

Project 11-014: Small Arms Off-Duty Recreational Mishap Analysis

Data

Data Range: FY05 to FY10

Data Source: WESS from February 8, 2011 and Centers for Disease Control and Prevention. Only CY05 to CY07 civilian small arms fatality rates are able to be obtained. The CY08 to CY10 civilian small arms fatality rates are estimated using linear regression. Only FY05 through FY09 civilian small arms injury rates are able to be obtained. The FY10 civilian injury rates are estimated using linear regression.

Bottom line Up Front

- As of 8 February 2011, no statistically significant difference in the FY10 Navy and Marine off duty small arms injury mishap counts and rates as compared to the 5-year averages.
- Marine off duty small arms FY10 fatality mishap rate is statistically significant higher than the previous fiscal years rates.
- Navy and Marine Corps off duty small arms injury mishap rates are statistically significant lower than the civilian small arms injury rate.
- Marine off duty small arms injury mishap rates are statistically significantly higher than the Navy off duty small arms fatal mishap rates.

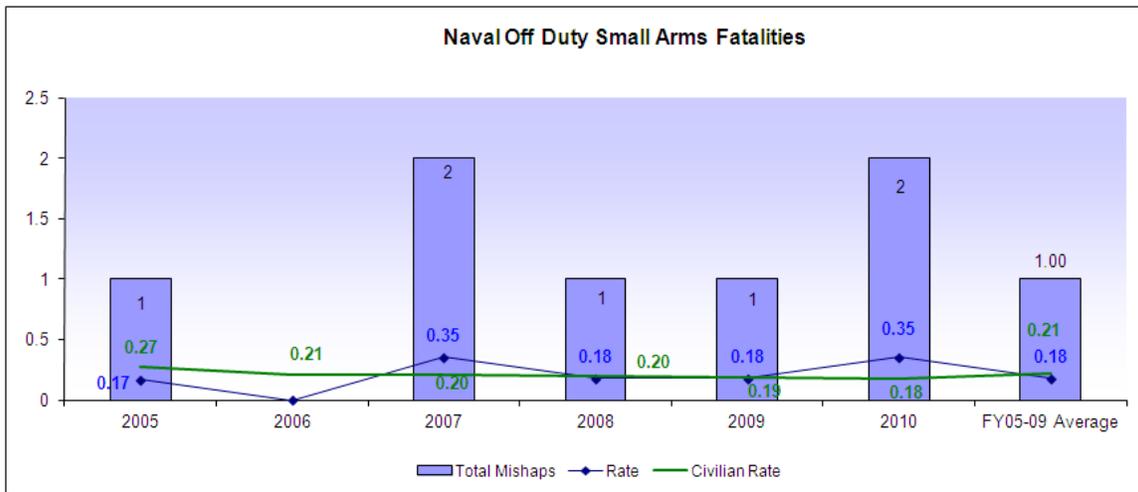


Figure 1: Naval Off Duty Small Arms Count and Rates

The graph in Figure 1 illustrates the total number of Naval off duty small arms fatal mishaps, Naval rate per 100,000 persons per fiscal year, the civilian small arms fatality rate acquired for the Center for Disease Control (CDC) and the FY05-09 average count and rates. The Naval rate and count appears to be relatively consistent over the six year period except for the rise in FY07 and FY10. In comparison to the civilian rate, the Naval rates seems to be relatively in line with the civilian rates except for FY07 and FY10 where there is an increase in the Naval rates.

