Port Mouton Bay Lobster Trap Survey, May 15 to 31st, 2007

1 Background

The fishermen of Port Mouton Bay perceive that their lobster catches are reduced in the inner bay in the vicinity of the salmon aquaculture site near Spectacle Island. In fact fishermen have been forced out of traditional lobster fishing 'territories' because of low catches. In the closing days of the spring lobster season, May, 2007, when water temperatures were warmer and lobsters begin their migration toward inshore, lobster fishermen conducted a trap-fishing-day survey. They returned to the areas which they had largely abandoned, set their traps, hauled them and made careful records of their catches. They also recorded catches in other areas of the Bay..

2 Approach

This experiment of catch-per-trap-fishing-day was conducted between May 15 and May 31, 2007, for five regions in Port Mouton Bay (shown in Figure 1). The data include, for each region, the date and number of traps hauled by an individual boat and the total weight of legal-sized lobsters caught, as well as the number of berried-females caught and released. From this data, an average catch in pounds per trap-fishing-day for a boat and a particular region can be calculated. In a case where, for example, two days elapsed between trap-hauls, the average catch-per-trap-fishing-day was catch / trap hauls divided by 2 fishing days per trap.

The set of average catches of lobsters per trap-fishing-day on a particular day are plotted in charts, and averaged over the two-week test period. The averages are tested statistically, using the z-test for the difference between two means, to determine whether the catches in one region are significantly different at the 95% level from those of another region.

3 Results

3.1 Average yields by area

The table below gives some descriptive statistics of the yield in pounds per trap-fishing-day for a particular region, averaged over the period of the survey – the last two weeks in May. These means are plotted in Figure 1.

Region #	Mean catch (lbs per trap-fishing-day)	Standard error of mean catch (lbs per trap-fishing-day)	Variance of catches	Number of data points
1	0.51	0.05	0.16	57
2	0.29	0.05	0.06	28
3	0.52	0.05	.10	42
4	0.80	0.07	.12	24
5	0.74	0.07	.11	23

