harvest control rules		1.2.2	/	/																				
	1.2.2 Harvest control rules and tools	<60				1.1.2.1.	Collection of fisheries-dependent data			/																The format of fishing logbook has been agreed by Steering Committee on April, 2016. The Vessel Owner Assembly will be held on August, to update the progress and to promote the use of fishing logbook.	A number of fishing logbooks are submitted from fishermen. However, the coverage is not sufficient and improvement is still needed. Fishermen are informed about this for further improvement. .	The fishing logbooks reporting rate is better than last year, but there is still room to be improved. Besides, the information of the bycatch data gathered is poorer than expectation, and propaganda has been made to rectified.	The fishing logbooks reporting rate is better than last year. By the end of 2017, 800 logbooks have been received. But, the information of the bycatch data gathered is still not as expectation.		
	1.2.2 Harvest control rules and tools	<60				1.1.2.2.	Collection of fisheries-independent data			/	/																				
	1.2.2 Harvest control rules and tools	<60				1.1.2.3.	Development of fisheries data collection and verification mechanism			X																The data collection procedure was adopt by the Steering Committee on March 25,2016.	Data has been collected in accordance with the agreed procedures. The establishment of database is still construction.	Data has been collected continuously and input into the database.	The data collection procedure was adopted by the Steering Committee on March 25,2016. Data has been collected continuously and input		



between the collection from Taitung in 2013 and the collections from PonHu and Nagasaki. These results show genetic heterogeneity between Taitung (2013) and Nagasaki, Japan. However, Taitung 2014 didn't show the similar differentiation pattern. Therefore, in future studies, sample sizes and geographic coverage should be increased to resolve the population structure of dolphinfish throughout the entire Pacific Ocean.

samples collected from Taiwan and Japan waters. We surveyed the pattern of genetic differentiation using 766 bp of sequence of the mtDNA ND1 for 225 individuals. We report significant genetic differentiation between the collection from Taitung 2013 (spring season, n=42) and the collections from PonHu (n=13), and Nagasaki (n=29). These results show genetic heterogeneity between Taitung 2013 and Nagasaki, Japan. However, the rest of samples collected from Taitung didn't show the similar differentiation pattern. Therefore, in future studies, sample sizes and geographic coverage should be increased to resolve the population structure of mahi-mahi.

For the tagging experiments, one mahi-mahi was tracked for periods of 30 days reaching depths 0-70 m, and experiencing temperatures



/ / X

1.2.3 Information and monitoring 60-80 1.1.1.2 Definition of stocks: Mark-recapture research (tagging program)

ranging from 21.4-30.1 °C. This fish spent >50% of their time near the surface and made more extensive vertical movements during nighttime than daytime, but vertical movements were largely confined to the mixed layer and did not cross the thermocline. The depth distributions of the tagged fish appeared to be limited by a 6 °C (i.e., >90% of movements were within 6 °C of the warmest water) change relative to sea surface temperature. Overall, tagged mahi-mahi primarily inhabited near-surface habitat and vertical movements are limited by the depth of the mixed layer. This study found that mahi-mahi dove deeper and for longer durations at nighttime, rather than daytime. Diel dive pattern may relation feeding opportunities when prey are aggregated and (or) may have evolved to avoid

1.2.4 Assessment of stock status	60-80					1.1.3.1.	Stock assessment: Analysis on standardization of relative stock abundance indicators																	predators.		
1.2.4 Assessment of stock status	60-80					1.1.3.2.	Stock assessment: Analysis on length frequency and age structure																			









3.2.1 Fishery-specific objectives	60-80					3.2.1.	Establishment of clear long-term and short-term objectives				/	/	X												
3.2.2 Decision-making processes	60-80					3.2.2.	Establishment and implementation of external audit mechanism				/	/													

The 2nd Steering Committee in 2016 has adopted the long term objectives, which is to use the best available scientific information to develop the precautionary approach and Harvest Control Rules, as well as the short term objectives, which is to complete the items of Action Plan in five years.

Completed by last year.

Completed by last year.