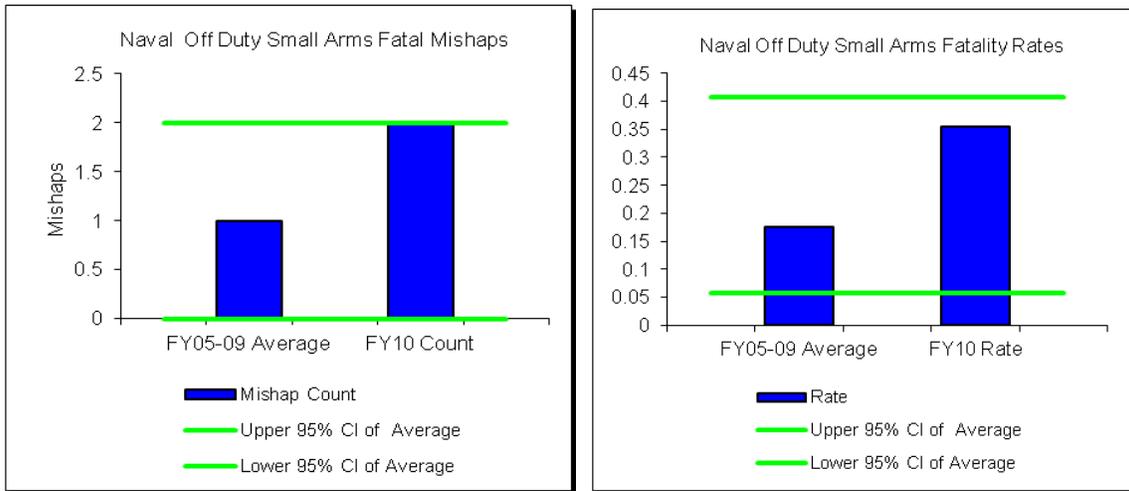


Figure 2: Naval Off Duty Small Arms Fatal Mishaps

The first graph in Figure 2 graphs the 5-year average for the Naval off duty small arms fatal mishaps and the number of off duty small arms fatal mishaps for FY10 along with the 95% confidence region denoted by the green lines. Using the Poisson distribution, the confidence interval range is calculated to be between 0 and 2 mishaps. Since the FY10 number of small arms fatal mishaps reported falls within this range, it can be concluded there is no statistical significant difference between the 5 year average and FY10 number of mishaps. The second graph in Figure 2 graphs the 5-year average Naval fatal mishap rate, the FY10 Naval fatal mishap rate and the 95% confidence interval depicted by the green lines. The FY10 rate falls within the confidence interval indicating no statistically significant difference between the FY10 rate and the 5-year average rate.

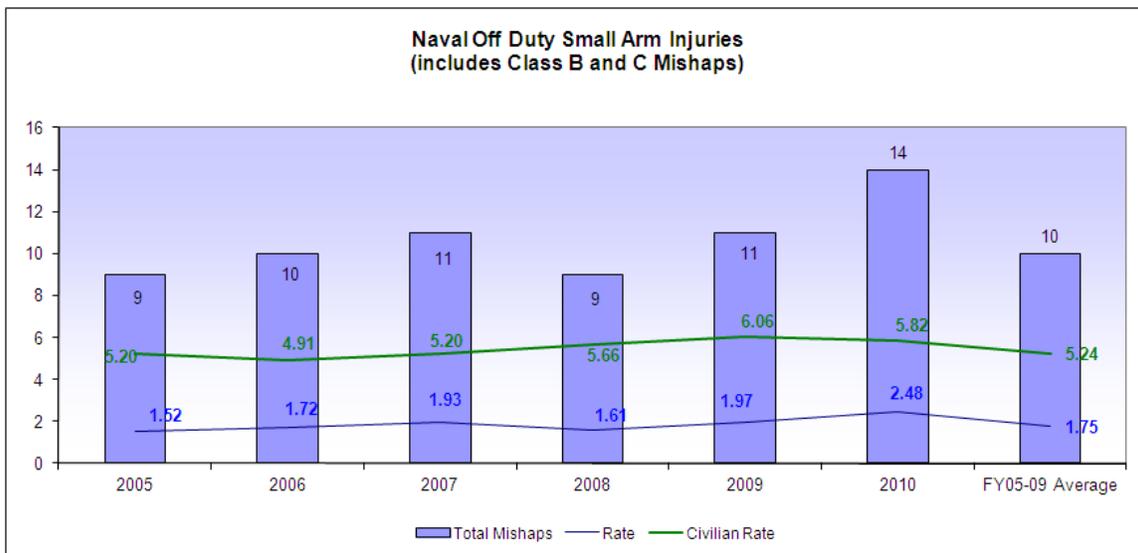


Figure 3: Naval Off Duty Small Arms Injury Mishaps

Figure 3 is similar to Figure 2 graphing the number of Naval off-duty small arms injury mishaps, the Naval rate per 100,000 persons per fiscal year, the civilian small arms injury

rate and the FY05-09 average count and rates. The Naval count and rate seems to be experiencing an increasing trend over the 5 year period ranging from FY05 through FY10. In comparison to the civilian small arms injury rate, the Naval rate is lower than civilian rate over the entire time period.