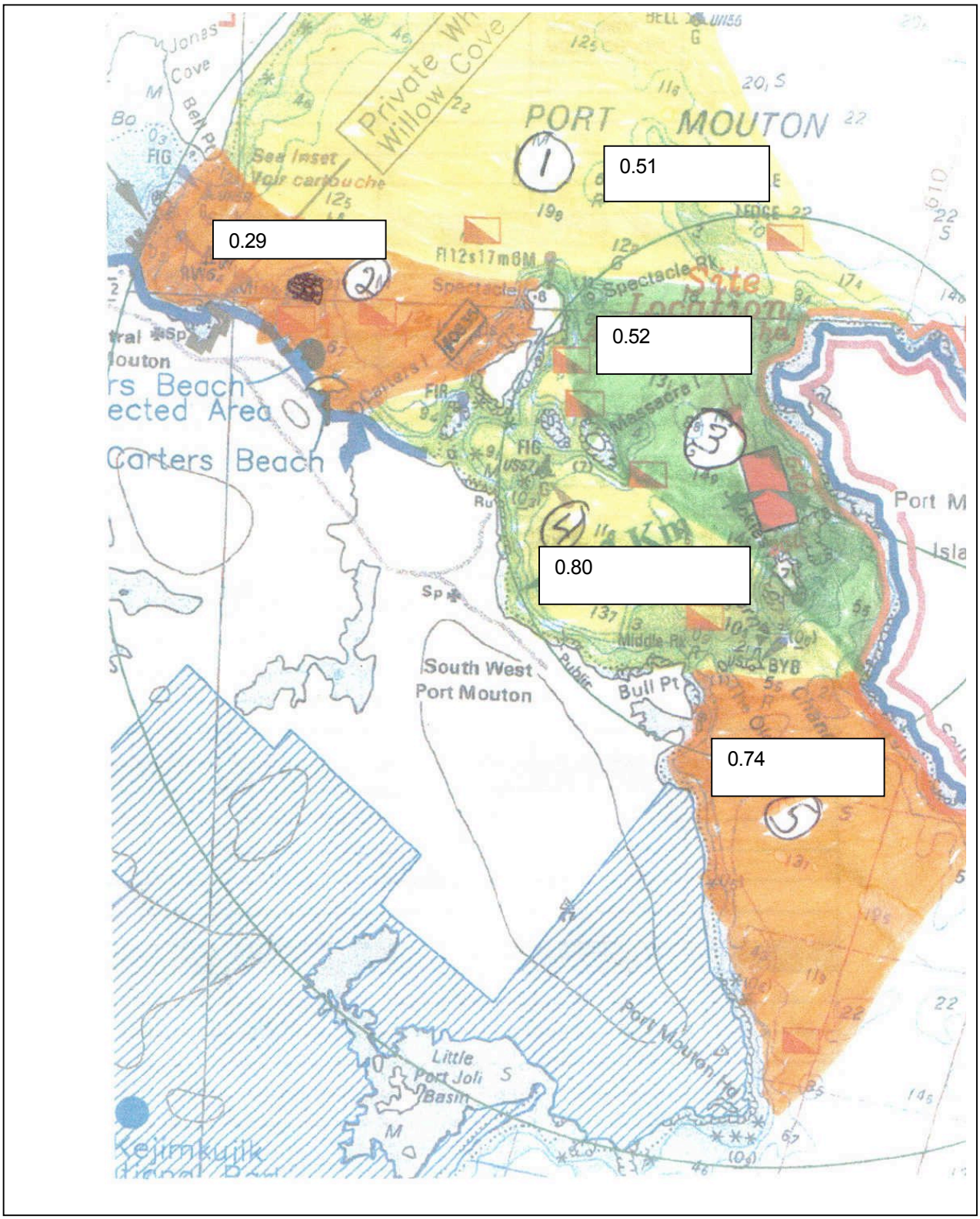


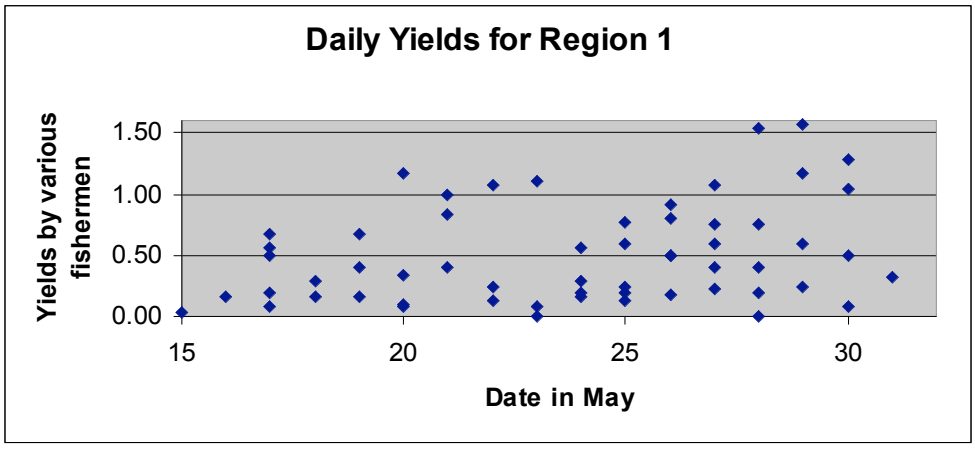
Figure 1. Average yield in pounds of lobster caught per trap-fishing-day in Port Mouton Bay, May 15-31, 2007

