While many devices arrive at digital forensics labs with water damage to our knowledge no comprehensive investigation of the device level effects of metal corrosion has been conducted previously. Through this study we have documented the internal reactions that occur in digital devices when they have been in contact with water. ECM happens when potential bias and water coexist with digital devices. In order to minimize the continuing damage caused by ECM the power supply namely the battery needs to be removed in a timely manner when handling a water damaged device. Additionally it needs to be noted that longer submersion time creates more metal corrosion, which makes device recovery processes much more difficult.   
**(~~be~~, ~~make~~, ~~remove~~, ~~document~~, ~~note~~, ~~conduct~~)**

When handling a water damaged device at a digital forensic lab, contaminants namely the metal corrosion products in the device need to be removed in order to avoid further damaging the device due to short circuits. In addition close investigation of the PCB components, especially those that require continuous and/or high voltage, needs to be conducted in order to identify faulty components and open circuits. If the device is missing critical electrical components required for booting, or the corrosion is severe enough to cause the loss of conductive metals on the PCB at multiple locations, chip-off or chip transplantation would be the last options. A clear understanding of metal corrosion can help ensure first responders and forensics investigators appropriately handle and analyze water damaged devices. Proper handling of water damaged devices during forensic analysis significantly improves the odds of successful data extraction.   
**(~~miss~~, ~~help~~, ~~be~~, ~~improve~~, ~~remove~~, ~~need~~)**