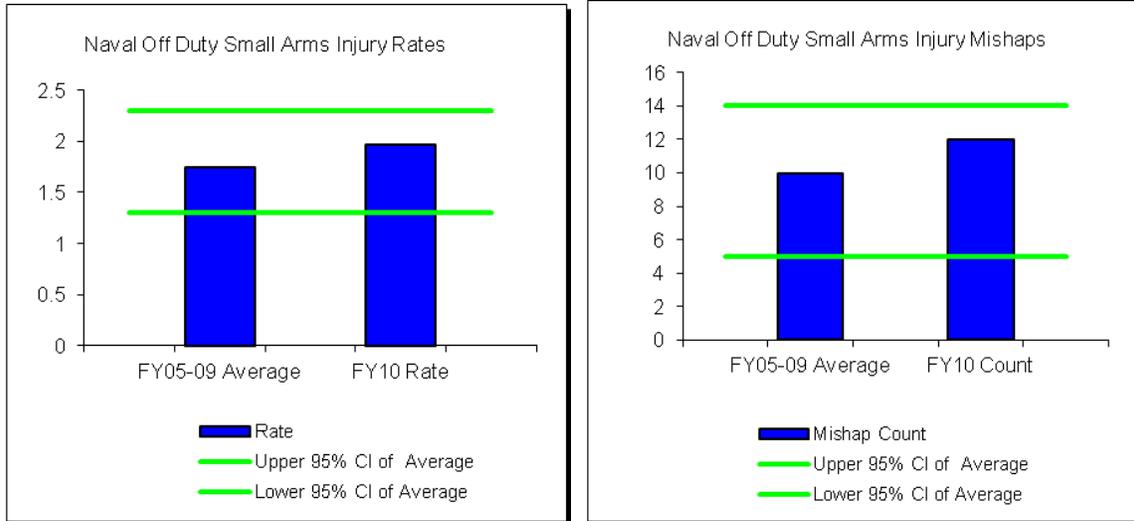


Figure 4: Naval Small Arms Injury Mishaps

The two graphs in Figure 4 are similar to the graph in Figure 2. The first graph charts the 5 year average of Naval off duty small arms injury rates and the FY10 Naval off duty small arms injury rate along with the 95% Poisson distribution confidence interval represented by the green lines. The next graph charts the 5-year count average of Naval off duty small arms injury mishaps and the number of Naval off duty small arms injury mishaps that have occurred in FY10 along with confidence interval. The FY10 rate falls within the confidence interval indicating there is no statistical significant difference in the FY10 rate as compared to the 5 year average rate. The outcome is the same for the number of Naval FY10 off duty small arms injury as with the rate. The FY10 number of injury mishaps falls within the confidence indicating no statistically significant difference.

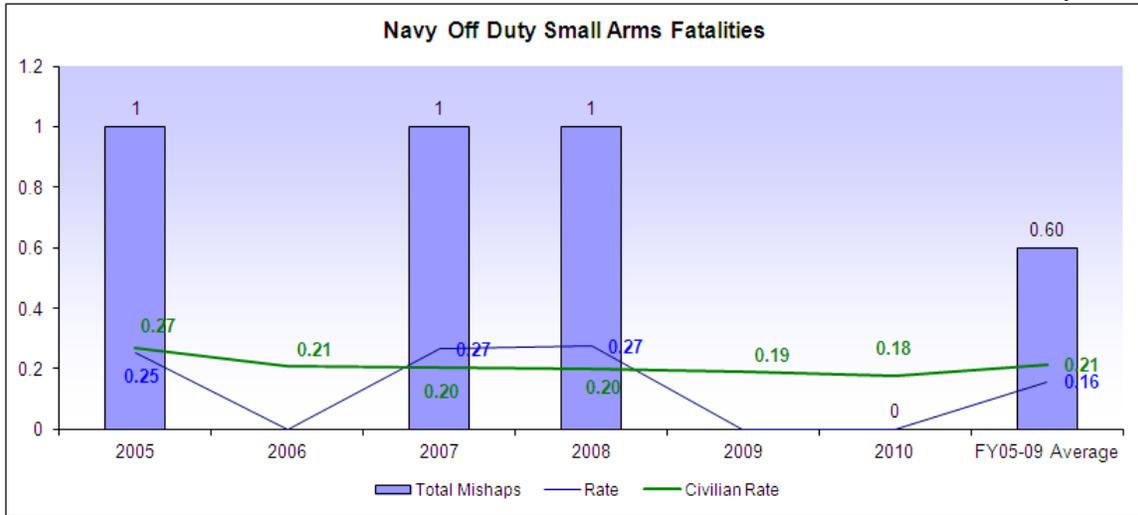


Figure 5: Navy Off Duty Small Arms Fatal Mishaps

Figure 5 graphs the number and rate per 100,000 persons of Navy Off duty small arms fatal mishaps, civilian small arms fatality rates acquired from the CDC, and the FY05-09 averages of number and rates. There is no obvious trend to the rate data.