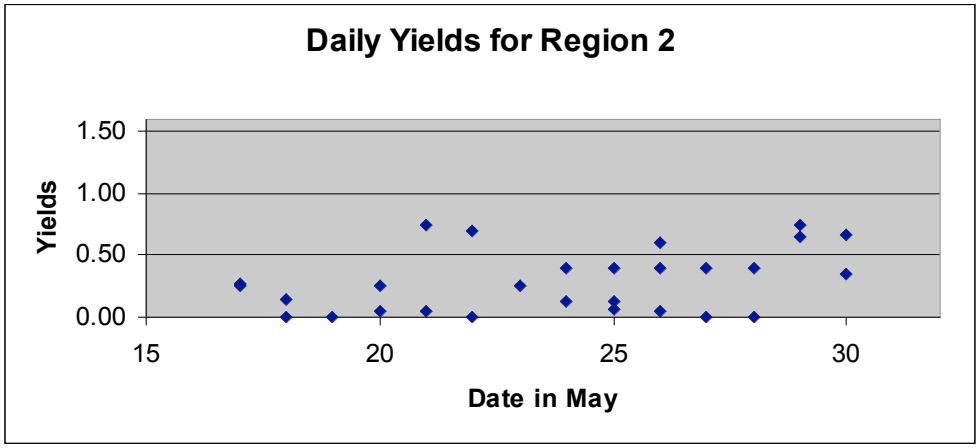
These mean yields were tested for significant differences. The means for Regions 1 and 3 were not significantly different from each other, nor were those for Regions 4 and 5. The mean yield for Region 2 was significantly lower than those for all other areas.

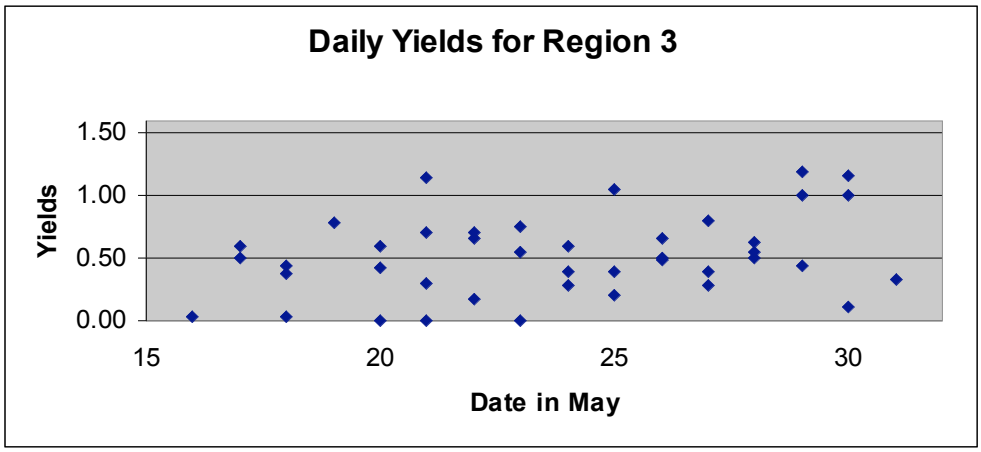
On a larger scale, the Hunt's Point fleet to the north, and the Port L'Hebert fleet, neighbouring on the southwest, both report catches per boat much higher than for the Port Mouton fleet.. Historically the catches in Port Mouton have been comparable with those of Hunts Point and Port L Hebert, but Port Mouton catches have been slowly declining in recent years. For the last week of the 2006-2007 season, catches per boat at Hunt's Point were 400 to 550 pounds, Port L'Hebert, 300 to 450 pounds, and in Port Mouton Bay, 100 to 250 pounds with few exceptions. (pers. comm. Brian Fisher).

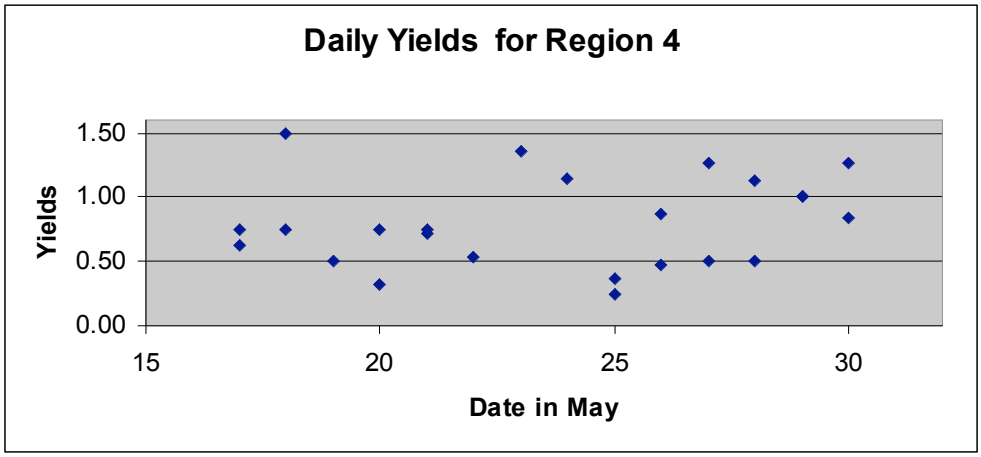
3.2 Daily yields (pounds caught per trap-fishing-day) by date for each Region

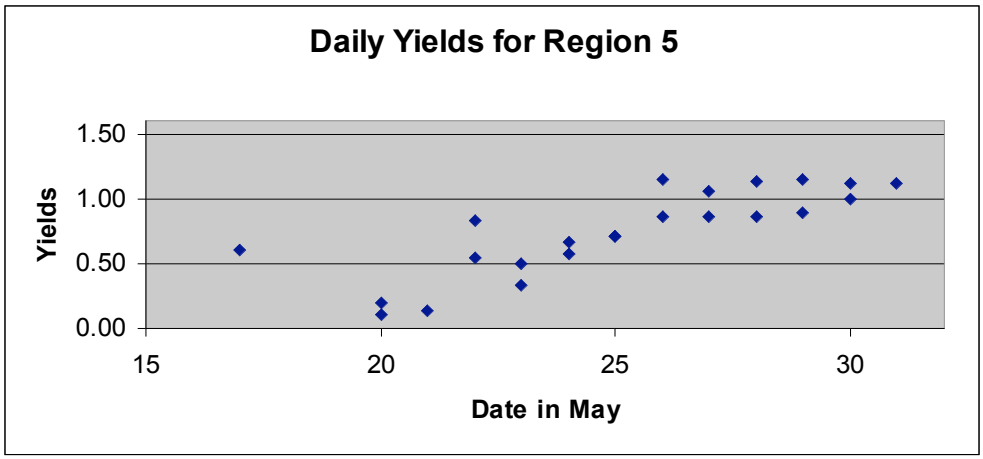
The following graphs (Figures 2 to 6) show the daily yields from the various boats fishing a particular region.











Figures 2 to 6 Daily Yields for the various boats fishing a particular region.

3.3 Numbers of seed lobster

For each region, the number of trap fishing days were totaled and associated with the number of seed lobsters caught/thrown back to calculate the number of seed lobsters caught per one-hundred trap-fishing-day for each region. The results are shown in Figure 7.