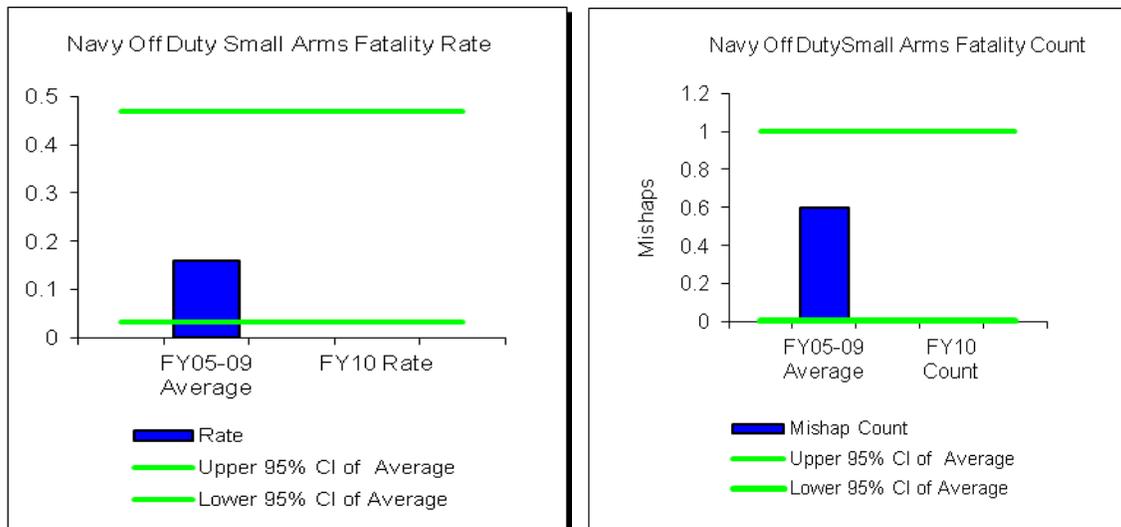


Figure 6: Navy Off Duty Small Arms Fatal Mishaps

When using the Poisson distribution to evaluate the FY10 number and rate of Navy off duty small arms fatal mishaps, the result is the same as for the Naval off duty small arms fatal mishaps depicted in Figure 2. There are no statistically significant differences between the FY10 Navy off duty small arms fatal mishap number and rate and the 5-year averages.

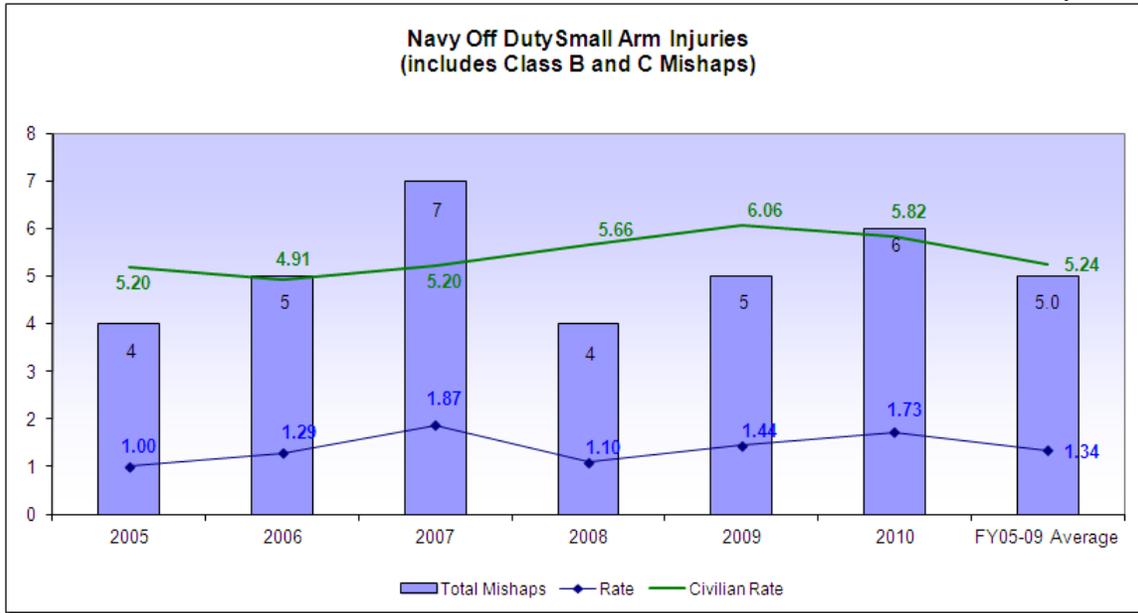


Figure 7: Navy Off Duty Small Arms Injury Mishaps

Figure 7 depicts the same type of information as Figure 3 above but only graphing the Navy off duty small arms injury counts and rates. The rate and number of mishaps for the Navy mishaps tends to be on an upward trend with a peak in FY07.