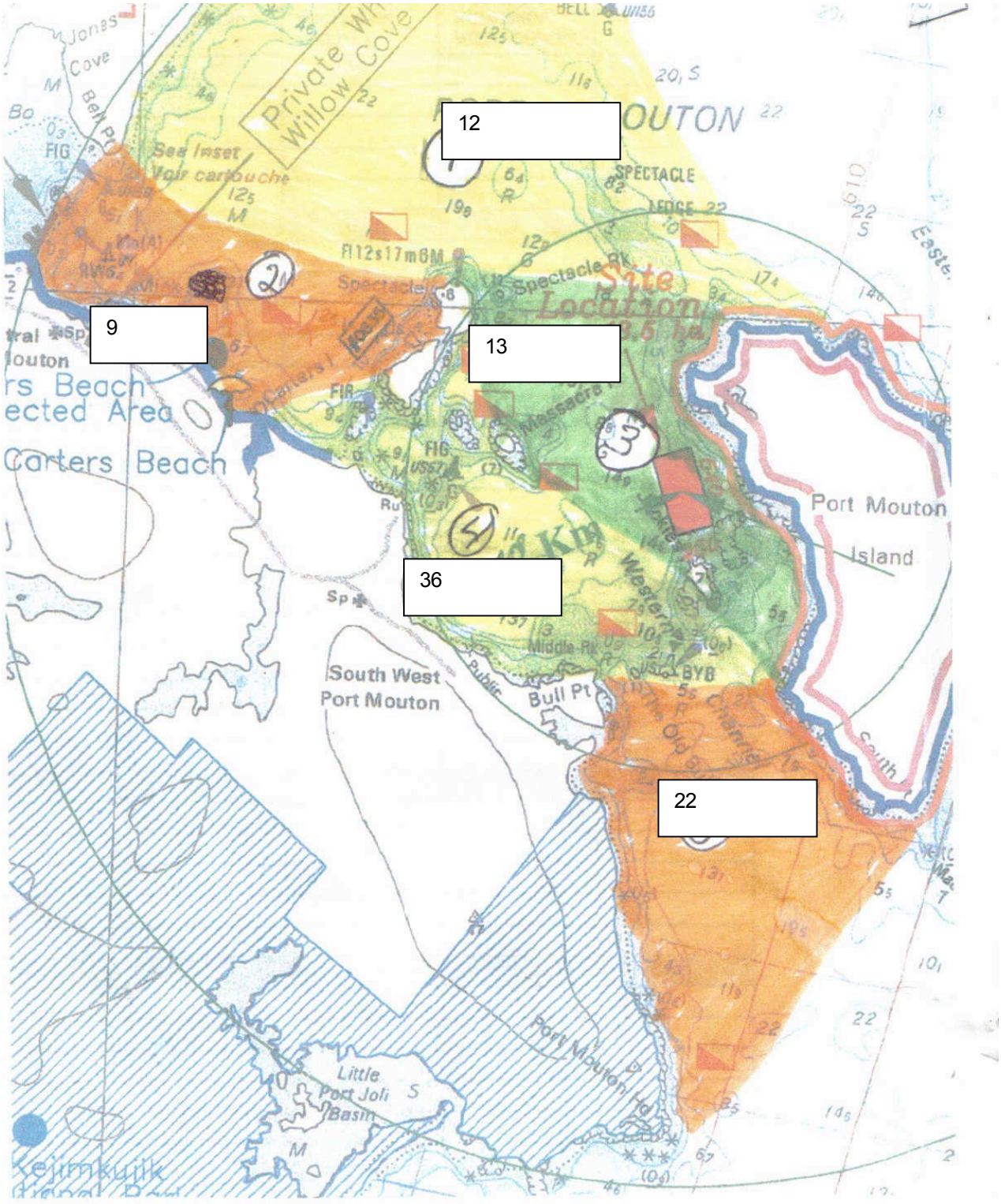


Figure 7. Numbers of seed lobsters reported per 100 trap-fishing-days for the five regions surveyed.

4 Interpretation

The data averaged over the whole 16-day period at the end of the season suggest, when mapped (Figure 1), that yields are being adversely affected in the inner Bay, particularly in Region 2, which as recently as 5 years ago was a prime lobster fishing region.

The daily catches per trap-fishing-day show no obvious tendency to increasing trends over the sampling period, with the exception of Region 5.

Seed lobsters appeared in the traps much less frequently in the inner bay regions, 1, 2 and 3.

Although comparable surveys were not done for the neighbouring fleets in Hunt's Point and Port L'Hebert, comparison of catches per boat showed that Port Mouton fleet catches were the lowest of the three by a considerable margin.

When we ask, "What has changed?", we are drawn to examine the emission of wastes from the existing salmon aquaculture farm at Spectacle Island. It is known that lobsters avoid areas with a (nephaloid) layer of particles of sediment wastes suspended above the seabed (B. Hargraves, pers. comm.).

5 Conclusion

The lobster per trap-fishing-day survey conducted in late May, 2007, produced yields for five contiguous areas in Port Mouton Bay. The yields (in pounds of lobster per trap-fishing-day) were significantly lower for Region 2 than for any of the other areas. Region 2, in the inner Bay, includes the existing salmon aquaculture farm west of Spectacle Island. Seed lobsters were also found less frequently in the inner Bay regions. The total yields for the five Port Mouton Bay regions surveyed were considerably lower than those of neighbouring communities. The results of this survey strengthen the likelihood that the salmon aquaculture wastes are degrading the habitat in Region 2, and, to a lesser, but still considerable extent, degrading the other regions surveyed as well.

6 References

Current Measurements in Port Mouton Bay, March 23, 2007. Friends of Port Mouton Bay.