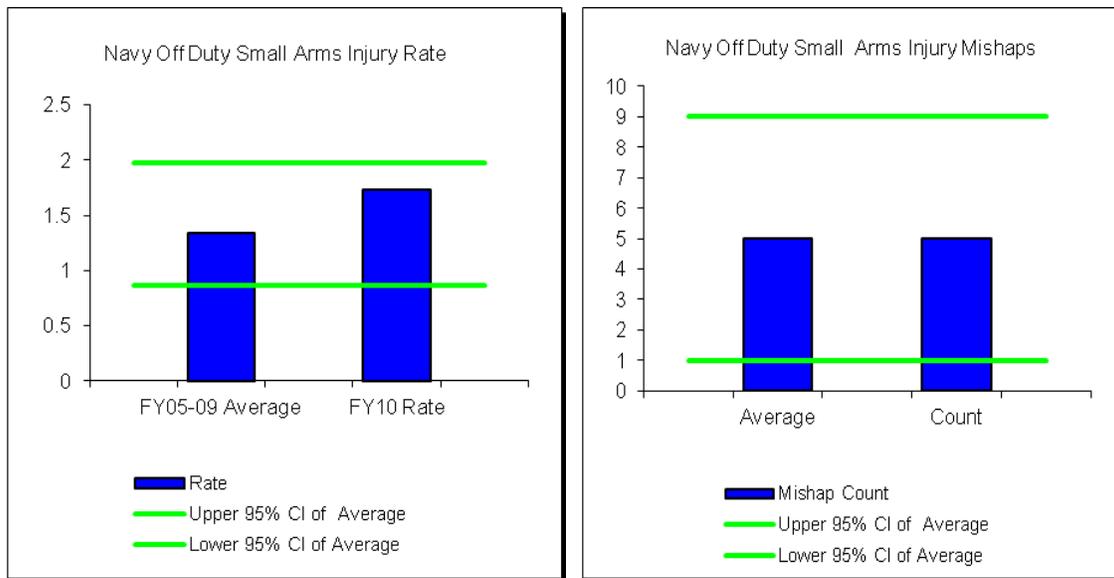


Figure 8: Navy Off Duty Small Arms Injury Mishaps

Just as in Figure 4 for the Naval data, Figure 8 graphs the 5-year average rate and the FY10 rate for Navy off duty small arms injury mishaps in the first graph and the 5 year average and the FY10 number of Navy off duty small arms injury mishaps along with the confidence intervals represented by the green lines. Presently, both the FY10 rate and the number of mishaps fall within the confidence intervals indicating no statistically

significant differences in the FY10 rate or number of mishaps as compared to the averages.

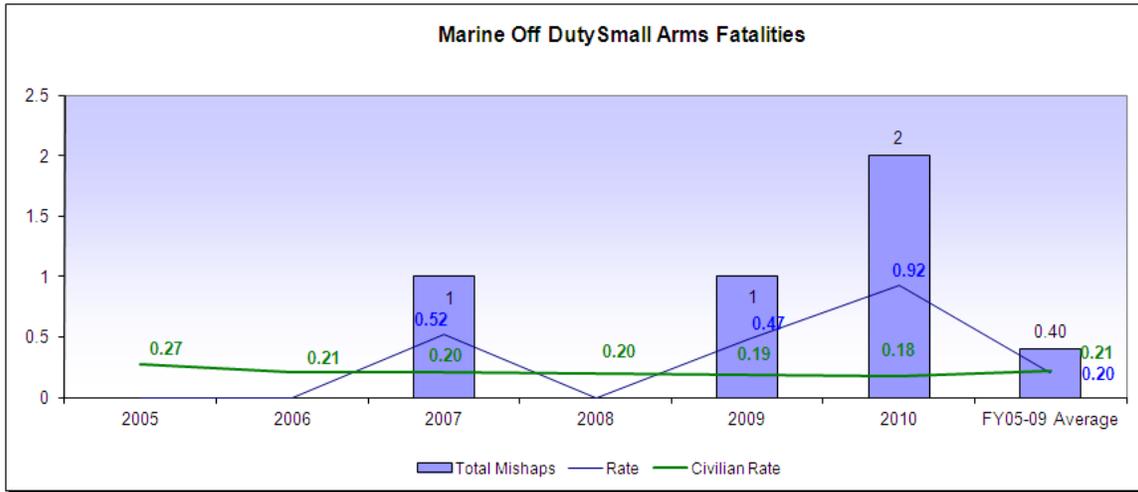


Figure 9: Marine Off Duty Small Arms Fatal Mishaps

Figure 9 graphs the number of mishaps and rates for Marine off duty small arms fatal mishaps for the period FY05 through FY10 in the same manner as the graph in Figure 1 above. The Marine small arms rates in FY07, FY09, and FY10 are above the civilian small arms fatality rates.

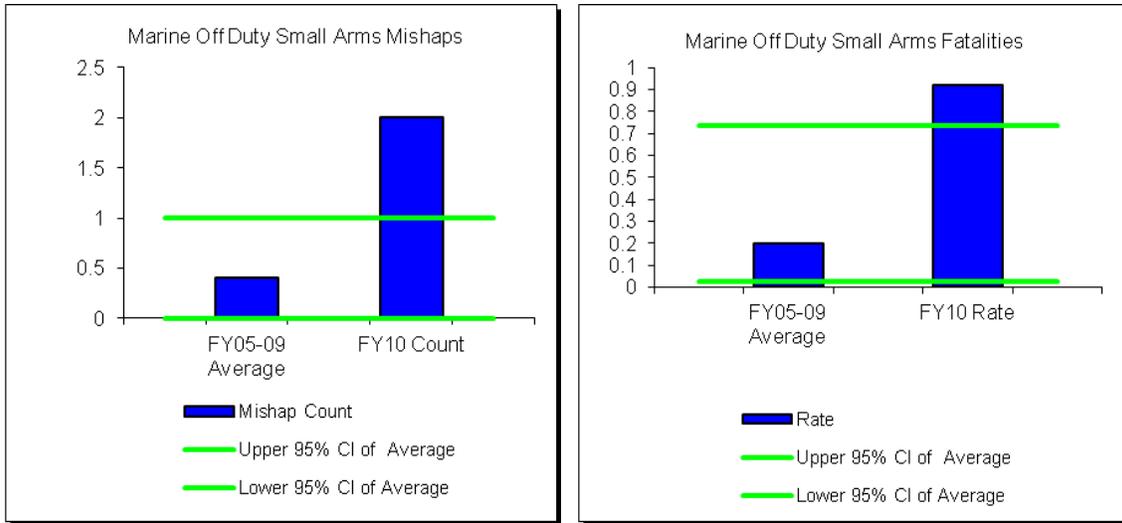


Figure 10: Marine Off Duty Small Arms Fatal Mishaps

The graphs in Figure 10 statistically compare the 5-year averages of the number and rates of Marine off duty small arms fatal mishaps and the FY10 number and rate of Marine off duty small arms fatal mishaps. For both graphs, the FY10 count and the FY10 rate are above the 95% confidence interval depicted by the green lines indicating that both the rate and count for FY10 are statistically significantly higher than the 5-year averages.

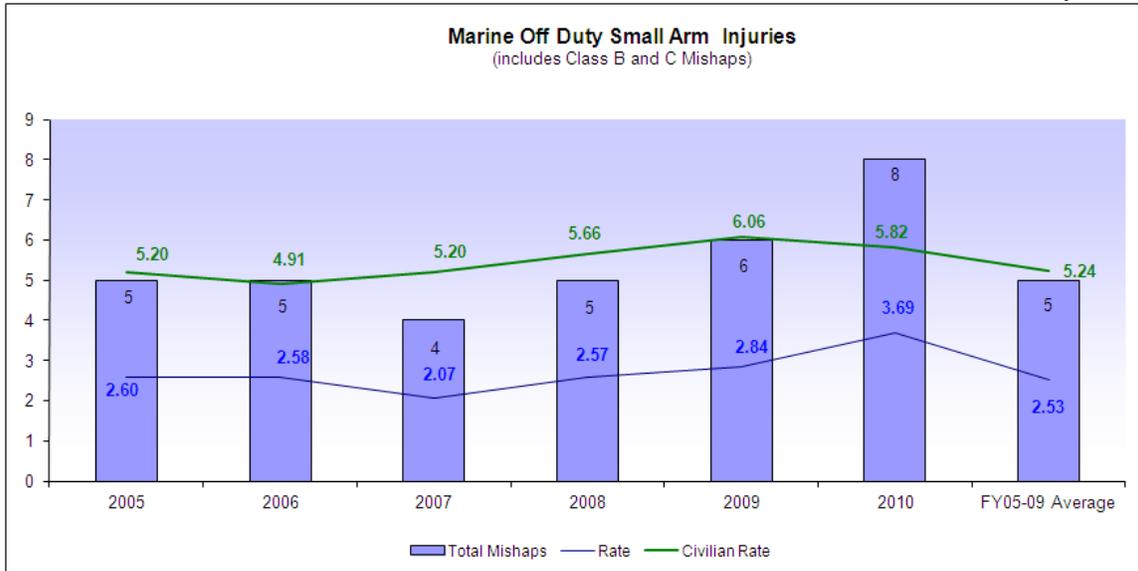


Figure 11: Marine Off Duty Small Arms Injury Mishaps

Figure 11 graphs the number and rates of Marine off duty small arms injury mishaps and the CDC civilian small arms injury rates beginning in FY05 to FY10. The Marine off duty small arms injury rate seems to be on an upward trend. In addition, the Marine rates are below the civilian rates.

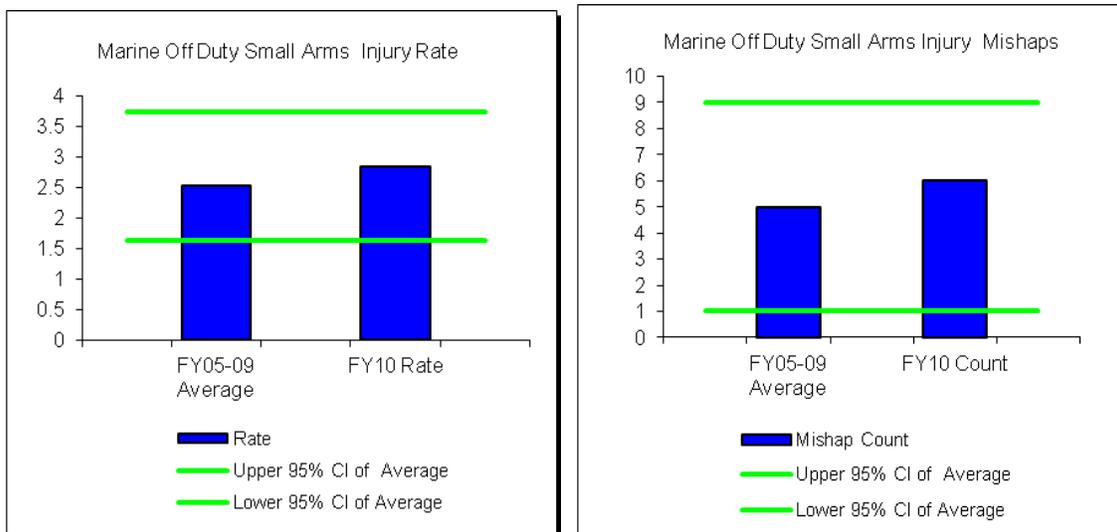


Figure 12: Marine Off Duty Small Arms Injury Mishaps

Figure 12 is the same types of graphs as in Figure 10 except the graphs chart the Marine off duty small arms injury mishaps data. As with the Navy mishaps, there is no statistically significant difference in the current Marine FY10 rate or count as compared to the 5-year averages.

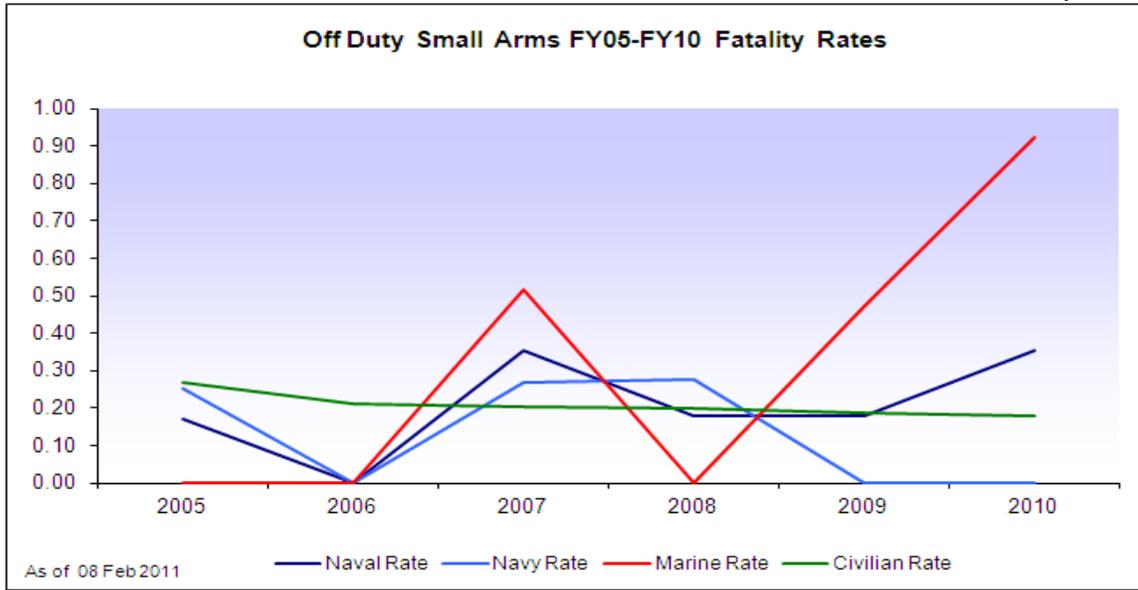


Figure 13: Off Duty Small Arms Fatality Rates

Figure 14 graphs the Naval, Navy, Marine and Civilian off duty small arms fatality rates from FY05 to FY10. The civilian rates tend to be consistent over the 5 year period. The Navy and Marine rates tend to fluctuate up and down. There is a large spike in the FY10 Marine off duty small arms fatality rate as compared to the previous years. When statistically comparing the civilian rate to the Navy and Marine rates, there is no statistically significant difference between the rates. When statistically comparing the Navy and Marine rates, there again is no statistically significantly difference between the rates.

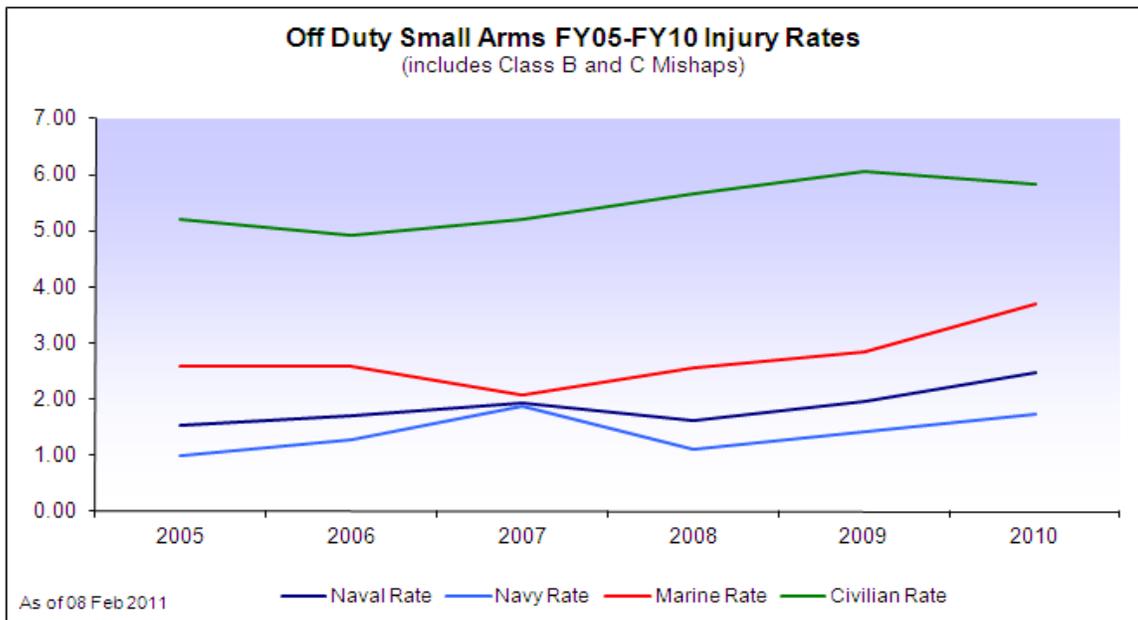


Figure 14: Off Duty Small Arms Injury Rates

Much like Figure 13, the graph in Figure 14 charts the Naval, Navy, Marine and civilian off duty small arms injury rates from FY05 to FY10. All the military rates are below the civilian rates for this time period. When statistically comparing the civilian off duty small arms injury rate with the naval rates, both the Navy and Marines rates are statistically significantly lower than the civilian rates. In addition, the Navy and Marine rates are statistically compared. The Marine off duty small arms injury rates are statistically significantly higher than the Navy rates.

Conclusion

There are no statistical significant differences in the Navy and Marine FY10 off duty small arms injury mishaps counts and rates as compared to the FY05-09 averages. For the FY10 off duty small arms fatal mishaps counts and rates, there are no statistical significant differences in the Navy's counts and rates. On the other hand, the Marine FY10 off duty small arms fatal mishap count and rate are statistically significantly higher than the FY05-09 averages.

When comparing the off duty small arms fatal rates for the Navy and Marine Corps to the civilian small arms fatality rates, there are few fiscal years where the Navy and Marine rates are above the civilian rates; however, when statistically comparing the civilian small arms fatality rates and the Navy and Marine rates, there are no statistical significant differences amongst the rates. The outcome differs when comparing the civilian small arms injury rates to the Navy and Marine off duty small arms injury rates. Both the Navy and Marine rates are statistically significantly lower than the civilian rates. In addition, the Marine off duty small arms injury rates are statistically significantly higher when compared the Navy off duty small arms injury rates.